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BOOK OF ABSTRACTS

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ABSTRACT NUMBER	TITLE	CONFLICT DETAILS
O-5	Offering patients therapy options in unplanned start (OPT<i>i</i>ONS)-the characteristics of unplanned start patients completing education and choosing dialysis modality.	Anna Maschowska is supported by EU Marie-Curie Initial Training Network, EuTRiPD, European Training and Research in Peritoneal Dialysis, Call: FP7-PEOPLE-ITN-2010, Proposal Number: 287813, and by additional funding provided by Baxter Healthcare Corporation, is employed by Baxter Healthcare Corporation. Baxter Novum is a result of a grant from Baxter Healthcare Corporation to Karolinska Institutet.
P-15	Continuous ambulatory peritoneal dialysis (CAPD) outperforms continuous cycling peritoneal dialysis (CCPD) concerning the peritoneal clearance of low-molecular-weight-proteins exceeding a molecular mass of 20 kDa, demonstrated using C-terminal agrin fragment as a reference biomarker.	One of the co-authors, Stefan Hettwer is currently employed by Neurotune AG, Schlieren, Switzerland.
P-52	Remote monitoring for home dialysis: A landscape assessment of policies in 4 European countries.	Suzanne Laplante is an employee of Baxter Healthcare Corporation, who has sponsored the work to be presented in this poster.
P-71	A survey of beliefs and practices of healthcare professionals managing Chronic Kidney Disease and Renal Replacement Therapies in England.	The authors are employees of Baxter Healthcare providing renal replacement products and services used in the treatment of kidney disease.
P-86	Offering patients therapy options in unplanned start (OPT<i>i</i>ONS): hospitalization and infection rate in PD and HD patients.	Anna Maschowska is supported by EU Marie-Curie Initial Training Network, EuTRiPD, European Training and Research in Peritoneal Dialysis, Call: FP7-PEOPLE-ITN-2010, Proposal Number: 287813, and by additional funding provided by Baxter Healthcare Corporation, is employed by Baxter Healthcare Corporation. Baxter Novum is a result of a grant from Baxter Healthcare Corporation to Karolinska Institutet.
P-94	Peritoneal Dialysis Time on Therapy - An Independent Purpose Built Patient Education and Training Centre Compared to Standard Hospital Training.	The authors are employees of Baxter Healthcare providing renal replacement products and services used in the treatment of kidney disease.
P-117	Transcriptomic Effects of Peritoneal Dialysis Fluid Supplementation with Alanyl-Glutamine Dipeptide Suggest Peritoneal Immune-Modulation in a Pilot Trial	KK and RH are employees of Zytotec GmbH. CA is cofounder of Zytotec GmbH, a spin-off of the Medical University Vienna that holds the patent 'Carbohydrate-based peritoneal dialysis fluid comprising glutamine residue' (International Publication Number: WO 2008/106702 A1).
P-121	Injury-induced inflammation and inadequate HSP Expression in mesothelial cells upon repeat exposure to dual-chamber bag peritoneal dialysis fluids.	Rebecca Herzog and Klaus Kratochwill are employees of Zytotec GmbH. Christoph Aufricht is cofounder of Zytotec GmbH, a spin-off of the Medical University Vienna that holds the patent 'Carbohydrate-based peritoneal dialysis fluid comprising glutamine residue' (International Publication Number: WO 2008/106702 A1). Achim Jörres is consultant to Fresenius Medical Care. All other authors declare that there is no conflict of interest regarding the publication of this paper. Rebecca Herzog and Klaus Kratochwill are employees of Zytotec GmbH. Christoph Aufricht is cofounder of Zytotec GmbH, a spin-off of the Medical University Vienna that holds the patent 'Carbohydrate-based peritoneal dialysis fluid comprising glutamine residue' (International Publication Number: WO 2008/106702 A1). Achim Jörres is consultant to Fresenius Medical Care. All other authors declare that there is no conflict of interest regarding the publication of this paper.
P-124	Improved peritoneal immunocompetence in mice with peritonitis by addition of alanyl-glutamine to peritoneal dialysis fluid	Rebecca Herzog is a PhD student of the Medical University Vienna but also employed by Zytotec (spin-off start-up company of the University).
P-155	Peritoneal Fluid Transport During 16 Hours Long Peritoneal Dwells with Icodextrin.	Bengt Lindholm is employed by Baxter Healthcare. Baxter Novum is a result of a grant from Baxter Healthcare to Karolinska Institutet.

O-1

THE RELATIONSHIP BETWEEN INTERLEUKIN-6 AND MALNUTRITION AND OVERHYDRATION IN PERITONEAL DIALYSIS PATIENTS

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Objective

Chronic inflammation is a prevalent problem in peritoneal dialysis (PD) patients and is associated with numerous complications. The aim of the study was to evaluate the relationship between systemic interleukin-6 (IL-6) malnutrition and overhydration.

Methods

The study was performed on 57 PD patients who were divided into three equal subgroups according to serum concentrations of IL-6: group A: IL-6 < 0.8 pg/mL, group B: IL-6: 0.8-1.3 pg/mL, group C: IL-6 > 1.3 pg/mL. Serum IL-6 was evaluated using the highsensitive ELISA test. The degree of overhydration (OH) was assessed by bioimpedance analysis (BIA) and clinical criteria. Weight, body mass index (BMI), the nutritional status (SGA), serum concentration of albumin, fat and lean tissue mass (LTM) in BIA were performed to assess the presence of malnutrition.

Results

The data revealed a tendency for higher OH, weight, BMI, fat and SGA in groups with higher IL-6 (tab.1). The data also shows tendency to lower albumin and LTM in patients with higher IL-6 (tab.1). The IL-6 was also positively correlated to the OH (R=0.42; p=0.001), weight (R=0.34; p=0.009), BMI (R=0.33; p=0.012), fat (R=0.33; p=0.012) and SGA (R=0.34; p=0.009) and negatively correlated to the albumin (R= -0.35; p=0.009) and LTM (R= -0.37; p=0.005).

	Group A	Group B	Group C	P value
Overydration in BIA (L)	0.7±1.2	1.0±1.7	2.6±2.0	0.002
BMI	23.7±3.0	27.0±5.2	27.9±6.8	0.039
Weight (kg)	64.3±11.0	73.9±16.3	78.9±20.7	0.047
Fat (%)	31.5±7.0	36.6±7.7	38.9±13.3	0.043
LTM (%)	54.1±11.6	48.2±10.7	42.7±16.8	0.041
SGA	8.2±1.4	8.4±0.9	9.4±2.5	0.076
Albumin (g/L)	4.1±0.3	3.9±0.4	3.9±0.4	0.085

Conclusions

There is a correlation between serum concentration of IL-6 and malnutrition and hydration status in PD patients. In PD patients LTM, SGA and serum concentration of albumin seem to be better markers of malnutrition than weight and BMI.

Table.1. Selected parameters in the subgroups.

O-2

LONGITUDINAL EFFECT OF BIOCOMPATIBLE SOLUTIONS ON PERITONEAL SOLUTE TRANSPORT: RESULT FROM THE GLOBAL FLUID STUDY

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Long term PD is associated with adverse changes in the peritoneal membrane, such as an increased solute transport demonstrating increased vascularity. Biocompatible solutions (BCS) were developed to mitigate this damage, so we examined their effect on solute transport.

We analysed the Global Fluid Study, a multinational cohort study. Included adults had 3 or more PET measurements more than 2 months from the start of PD who remained on a single solution type. Follow up was up to 7.5 years (median of 2.3) in BCS and 12.8 (median 3.2) in standard solutions (SS). A random intercept/slopes linear mixed model assessed the effect of BCS on dialysate to plasma creatinine ratio (D/P Cr) over time for each solution, adjusted for glucose exposure, baseline dialysate IL-6 levels, Icodextrin, residual renal function (RRF) and peritonitis.

Of 366 patients, 71 received BCS (58 Baxter Physioneal(BP), 8 Fresenius Balance(FB) and 5 Gambrosol Trio(GT)). After 2 months of PD the BCS group had a mean predicted D/P Cr of 0.67 compared to 0.72 for the SS group (p=0.02). The trends over time also differed (p=0.002), with the BCS group D/P Cr increasing initially, peaking at 0.749 by 2.1 years, with no further increase. SS had a continuous increase in D/P Cr. A sensitivity analysis split patients into BP and FB/GT with a difference between groups of borderline significance (p=0.06). Peritonitis correlated with an increase in D/P Cr of 0.019 per episode for SS (p<0.0001), but there was no effect in BCS (p<0.0001). Baseline dialysate IL-6, RRF, glucose exposure and Icodextrin also predicted D/P Cr.

The temporal course of solute transport varies between biocompatible and standard solutions, which may vary between brands. Peritonitis has long term effects on solute transport, but not with biocompatible solutions.

O-3

HIGH PERFORMANCE EXPLORATION OF THE PERITONEAL PROTEOME FOR DETECTION OF LOW ABUNDANCE BIOMARKERS AND EFFECTS ON CELLULAR PROTEINS IN CLINICAL PERITONEAL DIALYSIS EFFLUENTS

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PD effluent (PDE), represents an easily available sample material and a rich source of biomarkers for monitoring disease and therapy. Although this information could help guiding renal replacement therapy, little is known about the potential of PDE as a source of biomarkers, due to high abundance plasma proteins.

Here we present the utilization of a high performance proteomics approach based on enrichment of low abundance proteins and highly sensitive identification and quantitation using tandem mass tags (TMT).

Stable PD patients (n=20) received either standard PD fluid (Dianeal®, Baxter-Healthcare) or PD-protect™ (Dianeal® with added alanyl-glutamine (AlaGln)) in an open-label, randomized, two-period, cross-over clinical trial (Eudract-2010-022804-29). PDE samples were depleted from high abundance plasma proteins using a bead-coupled combinatorial hexapeptide-library and enriched low abundance proteins were subjected to TMT-labeling and filter-aided sample preparation liquid chromatography coupled to mass spectrometry (FASP-LC-MS).

Using the presented workflow, we could significantly increase the coverage of the PDE proteome. Whereas all recent publications combined were able to identify only 144 unique proteins, our study identified more than 1100 unique proteins ranging from high abundance plasma proteins to low abundance cellular proteins and covering biological processes from all major categories.

Interestingly, two recently proposed markers for peritoneal membrane integrity, which have shown to correlate with the time of the therapy, are affected by AlaGln addition. Our results indicate that treatment with PD-protect™ may alter the abundance of these cell derived marker proteins in a way, resembling a more favorable PD vintage.

Our study is the first randomized controlled PD-trial utilizing proteomics techniques to investigate cell derived biomarkers for pathomechanisms altered by a novel therapeutic intervention. The results of this trial should not only help to establish ideal biomarkers for disease staging and monitoring of the therapy but also for evaluation of cytoprotective interventions in PD.

O-4

EFFECT OF IL-6 TRANS-SIGNALLING ON VEGF PRODUCTION BY HUMAN PERITONEAL MESOTHELIAL CELLS

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Objectives

Vascular endothelial growth factor (VEGF) is thought to be a key mediator of adverse peritoneal angiogenesis and remodelling that limits peritoneal ultrafiltration in PD. However, the exact mechanism of VEGF induction in the PD setting is unclear. The link between peritoneal IL-6 and VEGF has long been postulated, but its mechanism remains obscure. Human peritoneal mesothelial cells (HPMC) are the main source of both IL-6 and VEGF in the peritoneum. However, HPMC cannot respond to classical IL-6 signalling as they do not express IL-6 receptor (IL-6R). Here, we have examined whether HPMC can be stimulated to synthesise VEGF through IL-6 trans-signalling that involves soluble IL-6R (sIL-6R).

Methods

HPMC were isolated from normal omentum. Dialysate effluent was obtained from stable PD patients and during peritonitis. VEGF mRNA and protein levels were measured by RT-qPCR and ELISA respectively. The involvement of transcriptional factors was assessed by EMSA and transient HPMC transfection with VEGF promoter constructs.

Results

IL-6 and sIL-6R alone had no effect on VEGF release by HPMC. However, the exposure to IL-6 together with sIL-6R resulted in a time- and dose-dependent induction of VEGF mRNA and protein. The combination of IL-6+sIL-6R activated the VEGF promoter region that contained high affinity binding sites for the transcription factor SP4. Conditioned medium from HPMC treated with IL-6+sIL-6R stimulated endothelial tube formation. Exposure of HPMC to dialysate effluent obtained during acute peritonitis and containing high levels of IL-6 and sIL-6R resulted in a dose-dependent VEGF induction. The effects of conditioned media and the dialysate were significantly attenuated by silencing SP4 with siRNA.

Conclusions

Dialysate IL-6 and sIL-6R act through the trans-signalling pathway controlled by SP4 to up-regulate VEGF production in the peritoneal mesothelium, thus pointing at an important link between inflammation and angiogenesis in the peritoneal membrane.

O-5

OFFERING PATIENTS THERAPY OPTIONS IN UNPLANNED START (OPTIONS)- THE CHARACTERISTICS OF UNPLANNED START PATIENTS COMPLETING EDUCATION AND CHOOSING DIALYSIS MODALITY

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Objectives

Unplanned dialysis is a common and important problem in Europe and across the world as 30-50% of patients may commence therapy in such way. Those patients are known to have increased morbidity and mortality, have higher utilization of healthcare resources and, due to the acute nature of presentation, are less likely to be offered peritoneal dialysis (PD) as a therapy option. The aim of the study was to evaluate the impact of an educational programme on modality choice made by UPS patients and to characterize PD and HD patient groups after completing education.

Methods

OPTIONS was a non-interventional, prospective, multi-centre, observational study of UPS subjects starting dialysis therapy. 26 centres in 6 European countries participated and implemented the UPS Programme into routine clinical practice. The 270 recruited patients fulfilled the inclusion criteria for UPS, gave informed consent and were followed for 12 months.

Results

157 evaluable subjects completed education and made a decision on modality, with 91 choosing PD and 66 choosing HD. PD and HD patients were similar in regards to patient demographics, comorbidity and hospitalization for unplanned start. There was a difference in the referral pattern: in HD group 50% were referred from primary care and 50% from other hospital specialty and in PD group 62.6% from primary care, 36.4% from other specialty and 1.1% missing/unknown. Patients were from either in-patient referral or out-patient referral - HD patients 57.6% and 42.4% and PD patients 73.6% and 26.4% respectively.

Survival analysis showed a hazard ratio of PD/HD=0.79 after adjusting for confounders.

Conclusions

It is possible to educate unplanned start patients and allow decision making on therapy choice. Unplanned start PD patients completing education have similar patient characteristics in terms of age and comorbidity to those choosing HD.

O-6

IMPACT OF TYPE OF REFERRAL AND DIALYSIS START ON CLINICAL OUTCOMES AND FINAL RENAL REPLACEMENT THERAPY IN A MULTICENTER INTEGRATED CARE SETTING

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Early referral, choice of RRT modality and planned start may increase patient survival, however international reports show disparities between desirable patterns and practice.

Objectives

To analyze the effects of Integrated Care and education on dialysis start (planned vs. non-planned) and RRT modality choice.

Methods

Retrospective analysis of 547 incident patients starting dialysis in 23 HD/PD clinics from Poland, Hungary and Romania during 2012. Scheduled initiation of dialysis with a permanent vascular or peritoneal access was considered as planned start.

Results

Population: 30% diabetes, mean age 64 years, 84% with previous medical care of renal disease, 49 % late referral, 58 % unplanned start, 92% on HD as modality. 37% of those with unplanned start had previous Nephrology follow-up.

Patients (n=332) with GFR <30 ml/min were followed up mainly by "general nephrologists" (68%) and 29% in structured predialysis units

Modality information (80% of all patients) and general renal education (87%) were more frequent (p<0.001) in planned start. Half of patients were involved in therapy choice whereas informed and dialysis start consents were signed by 57% and 77%. The median time from information to dialysis start was 2 months. Unplanned start (p≤0.05) correlated with nephropathy of uncertain origin, worse clinical status, shorter time from information to RRT start and less PD use.

Patient non-compliance (36%) and unexpected GFR loss (19%) contributed to unplanned start. "Optimal care" defined as combination of Nephrology follow-up (> 3 months), modality information and planned start occurred in 22% of the patients.

Conclusions

Despite the high rate of late referral, information and education were widely provided. Unplanned start was frequent and may underlie the low frequency of PD choice. Measures such as implementation of structured predialysis units may facilitate better and timely referral and improve well-being and planning of RRT start as well as increased PD use.

O-7

UREMIA AND PD-INDUCED TRANSFORMATION OF THE PERITONEAL MEMBRANE VASCULATURE – FINDINGS FROM THE INTERNATIONAL PEDIATRIC PD BIOBANK

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The International Pediatric PD Biobank defines age dependent PD membrane ultrastructure and time dependent uremia and PD related alterations.

29 centers in 16 countries collected 299 standardized peritoneal and 185 omental specimens from 96 healthy children and 31 adults (0.1-65.0 years), 103 children at time of first PD catheter insertion and from 76 children on PD (0.1-20.1 years), 64 treated with low GDP fluid. Aperio® and Nanozoomer/NDP Systems® were used for automated analyses.

The parietal peritoneum exhibits marked age dependent differences in thickness and vascular density, with highest blood capillary density and endothelial exchange area in infancy and lowest values in early adolescence, whereas lymphatic capillary density is low throughout. Capillaries and nerves are mainly bundled in three distinct submesothelial layers. Omental blood capillary density correlates with parietal density ($r=0.7$), small lymphatic vessels are few. Uremia reduces omental capillary density. PD with low GDP fluids results in progressive loss of the mesothelial cell layer, submesothelial thickening (albeit without compact zone formation), upregulation of TGF- β /pSMAD, VEGF, activated fibroblasts and CD45/CD68+ macrophages and a 2-3 fold increase in homogeneously distributed blood capillaries, devoid of vasculopathy. Lymphatic vessel density remains low. Alterations appeared more pronounced with high GDP PD-fluids, as were EMT and profibrotic CD90+ fibroblast subpopulations. Transcriptomics (Illumina®) and proteomics (tandem mass-tag-based LC-MS) from microdissected omental arterioles from age matched, low GDP fluid treated, peritonitis free patients and uremic controls revealed regulation of inflammatory, immunological and angiogenesis related gene groups, with highly concordant regulation of complement system pathways on gene and protein levels.

Peritoneal vascularization exhibits marked age dependent particularities. Despite low GDP fluid usage, progressive capillarization of blood but not of lymphatic vessels develops with time on PD. Whole genome and proteome analyses indicate the role of inflammation and immune related pathways, with striking involvement of the complement system.

O-8

CD69 LIMITS PERITONEAL FIBROSIS BY REGULATING THE BALANCE BETWEEN T HELPER 17 AND REGULATORY T CELLS

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Objectives

CD69 controls the T helper 17 (Th17) / T regulatory (Treg) cell balance in various inflammatory diseases. However, the mechanisms by which these T cells subsets regulate tissue fibrosis and the role of CD69 in this process remain largely unknown. Herein, we explored the role of CD69 in peritoneal fibrosis.

Methods

In order to describe the role of CD69 in peritoneal fibrosis and a possible mechanism, we performed bone marrow transplantation experiments and in vivo blocking of CD69 and IL-17 experiments, always by treating with PD fluid for a period of 40 days.

Results

We found that CD69^{-/-} mice showed enhanced fibrosis, mesothelial to mesenchymal transition, IL-17 production and Th17 cell infiltration in a model of peritoneal fibrosis. Mixed bone marrow from CD69^{-/-} and Rag2yc^{-/-} transplanted into WT mice reproduced the disease in CD69^{-/-} mice, thus CD69 exerts its function within the lymphocyte compartment. A CD69 blockade in WT mice mimicked the fibrotic response of CD69^{-/-} mice. Conversely, an IL-17 blockade in CD69^{-/-} mice reduced the Th17 response and decreased peritoneal fibrosis.

Conclusions

Thus, CD69 modulates Th17-mediated responses and negatively regulates peritoneal fibrosis.

P-1**PERITONEAL ULTRAFILTRATION FOR REFRACTORY FLUID OVERLOAD AND ASCITES DUE TO PULMONARY ARTERIAL HYPERTENSION**

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Case Report

Pulmonary hypertension is a common finding in patients with advanced liver disease. Similarly, among patients with advanced pulmonary arterial hypertension, right heart failure leads to congestive hepatopathy. Diuretic resistant fluid overload in both advanced pulmonary hypertension and chronic liver disease is a demanding challenge for physicians. Venous congestion and ascites-induced increased intra-abdominal pressure are essential in progression to chronic kidney disease, recurrent hospitalization, morbidity and mortality. Due to impaired right-ventricular function, many patients cannot tolerate extracorporeal ultrafiltration. Peritoneal dialysis, a well-established, hemodynamically tolerated treatment for outpatients may be the best option to control fluid status. We present a patient with pulmonary arterial hypertension and congestive hepatopathy hospitalized for over 3 months due to ascites induced refractory volume overload treated with peritoneal ultrafiltration. We report the treatment benefits on fluid balance, cardiorenal and pulmonary function, as well as its safety. In conclusion, we report a case in which peritoneal ultrafiltration was an efficient treatment option for refractory ascites in patients with congestive hepatopathy.

P-2**THE SURGERY OF CARDIO-NEPHROLOGY: OUR EXPERIENCE**

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The refractory Cardiac Failure is a chronic condition seriously compromising the patients quality of life, often associated with significant complications, most notably the kidney damage, with severe burden on the national health service. Therefore, an increased ambulatory care is the focal point in the management of this complex pathology.

In our dedicated out-patient's clinic for patients with refractory cardiac failure and kidney failure, we particularly focused on clinical examination of the patient, specifically hydration state and non-invasive hemodynamic evaluation (ecodynamic).

We use bioimpedance vector analysis (BIVA), non-invasive technique to assess hydration status and body mass, resistance and reactance measurements. The Eco-Dynamics evaluation used as a tool for non-invasive monitoring of the patient over the assessment of systolic function, fraction of ejection, stroke volume and indexed cardiac output, to evaluate diastolic function and semi-quantitative estimation of left ventricular end-diastolic pressure.

The Lung-ultrasound with the detection of lung comets is also used to evaluate the interstitial edema. The vena cava excursion of during breathing is an indirect index to estimate the central venous pressure.

The integrated management model between cardiologists and nephrologists allowed to clinically stabilize "frequent flyers" patients through patients and their care givers active and responsible involvement in the disease management.

We have observed in over two years of practice activity, patients quality of life improvement and a 40% reduction in rates of rehospitalization in these very frail patients.

P-3**CARDIOVASCULAR RISK IN A ONE-CENTER PERITONEAL DIALYSIS PATIENTS: IS IT POSSIBLE TO PREDICT IT?**

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Objectives

Analyze the correlation of volume overload, nutrition status and CKD-MBD biochemical markers with clinical cardiovascular events in a group of CKD incidents patients on PD in a single center.

Methods

Prospective study of 112 incident pts admitted during 5 years (yrs) in a PD program. Analyzed demographic, clinical, laboratory parameters at the beginning and at the last follow up, aortic and mitral valvular calcification, type of PD solutions, hospitalizations, cardiovascular events and deaths.

Results

We studied 112 CKD patients (65,2% male, 37,8% diabetic, mean age 53,12±16,1 (20-85) years, body mass index (BMI) was 25,74±4,66 Kg/m²) during 22,14±15,70 months. Phosphorus > 5,4 mg/dL, iPTH > 500 pg/ml, Bone alkaline phosphatase < 18 U/l and nPCR < 1 g/Kg/day were respectively detected in 26,4%, 31,2%, 63,4% and 50%.

During the follow up period in PD, no changes were found in: calcium: 9,05 vs 9,03 mg/dL and nPCR: 0,95 vs 0,92 g/Kg/day (pns). It was found a increase in PTHi levels (469,97 vs 624,69 pg/ml, p= 0,001), bone alkaline phosphatase (16,18 vs 21,03, p= 0,011) and Phosphorus (5,03 vs 5,62 mg/day, p<0,001). The eGFR: 6,76 vs 4,49 ml/min/1,73 m², p< 0,001 and dialysis efficacy (Kt/v: 2,48 vs 2,26, p: 0,017) were deteriorated through time. Eight (7,14%) pts died, 24 (21,4%) started hemodialysis and 12 (10,7%) had cardiovascular events. In Cox regression, mitral calcification (HR: 5,89, CI: 1.4-23.9, p= 0.013), age (HR: 1,11, CI: 1,03-1,19, p=0.013), use of icodextrin solution (HR: 29,7, CI: 4,8-219, p=0.001) and nPCR (HR: 5.32, CI: 2.1-13.0, p = 0.001) were independent predictors of cardiovascular events or death.

Conclusions

The older age, extracellular volume overload (requiring DP solutions with glucose polymer), subnutrition and mitral calcifications were important predictors of mortality in PD patients.

P-4**TREATMENT OF REFRACTORY HEART FAILURE WITH ONE EXCHANGE OF PERITONEAL DIALYSIS**

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Refractory heart failure (RHF) can limit daily life despite optimal medical therapy. Patients with RHF have advanced structural heart disease and congestive heart failure. Peritoneal dialysis (PD) is an option for treatment in these patients.

We included 12 patients with RHF treated with PD between May 2012 and January 2015.

58.3% (7) of the patients were male. Average age of onset of PD was 69.67 ± 7.42 years. The aetiology of heart failure was ischemic heart disease in 33.3% (4), dilated cardiomyopathy in 33.3% (4), valvulopathy in 25% (3) and pulmonary hypertension in 8.3% (1).

All patients underwent one nocturnal exchange (2000 cc) with icodextrin during 10 hours. 11 patients were class IV of NYHA (New York Heart Association) at onset of treatment. After 6 months all patients were class II.

We observed a lower volume overload and improvement in dyspnoea at 6 and 12 months after PD treatment. All patients ameliorate NYHA functional class. There were no episodes of peritonitis in any of the patients included. Patients had previous hospital stay of 32 days/year (range 9-93). Within the year after starting PD, hospitalization length was significantly reduced to 4.5 days (range 0-40).

Patients were undergoing PD for a median time of 8 months (range 1-30). At the end of the study, 6 of patients have died, 5 are still in PD and one has received a heart transplant.

According to our results, we can conclude that PD as a treatment for RHF improves clinical condition and decreases functional NYHA class; oedema and hospital stay so it should be considered as a therapeutic option.

Further studies, with a larger cohort of patients and a longer follow-up period, are needed to determine whether PD improves survival in RHF patients.

P-5

INVOLVEMENT OF TLR4 AND NALP3 INFLAMMASOME IN THE DEVELOPMENT OF ENDOTHELIAL DYSFUNCTION IN PERITONEAL DIALYSIS PATIENTS

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Objectives

Chronic kidney disease (CKD) is associated with an increased cardiovascular risk, which is related in part to the development of endothelial dysfunction, whose mechanisms are still unclear. Accumulation of uremic toxins and proinflammatory cytokines constitute a toxic environment to which endothelial cells are continuously exposed.

Thus, we have explored the involvement of toll-like receptor 4 (TLR4) and inflammasome NALP3 in promoting the inflammatory response in human umbilical vein endothelial cells (HUVEC) in peritoneal dialysis.

Methods

HUVEC were exposed to a pool of sera from healthy donors (n=15) and patients with CKD in peritoneal dialysis (PD) (n=9). We explored changes in TLR4 and ICAM-1 expression, reactive oxygen species (ROS) production and TLR4 signaling. Assembly of NALP3 inflammasome components was also investigated.

Results

When exposed to culture media containing PD sera, there was an increased expression of TLR4 in comparison with control increases of 2.3 ± 0.2 times vs control ($p < 0.01$). Expression of ICAM-1 also increased in PD with increases of 2.1 ± 0.1 vs control, ($p < 0.01$). NALP3 expression increased in response to PD sera 1.5 ± 0.1 times vs control, ($p < 0.01$). Uremic media induced a statistically significant increase in intracellular ROS levels in HUVEC 2.7 ± 0.2 times vs control ($p < 0.01$). Blockade of TLR4 with an antibody anti-TLR4 decreased ICAM-1 expression by $28\% \pm 4$ and endogenous ROS levels by $45\% \pm 6$. Presence of the anti-TLR4 antibody also decreased the phosphorylation levels of the NF κ B regulatory protein I κ B.

Conclusions

TLR4 and NALP3 inflammasome, crucial elements of the innate immunity, seem to contribute to the development and perpetuation of endothelial dysfunction in response to the uremic chronic toxicity. These mechanisms may constitute potential therapeutic targets to prevent endothelial dysfunction and to reduce the increased cardiovascular risk in Peritoneal Dialysis.

P-6

PERITONEAL ULTRAFILTRATION (PUF) IN CONGESTIVE FAILURE OF A HEART TRANSPLANT RECIPIENT WAITING FOR HEART RE- TRANSPLANTATION

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Objectives

Chronic heart failure (CHF) is the leading cause of hospitalization in western populations. Its prevalence is rising mainly due to prolonged life expectancy. PUF may be a useful adjunctive treatment in patients with frequent recurrences of acute cardiac decompensation (ACD), even with a glomerular filtration rate (GFR) greater than 15 ml/min, and already treated with the best cardiologic therapy. This may be applicable also in the immunosuppressed heart transplant recipient.

Methods

We report the case of a 47 y.o. man who received a heart transplant in 1988 for valvular cardiomyopathy. He developed severe tricuspid regurgitation caused by tendinous cord rupture. In 2008 he underwent to repeated percutaneous angioplasty and in 2010 to the placement of an implantable cardioverter defibrillator (ICD). In 2010 he was candidate for heart re-transplantation. Echocardiography showed both atrial dilatation and severe tricuspid regurgitation; left ventricular ejection fraction was 50%, TAPSE 12mm, NYHA class III. GFR was 25ml/min. After the last of six hospitalizations for ACD in the past two year he was selected for PUF. After peritoneal catheter placement he was treated with 1000 ml of overnight icodextrin. Daily urine output was 1600 ml, mean UF was 500 ml/day. Immunosuppression was maintained with tacrolimus 3.5 mg/w and mycophenolate mophetil 750 mg/bid.

Results

One episode of cultural negative peritonitis eight months after discharge was treated at home. UF and diuresis remained stable with 200 mg furosemide daily and 2.5 mg metolazone weekly. After 12 months of follow-up GFR was 25ml/min, the left ventricle kinetics improved to 60%, and no new hospitalization for heart failure, nor new peritonitis occurred.

Conclusions

In our experience PUF can be an effective adjunctive therapy for recurrent acute decompensation of CHF even in immunosuppressed heart transplant recipients improving their quality of life, without significantly increased risks of infectious complications.

P-7**OLDER , OLD AND VERY OLD IN PERITONEAL DIALYSIS**

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Introduction

The elderly population has increased significantly in dialysis units in recent decades and it seems that this phenomenon can be stopped.

We wanted historically analyze our partner Peritoneal Dialysis health area of a patients over 65 years in the inclusion of DP treatment and we analyze subgroup of patients according to age; seniors, 65-75 (ENF 64, 45.3% ♀); elderly, 75-85 (34enf.50% ♀) and very elderly, over 85 years (6, 48% ♀).

Methodology

Descriptive study comprising 30 years and involves 104 patients over 65 years of a total of 265.

We calculate basic epidemiological data, and study survival curves and other quantitative and qualitative comparisons.

Results

104 patients; 50 women 76.5 ± 5.9 (94.5 to 66.1) years. 27 patients were included before 2000; 26 patients in the next five years and 23 and 28 respectively in the following two. Diabetes was present in 47% of cases, the HTA 21%, 12% by GN / vasculitis. 23% had no significant cardiovascular comorbidities while 66% had comorbidities type of cardiomyopathy and 49% significant vascular pathology

Overall survival among 3 groups was not significantly different. Remaining in the art was better in the younger age group.

The presence of D.M. offered no less significant survival.

Analysis of survival by comorbidities (no significant comorbidities, and cardiomyopathy, and cardiomyopathy with vascular pathology stroke, peripheral artery disease) no affect survival. The group of very old lower cardiovascular comorbidity than the other two, being the youngest who had more ischemic heart disease and more middle group acv. Los months overall survival were 35.29 and 19 months respectively and technical 30 , 21 and 16 months.

Conclusions

Offer D.P. is valuable to patients more positively.

Although the groups were not homogeneous it seems that is the age that offers a different life expectancy.

P-8**CALCIUM ACETATE/ MAGNESIUM CARBONATE AS PHOSPHOROUS CHELATING IN PERITONEAL DIALYSIS**

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Objectives

Cardiovascular disease represents the first cause of death in patients on dialysis, being hyperphosphatemia directly involved by means of cardiovascular calcification. This is why phosphorous control is basic through diet and the use of chelating such as calcium acetate/ magnesium carbonate (CAMG). Both have proved to reach a correct control of phosphorous levels without hypercalcemia or hypermagnesemia risk.

Methods

Prospective, observational study in a single institution during 2 years (October 2012 to October 2014). It includes patients in peritoneal dialysis who received CAMG therapy. Clinical and demographic variables were collected: age, sex, renal disease etiology, time in dialysis, chelating dosis, urine output and levels of calcium (Ca), phosphorous (P) and magnesium (Mg). These last levels were measured before the beginning of the therapy and monthly until the end of the study. Quantitative variable comparison was made with the simple linear regression model.

Results

Includes 20 patients: 75%men; 25% women. Average age 55.7± 12.1313 (27-29). Time in dialysis 32.35 ± 21.62911 months (3-95) and urine output of 1769.45 ± 817.867 cc. The average amount of CAMG tablets was 3.36 ± 1.31 (1.67-6.25) with an average period of therapy of 9.8± 6.30 month (1-24). There was a good control of P, an average of 4,3 ± 0,43 (3,66-4,28) and a CaxP product of 30,35 ± 4,21 (33,12-51,11). There wasn't statistically significant increase in Ca levels, an average of 9,33 ± 0,3 mg/dl (8,95 -10,11). There was statistically significant increase (p = 0,001) in Mg levels, with an average of 2,44 ± 0,36 (1,79-3,21), but it wasn't necessary drug suspension.

Conclusions

The use of CAMG allows maintains a good P control without increase Ca levels. The increased magnesium levels, doesn't prevent use with regular checks. There were no side effects and was a good tolerance.

P-9**FGF-21 AND CARDIOVASCULAR DISEASE IN PERITONEAL DIALYSIS PATIENTS**

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Objectives

Patients on peritoneal dialysis (PD) have accelerated atherosclerosis associated with an increase in cardiovascular morbidity and mortality. FGF-21 is a new metabolic regulator, which is related to metabolic syndrome. To investigate whether FGF-21 may play a role in PD, we measured plasma concentrations and correlate with comorbidities, nutritional status and inflammatory markers.

Methods

Clinical and laboratorial data were collected. One Elisa kit by R&D Systems was used to determine FGF-21 values, according to the manufacture instructions.

Results

We studied 58 prevalent PD patients, 40 were male (69%), mean age was 55.7 years old, 17 pts (29.3%) had diabetes mellitus and 8 pts (13.8%) had ischemic heart disease. Time on PD was on average 27.41 months. Patients with ischemic cardiopathy had higher FGF-21 (2676 VS 1503; p=0,013. In a multivariate analysis (linear regression), FGF-21 was closely related with renal residual function (B=-107; CI (95%) -169 to -45; p=0,025), albumin (B=-517; CI (95%) -956 to -78; p=0,014), adjusted to age and time on PD. In a linear regression, serum FGF-21 levels were closely related with ischemic heart disease (B=976,76; CI (95%) 160,9 - 1792,59; p=0,02), in a model adjusted to age, diabetes, residual diuresis and time on PD. Furthermore, in a Cox regression FGF-21 serum levels were associated to ischemic cardiovascular events, in a model adjusted to age, diabetes and PD doses.

Conclusions

In our cohort of PD patients, serum FGF-21 levels were associated with renal residual function, nutritional parameters and cardiovascular disease.

P-10**CALCIPHYLAXIS IN PERITONEAL DIALYSIS**

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Abstract

Calciophylaxis is a life-threatening condition traditionally observed in patients with end-stage renal disease. It consists in a progressive cutaneous necrosis secondary to small and medium-sized vessel calcification and associated with secondary or tertiary hyperparathyroidism.

Clinical case: A 23 year-old white male with Chronic Kidney Disease G5 (Peritoneal Dialysis), was seen in the emergency department because of pain and ulcerative lesions with flogosis signs in both lower legs (shins). He hadn't fever or any other symptoms associated. He was admitted to the hospital in order to perform an examination, diagnostic tests (Rx, Doppler Echography, and analisis with normal results) and receive treatment. Despite antibacterial therapy during two months, his condition worsened, so a biopsy was performed: "Calciophylaxis".

The treatment was: Sevelamer Carbonate, Cinacalcet, Pentoxifylline, Risenodrate and nursing cares. This combination produced good results.

P-11

THE RELATIONSHIP BETWEEN SYSTEMIC INTERLEUKIN-6, OVERHYDRATION AND LABORATORY MARKERS OF CARDIOVASCULAR RISK IN PERITONEAL DIALYSIS PATIENTS

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Introduction

The mortality among peritoneal dialysis (PD) patients has been maintained at a high level and is associated with the presence of non-traditional cardiovascular risk factors, such as chronic inflammation and fluid overload. The main aim of the study was to evaluate the relationship between interleukin-6 (IL-6), overhydration and cardiovascular risk.

Materials and Methods

The study was performed on 57 PD patients who were divided into three equal subgroups according to the serum concentrations of IL-6: group A: IL-6 < 0.8 pg/mL (n=19), group B: IL-6: 0.8-1.3 pg/mL (n=19), group C: IL-6 > 1.3 pg/mL (n=19). Serum IL-6 was evaluated using the highsensitive ELISA test. The degree of overhydration was assessed by bioimpedance analysis (BIA) and clinical criteria. Serum concentrations of NT-proBNP, troponin T (TnT), Klotho, fibroblast growth factor-23 (FGF-23) and galectin-3 were used as laboratory markers of cardiovascular risk.

Results

Groups with higher concentrations of IL-6 were more overhydrated in BIA (tab.1) and peripheral edema occurred in 5.3% of patients from group A, 21.1% from group B, and 31.6% from group C. Systolic and diastolic blood pressures (132.4±23.1 vs. 140.1±22.5vs. 137.2±15.7 mmHg and 80.3±12.4 vs. 80.2±13.0 vs. 79.5±13.3 mmHg) were comparable in the each groups. Between examined groups, significant differences were found in serum TnT, NT-proBNP and galectin-3 (tab.1). Surprisingly, no statistical significant differences were observed in the results of Klotho and FGF-23 (tab.1).

	Group A	Group B	Group C	P value
Overydration in BIA (L)	0.7±1.2	1.0±1.7	2.6±2.0	0.002
TnT (pg/ml)	32.2±29.4	53.1±73.5	119.4±135.0	<0.001
NT-proBNP (pg/ml)	1731±1778	7802±11156	9313±12021	0.005
Galectin-3 (pg/ml)	109.1±82.0	509.6±817.2	1288.7±2126.2	0.011
Klotho (pg/ml)	307.1±90.7	291.1±146.7	300.4±143.1	NS
FGF-23 (pg/ml)	21.0±21.4	28.0±29.2	45.2±75.4	NS

Table 1. Selected parameters in the subgroups.

Conclusion

There is a correlation between serum concentration of IL-6 and hydration status and the cardiovascular risk in peritoneal dialysis patients. It seems that systemic IL-6 plays a key role in the development of complications in PD patients.

P-12**LEFT VENTRICULAR HYPERTROPHY IN PATIENTS WITH PREDIALYSIS CHRONIC RENAL DISEASE IN THE HOSPITAL CENTER ELBASAN**Zheni Gjergji, Muzi Gjergji*Hospital Center "Dr. Xh. Kongoli", Elbasan, Albania***Background**

Cardiovascular disease (CVD) is still the major cause of death in patients with end stage chronic kidney disease (ES-CKD), with a mortality rate approximately 10 to 30 times greater than that of the general population. Multiple factors are involved in the development of CVD in CKD. Although left ventricular hypertrophy (LVH) is strong predictor of mortality in patients with end-stage renal disease, few studies are available before the start of dialysis treatment in our country. The purpose of this study is to evaluate the prevalence and clinical correlates of LVH in nondiabetic patients with chronic kidney disease (CKD) not yet undergoing renal replacement therapy and to examine the relations between anemia, pulse pressure (PP), hypertension (HTA) with left ventricular hypertrophy (LVH).

Materials and Methods

We investigated 111 nondiabetic patients with CKD, presented in ambulatory service. Patients excluded from the study were of ischemic heart and valvular heart disease. 26 patients presented second stage of CKD (GFR 60-89,9ml/min). 30 patients presented third stage of CKD (GFR 30-59,9ml/min). 32 patients was at 4th stage of CDK (GFR 15-29,9 ml /min) and 23 patients presented 5 th stage of CKD (GFR <15ml/min). Each patient had blood pressure (BP) measured by means of 24-hour ambulatory BP monitoring and left ventricular mass index (LVMI) assessed by means of M-mode echocardiography. Creatinine clearance was estimated by means of the Cockcroft-Gault formula, and hemoglobin were assessed by using routine methods

Results

The prevalence of LVH in nondiabetic predialysis patients with CKD was 81.9%; 22% of whom were women. The prevalence of hypertension was 72,6%. Anemia was present in all patients. In the overall group, prevalence of arterial hypertension, anemia and LVH were high. HTA is associated with LVH in patients with CKD, and the strong relationship between elevated pulse pressure and LVH in those with more advanced CKD suggests that increased arterial stiffness might have a role for LVH well before the start of dialysis therapy.

Conclusions

In conclusion, the incidence of LVH was high even among nondiabetics patients under conservative treatment, and, except for age, LVH correlated with reversible factors. The need for strictly diagnosing CKD and preventing LVH in the predialysis phase is emphasized to decrease mortality due to CVD in that population.

Key words: Chronic Kidney Disease, Left ventricular hypertrophy; pulse pressure, hypertension, anemia

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P-13**ENCAPSULATING SCLEROSING PERITONITIS IN PATIENTS ON PERITONEAL DIALYSIS: PREVALENCE, RELATED FACTORS AND OUTCOME**Andrey Yankovoy, Alexandr Sinutin, Vadim Stepanov*Moscow Regional Clinical Institut, Moscow, Russia*

Encapsulating peritoneal sclerosis (EPS) is a serious complication of peritoneal dialysis often leading to malnutrition and the necessity for total parenteral nutrition. ESP may even result in death.

Our aim of our study was to analyze the prevalence of ESP in our unit, to investigate the potential risk factors, and evaluate the clinical outcome.

We retrospectively studied 377 patients on peritoneal dialysis (PD). We analyzed time on PD, number of peritonitis episodes, glucose concentration used, hemoperitoneum episode, previous abdominal surgery and concomitant diseases.

Twenty of the 377 pts (5,3%) developed SP. 10 pts were man and 10 women, with a mean age of 45+16 years. All had been treated with CAPD (mean time 55+46 months). Mean time from the beginning on PD until ESP diagnosis was 66+52 months. In 7 case (35%), the diagnosis was accomplished after PD withdrawal. All were transferred to hemodialysis, except 1 who was diagnosed after renal transplantation. 55% of pts had a peritonitis episode 2+1 months before the diagnosis. 90% of pts had used 2,27% glucose and 85% also 3,86% glucose solutions. 35% had some episode of haemoperitoneum and 85% previous abdominal surgery. In 80% of case, the suspicion diagnosis was made according to clinical and functional date and in 55% by laparotomy. 45% of pts developed abdominal complications related to ESP. 10 pts died, due to abdominal sepsis.

We concluded that ESP has a relative low prevalence, but a high morbidity and mortality. The most frequent risk factors related to its development are time on PD, peritonitis, hemoperitoneum, glucose concentration used and previous abdominal surgery.

P-14

LONG-TERM SUCCESS WITH ADHESIOLYSIS IN POSTTRANSPLANT ENCAPSULATING PERITONEAL SCLEROSIS: RETROSPECTIVE CASE SERIES OF 4 PATIENTSEbru Gok Oguz¹, Gulay Ulusal Okyay¹, Ozgur Merhametsiz¹, Sadik Ersoz², Basol Canbakan¹, Deniz Ayli¹¹Diskapi Yildirim Beyazit Education and Research Hospital, Ankara, Turkey, ²Medicana International Ankara Hospital, Ankara, Turkey**Introduction**

Encapsulating peritoneal sclerosis (EPS) is an occasional serious complication for peritoneal dialysis (PD) patients for whom there have been no evidence based management strategies. In this report, we presented our experience in four PD patients diagnosed as EPS after renal transplantation.

Cases and Methods

We retrospectively evaluated four kidney transplanted patients who have been diagnosed as EPS in their first year of transplantation and underwent surgical intervention. Changes in clinical pictures and allograft functions were evaluated.

Results

Clinical picture of ileus refractory to medical treatment indicated surgery in all of our patients. Laparotomy showed peritoneal thickening and multiple visceral adhesions. Adhesiolysis provided improvement in acute clinical condition and allograft functions despite the longterm follow up.

Conclusions

Encapsulating peritoneal sclerosis could appear after renal transplantation in patients who previously performed long term PD. Surgical intervention might be a safe modality for this specific group of patients.

Key words: Adhesiolysis, Encapsulating Peritoneal Sclerosis, Kidney Transplantation

Table 1. Clinical Features

	Case 1	Case 2	Case 3	Case 4
Gender/ age (year)	F, 47	M, 34	F, 50	M, 55
Primary renal disease	Unknown	Unknown	Unknown	Unknown
Time on PD (year)	12	14	11	9
Donor type	Cadaveric	Cadaveric	Living	Cadaveric
Immunosuppressive agents (mg/day)				
Prednisolone	5	5	2.5	5
Tacrolimus	-	4	3	3
Everolimus	2	-	-	-
Mycophenolate sodium	-	1040	1040	1040
Azatiopurine	75	-	-	-
Complaints at time of diagnosis				
Poor appetite	+	+	+	+
Nausea /vomiting	+/-	+/+	+/+	+/-
Abdominal pain	+	+	+	+
Diarrhea/constipation	-/+	+/-	+/-	-/+
Weight loss (kg)	+	+	+	+
Time on transplantation at EPS diagnosis (month)	6 th	9 th	8 th	11 th month
Serum albumine (g/dl)				
Time of diagnosis	3	2.7	2.5	2.9
Serum creatinine (mg/dl)				
Baseline	1	1.7	1.2	1.4
Time of diagnosis	1.3	2.5	7	2
After treatment	1.2	1.72	1.4	1.42
eGFR (ml/min/1.73 m ²)				
Baseline	63.17	49.28	50.54	55.92
Time of diagnosis	46.66	31.58	6.60	37.05
After treatment	51.18	48.62	42.31	55.01
Time on transplantation (month)	87	38	76	88

P-15

CONTINUOUS AMBULATORY PERITONEAL DIALYSIS (CAPD) OUTPERFORMS CONTINUOUS CYCLING PERITONEAL DIALYSIS (CCPD) CONCERNING THE PERITONEAL CLEARANCE OF LOW-MOLECULAR-WEIGHT-PROTEINS EXCEEDING A MOLECULAR MASS OF 20 KDA, DEMONSTRATED USING C-TERMINAL AGRIN FRAGMENT AS A REFERENCE BIOMARKER

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Objectives

Total C-terminal agrin fragment (tCAF, size 22 kDa) has been shown to be a promising biomarker for kidney function in different populations, among them peritoneal dialysis patients. This study compares the clearance of the low-molecular-weight-protein tCAF in continuous cycling peritoneal dialysis with intraday cavital filling (CCPD) and continuous ambulatory peritoneal dialysis (CAPD).

Patients and Methods

103 sets of serum, urine and dialysate samples were obtained in 26 patients undergoing PD (14 CCPD (57 sets), 12 CAPD (46 sets)). Concentrations, total amount of renal and peritoneal removal as well as clearances were measured/calculated for tCAF, creatinine and urea-nitrogen (BUN). Differences between both groups were calculated using Mann-Whitney-U-test and Monte-Carlo-significance testing.

Results

Serum and urine concentrations of all biomarkers did not differ between both groups, residual renal function was significantly higher in CAPD patients (4.7 vs. 1.8 ml/min). Whereas due to this difference urinary clearance was higher in CAPD for all biomarkers, tCAF was the only biomarker whose peritoneal clearance was significantly higher in CAPD than in CCPD treatments (2.9 vs 1.7 l/wk/1.73 m² body-surface-area, p<0.001; creatinine: 33.0 vs. 34.9 l/wk/1.73 m², p=0.522; BUN 39.7 vs. 51.4 l/wk/1.73 m², <0.001). Consequentially total tCAF clearance was higher in CAPD than in CCPD treatments (7.8 vs. 3.6 l/wk/1.73 m², p<0.001) despite similar total BUN clearance (69.3 vs. 70.5 l/wk/1.73 m², p=0.875).

Conclusion

CAPD provides a better clearance of low-molecular-weight-proteins exceeding a molecular mass of 20 kDa such as tCAF compared to CCPD despite similar small solute clearance such as BUN. Clinical relevance of this finding needs to be evaluated in the future.

P-16

LIRAGLUTIDE IMPROVES GLYCEMIC AND BLOOD PRESSURE CONTROL AND AMELIORATES PROGRESSION OF LEFT VENTRICULAR HYPERTROPHY IN PATIENTS WITH TYPE 2 DIABETES MELLITUS ON PERITONEAL DIALYSIS

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Introduction

Diabetes mellitus (DM) is a progressive multifactorial disease associated with cardiovascular complications. Patients undergoing peritoneal dialysis also experience an increased incidence of cardiovascular disease. To prevent progression of systemic cardiovascular complications in DM patients, glycemic control is important. In this study, we examined the efficacy and safety of the glucagon-like peptide analogue liraglutide to treat type 2 diabetes patients undergoing peritoneal dialysis.

Materials and Methods

Sixteen type 2 diabetes patients who underwent peritoneal dialysis were enrolled. Prior to liraglutide therapy, 11 patients used insulin, 3 used oral antidiabetic agents, and 2 used diet therapy. Echocardiography was examined at baseline and 12 months after liraglutide initiation.

Results

Hemoglobin A1c, glycated albumin, and fasting/postprandial glucose levels gradually decreased with liraglutide use; postprandial glucose levels showed significant differences with baseline at 6 and 12 months (196.4±62.5mg/dL, 152.0±32.3 mg/dL, 138.6±19.6 mg/dL, respectively, p = 0.022). Moreover, the mean daily glucose level decreased and glycemic fluctuations lessened. Systolic blood pressure upon waking decreased (150.6±21.0 mmHg at baseline to 120.2±8.2 mmHg at 12 months; p = 0.001). Left ventricular mass index(LVMI) was decreased (184.6±47.0 g/m² at baseline to 146.9±45.3 g/m²; p=0.044) and left ventricular ejection fraction was improved at 12 months (55.6±13.9% at baseline to 66.9±10.7% at 12 months; p = 0.016). Changes in LVMI positively correlated with morning systolic blood pressure (r=0.569, p=0.027) and fasting glucose levels (r=0.531, p=0.034). However, severe adverse side effects were not observed.

Conclusions

These findings suggest that liraglutide therapy for type 2 diabetes patients undergoing peritoneal dialysis was safe and effective for decreasing glucose levels, glycemic fluctuations, and blood pressure as well as ameliorating left ventricular function.

P-17**EFFECTS OF COMBINATION OF HIGH DOSE ORAL FOLATE AND VITAMIN B12 IN LOWERING THE PLASMA LEVELS OF HEMOCYSTEINE IN DIALYSIS PATIENTS**

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Objectives

Hyperhomocysteinemia is a well-defined risk factor for cardiovascular diseases. This study was conducted to evaluate response to high dose oral folate (10 mg/daily) and sublingual high dose (1mg/daily) vitamin B12 in dialysis cases with hyperhomocysteinemia

Methods

32 dialysis cases including 11 CAPD (31.4%) and 21 hemodialysis (66%) subjects and one patient (3%) who was on both modalities at the same time were enrolled. They included 15 girls (46.9%) and 17 boys (53.1%). Majority of our patients received low doses of folate and vitamin B12 supplements. Chi square and T tests were used for data analysis. Mean plasma homocysteine levels before and after intervention compared by paired sample test and P value < 0.05 considered as a significant difference. First (week 0) all cases were screened for hyperhomocysteinemia and serum folate and vitamin B12 levels were measured. Then those with hyperhomocysteinemia (plasma homocysteine levels $\geq 15 \mu\text{mol/L}$) received oral folate 10 mg and sublingual vitamin B12, 1 mg /daily for 12 weeks. In the end of treatment (week 12) serum folate and vitamin B12 concentration and plasma levels of homocysteine were measured again.

Results

Of 32 cases 18 subjects (56.2%) had hyperhomocysteinemia. Serum folate and vitamin B12 levels were normal or high in all cases. Plasma homocysteine levels dropped in all cases except one (6.25%) subject, but just in half of patients it reached normal range ($< 15 \mu\text{mol/L}$). A significant decrease in homocysteine levels was found by comparing the plasma levels before and after the treatment ($P=0.0001$).

Conclusions

Hyperhomocysteinemia and functional vitamin B12 deficiency are common in dialysis Patients. Oral folate 10 mg/ daily in combination with sublingual vitamin B12 mg/day for 3 months is effective treatment for hyperhomocysteinemia.

Keywords: End stage renal failure, Homocysteine, Folate, vitamin B12

P-18**RELATIVE CARNITINE DEFICIENCY IN HEMODIALYSIS AND CHRONIC PERITONEAL DIALYSIS SUBJECTS**

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Objectives

We assessed correlation between dialysis and patients' characteristics with plasma carnitines levels and also differences in carnitines levels with considering the modality of dialysis and gender.

Methods

Plasma carnitine concentrations were measured by tandem mass spectrometry in 46 dialysis cases. Total L-carnitine, free L-carnitine, L-acyl carnitines levels ≤ 40 , < 7 and $< 15 \mu\text{mol/L}$ were defined low and acyl carnitines / free L-carnitine (AC/FC) concentration ratio > 0.4 was considered as relative carnitine deficiency. Correlation between carnitines levels and AC/FC ratio with age, duration since onset of dialysis, characteristics of dialysis, serum BUN and albumin concentrations were analyzed by Pearson correlation test. Patients with mild to moderate and those with severe relative carnitines deficiency were compared by considering the mentioned variables. Chi square and independent T tests were used for univariate analysis. P-values ≤ 0.05 considered as statistically significant differences.

Results

All patients had relative carnitine deficiency. Mean \pm SD concentrations of L-acyl carnitines, total and free L-carnitines and AC/FC ratio were not significantly different based on modality of dialysis ($P > 0.05$ for all). More severe relative carnitine deficiency was found in cases with lower serum BUN levels and CAPD cases ($P=0.042$ and 0.495 respectively). No linear correlation between carnitines levels and AC/FC ratio with patients' characteristics were noted ($P > 0.05$, $r > 0.01$ for all). Conclusions: Relative carnitine deficiency was common and it was more severe in those with lower serum BUN levels and CAPD patients.

Key words : relative carnitine deficiency, hemodialysis, chronic peritoneal dialysis

P-19**MULTIDISCIPLINARY INTEGRATED GROUP AND MANAGEMENT OF CHRONIC KIDNEY DISEASE**

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Objectives

In the management of chronic kidney disease is increasingly directed attention to an approach "patient centered". According to a pronouncement of the WHO dualism antithetical health/disease assumes multidimensional valence and incorporates various aspects of functionality and wellness, not only from a physical, but also on the psychological, emotional and social.

Methods

We conducted a cross-sectional study on 30 subjects uremic chronic peritoneal dialysis, offering the performance of some contemporary self-report on the assessment of the quality of life related to health (QoL-S). We divided the subjects into three distinct groups according to the degree of "empathic harmony" reached with the "team physician": 1) high; 2) average and 3) low. The texts given, chosen on the basis of their wide dissemination in the common practice of psycho-behavioral evaluation, were as follows: 1) TAS 20 (Toronto Alexithymia Scale) to measure alexithymia, 2) Shaps (Snaith-Hamilton Pleasure Scale) for the measurement dell'anedonia, 3) (SASS social adaptation Self-evaluation Scale) for the measurement of social adaptation, 4) STAI (State Trait Anxiety inventory) for the measurement of anxiety, 5) HLC (Locus of Control Scale) to measure locus of control, 6) SF-36 and NHP (Nottingham Health Profile) for the measurement of health status/quality of life, 7) COPE (Coping Orientation to Problems Experienced) and 8) PSS (Perceived Stress Scale) for measuring the perceived stress.

All our patients immediately accepted the proposal to submit to the administration of the questionnaires with attitude "positive" and "participated".

Results

The average scores obtained from the questionnaires do not seem to differ from those reported for the general population. The best data were those related to the group of subjects who achieved a greater degree of "empathic harmony".

Conclusions

We believe that the assumption that the development of chronic kidney disease should pay a poor QoL-S is probably reconsidered. We also believe that an "effective communication" with the patient, can be a useful tool to obtain a better "adherence" of care and to improve the psychological dimension of the individual subject uremic chronic undergoing peritoneal dialysis.

P-20**MECHANICAL COMPLICATIONS OF PERITONEAL DIALYSIS (PD)**

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Objectives

Mechanical complications of PD are a common problem in clinical practice which appear to occur most commonly at the beginning of PD treatment. Most of them don't pose a great threat to patients' health or the therapy process, they can be adjusted by properly intervening.

Methods

Retrospective 10-year data analysis of 114 patients (36.8% female, 63.2% male), average age 65.57 ± 15.51 years. PD content: CAPD - 78.9%; APD - 21.1%.

Results

19 patients (16.7%) had mechanical complications, of which were 18.4% due to hernias 3.5% hydrothorax 1.8% painful inflow, and 0.9% catheter problems. 12 patients (10.5%) had catheter problems, 1 due to kinking, 1 malposition, 7 occlusions, 3 outer disconnections. Complications did not have a lethal outcome. Mechanical complications are seen as difficulties of dialysate flow, catheter dislocations, hernia development, leakage of dialysis fluid, and perforation of hollow organs. They most oftenly occur one month after initiation of therapy, depending on the cause. Catheter kinking can manifest complications immediately, malpositioning a few days after insertion. It is important to distinguish the difference between membrane abnormalities and mechanical complications so that we could make an accurate diagnosis, and thus intervene with proper medical treatment. In our analysis, 37.7% of patients were transferred to hemodialysis (HD) and 26.35% were transplanted. The greatest problem concerning catheters and their replacement were extraluminal complications such as omentum or adhesions, or bending of catheters. In one patient, spontaneous hydrothorax regression was observed, whilst another patient was transferred to HD. Treatment depends on cause.

Conclusion

Mechanical complications present most commonly as obstruction or prolonged flow of the dialysate. Causes and effects are various, but usually they are not life-threatening and can be resolved. The cause can be visible, such as fibrin, catheter kinking. Finally, there should be no fear in carrying out CAPD because of complications.

P-21**ANOREXIA AS THE FIRST SIGN OF UREMIA**

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Objectives

Anorexia is a frequent finding amongst patients with end-stage renal disease (ESRD). An appetite disorder leads to calorie loss, which promotes protein-energy wasting (PEW). The prevalence of anorexia in the state of uremia is up to 50%.

Methods

Case report of a patient treated with PD. Anthropometrical measurements, the Malnutrition Inflammation Score (MIS), laboratory, and a psychiatric interview were used in evaluating.

Results

CRP – 81.7; mg/L; E – 2.32×10^{12} ; Hb – 70 g/L; urea – 28.2 mmol/L; creatinine – $\mu 983$ amol/L; Fe – 2 μ mol/L; Ferritin – 243 ng/mL; t.proteins – 59 g/L; albumins – 33.5 g/L; PTH – 52.66 pmol/L; P – 2,30 mmol/L; Ca – 1.50; K – 6.0 mmol/L; MIS – 18.

Case report demonstrated a PD patient that presented with a loss of appetite, mood disorder, hypoproteinaemia, hypoalbuminaemia, as well as elevated CRP, anaemia, and iron deficiency. Alongside subjective and objective measurements, we were able to prove that the loss of appetite was being caused by certain metabolic disorders, which led to the decrease in quality of life. The loss of appetite was the leading symptom the patient presented with, thought to have been related to depression, which is why the patient was first referred to a psychiatrist.

Psychiatric Assessment

“The patient didn’t know she had a renal disease until she had started having hemoptoa. 2 months before her admission in hospital she was eating very poorly. Her diet was based on fruit and tea. She was disgusted by meat, fat, and food had changed in smell and taste for her. She had lost 20 kg in 2 months. She was very passive, and wasn’t enjoying life the she had been. Now her condition has improved with treatment, as did her appetite.”

Conclusion

Even though depression can be presented with anorexia, physical weakness, or organic illnesses, anorexia in our case was caused by renal disease.

P-22**PERITONEAL DIALYSIS AS “RESCUE THERAPY”**

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The reasons that lead patients to start peritoneal dialysis (PD) after an initial period of extracorporeal dialysis (HD) in southern Italy are mainly complications related to HD treatment and/or access management, which make PD the last possible therapeutic strategy. Nevertheless PD, as replacement therapy of first choice, has been associated with preservation of residual renal function and with increased survival especially in the first 2years.

Methods

Our center of Peritoneal Dialysis follows 12 patients from HD, M/F = 7/5, age = 57.5 ± 6.9 . The switch was necessary for 11/12 patients, for exhaustion of heritage vascular and complications access-related; The average period of HD practiced amounted to 8.25 ± 7.09 years. All are on PD for at least 1years (range 1-7years). 9/12 of patients are treated by high volume CTPD (average trading volume: 18Lt) and 3/12 are treated by CAPD (3exchanges/day). 2/12 patients were successfully transplanted, 2/12 patients have recovered part of their residual renal function (GFR 5.9 mL/min ± 3.0), 1/12 presented an episode of peritonitis (after 3years of PD) and 1/12 died as a result of complications for major cardiac surgery (after 1year of treatment PD).

Results

Despite the literature, the survival of our patients intended as success and effectiveness of the dialysis technique, number of hospitalizations and quality of life, was very good, even in anuric patients. In particular, the starting KT /V in the group was equal to 1.1 ± 0.2 while after 6 months of PD, this value was found to be 2.1 ± 0.5 .

Conclusions

In conclusion, rebranded the importance of strategies to increase the expansion of peritoneal as first choice, especially in Italy, where it is still low, compared to other Western countries. Our experience remains favorable even in patients who come to the PD after a long period in HD, confirming as not therapy “rescue”, but equally valid and satisfactory.

P-23**SERUM UROMODULIN AS A MARKER FOR RESIDUAL RENAL FUNCTION IN PERITONEAL DIALYSIS PATIENTS**

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Objectives

Serum levels of uromodulin (molecular mass 95 kDa) were shown to correlate with kidney function. This article studies the value of uromodulin as a biomarker for residual renal function in peritoneal dialysis patients.

Methods

103 sets of serum, urine and dialysate samples were obtained in 26 patients undergoing PD (14 CCPD (57 sets), 12 CAPD (46 sets)). Concentrations of uromodulin, creatinine, blood-urea-nitrogen (BUN) and cystatin c were measured in all specimens. Correlations between biomarkers serum concentrations and residual renal function (RRF, glomerular filtration rate, measured as the arithmetic mean of creatinine and BUN clearance in ml/min) were assessed using Spearman-rho-coefficient.

Results

Uromodulin could be detected in patient's serum and urine but not in dialysate. All biomarkers' serum concentrations were correlated with RRF. Whereas creatinine, BUN and cystatin c showed inverse correlations of -0.66 to -0.68 ($p < 0.001$), uromodulin was positively, moderately correlated to RRF ($r = 0.410$, $p < 0.001$). Correlation of BUN to RRF was inversely, similar to that of uromodulin ($r = -0.412$, $p < 0.01$).

Conclusion

Uromodulin serum concentrations were correlated to RRF in peritoneal dialysis patients. But despite no peritoneal clearance the correlation is did not outperform conventional biomarkers with significant peritoneal clearance. Therefore currently uromodulin cannot be considered a valuable serum biomarker for RRF in this subset of patients.

P-24**EXTENDING TIME ON PERITONEAL DIALYSIS: USE OF 2 ICODEXTRIN EXCHANGES**

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Background

Many older patients on Peritoneal Dialysis (PD) have made a lifestyle choice of not wanting to switch to Haemodialysis (HD). Our centre has been using 2 icodextrin exchanges (dwell time >6 hours) in older patients with poor ultrafiltration (UF) to extend time on PD.

Objective

The purpose of the study is to evaluate the outcomes and safety of 2 icodextrin exchanges.

Methods

Patients using 2 icodextrin exchanges since 2011 were identified. Clinical data (oedema, blood pressure, weight, peritonitis), biochemical data (plasma creatinine, albumin, sodium, blood glucose) and dialysis modality were noted. Data was collected before starting the second icodextrin exchange and at 3 and 6 months after.

Results

Nine patients were identified; 6 were male. Mean age of patients was 70.4 years (range: 44-81years). Mean time on PD 20.7 months (range 4-40 months). 4 patients were anuric (mean 24h urine output: 550ml, range: 0-1340ml). All patients were on APD (Automated PD). Patient weight decreased in 5 patients by a mean of 3.7kg (range: 1.5-10kg) with improvement in oedema. 8 patients have completed 6 months or more, and 3 have completed more than 12 months. 1 death occurred due to cardiac problems; no patients have transferred to haemodialysis. There was improvement in UF in 6 patients (mean: 627.5ml, range: 385-893. Systolic and diastolic blood pressures fell by a mean of 18.8mmHg (range: 5-67) and by 13.2mmHg (range: 2-52) respectively. Plasma sodium level was <130mmol/l in 3 patients (lowest 126 mmol/l). Blood glucose levels remained stable. Two episodes of peritonitis were reported.

Relevance

Using 2 icodextrin exchanges can achieve increase in ultrafiltration and seems safe. This approach could be considered for patients with UF failure particularly in older patients not keen on changing dialysis modality.

P-25**FIVE YEARS' EXPERIENCE WITH SELF LOCATING CATHETER (SL KT)**

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Objectives

To report the results of a five years retrospective study of SL KT use in 75 patients (pts).

Methods

From 1/2010 to 12/2014, 76 KT have been implanted in 75 pts, all by surgical procedure (coelioscopic in 71 cases, laparotomy in 5 cases). Preoperative antibiotic prophylaxis have been performed in all cases, as well as previous cutaneous repair by nephrologist.

Results

- 1) Survival curve of SL KT (Kaplan Meier method) is : 89,5 % at one year, 85,9 % at 3 and 5 years
- 2) Infectious complications: 11 episodes of emergence site infections, that is 1 episode every 388 months – mean peritonitis rate is 1/52,5 patient/month over the complete period, 3 KT have been sustained for peritonitis.
- 3) Non-infectious complications :
 - Reversible malfunction due to constipation (18 %) or minor dislocation (19 %)
 - Malposition: major dislocation with lack of function in 6,57 %, resolved by coelioscopic reposition (5,26 %) or KT replacement (1,31 %)
 - Obstruction by fibrin in 6,57 % resolved by urokinase
 - Extraperitoneal parietal leakage in 9,2 %, early in 2,6 %, and late in 6,5 %. 2 KT have been replaced because of late leakage.
 - Cuff extrusion in 3,9 %.
 - Blood in effluent far from surgical procedure, in 5,2 % : hemoperitonitis was transient, asymptomatic, and spontaneously resolving in all.
 - Abdominal pain is noticed in a few case.

Conclusions

Our retrospective, not appariated study, concerning a few number of patients is in favour of SL KT use rather the conventional KT.

We report low rate of malposition, acceptable rate of infectious complications, but a non-negligible rate of late leakage.

P-26**SUCCESSFUL TREATMENT OF LEFT-SIDED PLEURAL EFFUSION DUE TO DIAPHRAGMATIC DEFECT WITH POVIDONE-IODINE IN A PATIENT UNDERGOING PERITONEAL DIALYSIS: A CASE REPORT**

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A 67-year-old male patient with end-stage renal failure had continuous ambulatory peritoneal dialysis (PD) for approximately six months. His chest pain had increased recently. His angiography revealed coronary artery disease, and a coronary artery bypass operation was specified. The patient was admitted to our clinic with dyspnea two weeks after his coronary artery bypass graft surgery. A lung X-ray found a left-sided pleural effusion (Figure 1). The pleural effusion fluid was drained by inserting a catheter. A biochemical analysis of the pleural fluid was performed, and it had characteristics of transudate. However, the measurement of the glucose in the fluid was found to be 345 mg/dl. It was thought to be a leakage between the pleural leaves during the PD. The PD treatment was temporarily interrupted and hemodialysis was started. The patient's chest tube was clamped at this time, and chest X-rays were taken regularly. It was observed that effusion was not repeated. A possible diaphragmatic defect was thought to be present, and a pleurodesis was performed by administering povidone-iodine between the pleural leaves. The clamp chest tube was not opened for two days. After, the PD treatment was restarted. Three days and one month after treatment, both a chest X-ray and a thorax computerized tomography (CT) were performed, and the procedure was evaluated (Figures 2,3,4,5). Pleural effusion was not observed in images. Consequently, it was successful and reliable to treat PD patients with povidone-iodine if the pleural effusion developed due to a diaphragmatic defect. The procedure may decrease PD dropouts due to diaphragmatic defects. However, further studies are needed to confirm the existing data.

Key Words: Peritoneal dialysis, diaphragmatic defect, Povidone iodine, pleurodesis.

P-27**CHANGE OF ESTIMATED GFR AND RESIDUAL URINE VOLUME IN CHRONIC PERITONEAL DIALYSIS PROGRAM**

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Introduction

Peritoneal dialysis (PD) is recommended for patient with residual renal function. Before 2010 an early initiation was preferred (GFR 15-20mL/min), nowadays treatment is initiated at 10-15mL/min GFR value.

Aim of the study

To observe the change in GFR and daily diuresis in PD program.

Patients and Method

In our dialysis centre 105 patients (53 women, 52 men) got into chronic PD program from 2009 to 2014. Change in diuresis, in GFR (according to MDRD) was analyzed in groups based on dialysis technical survival time. The study ended at the end of 2014.

Results

The average age of patients at the beginning of PD was 62,9 years. The average time spent in PD was 1,9 years. At the end of observation 45 patients were still in PD (average time 2,3 years), 60 patients dropped out (after 1,5 years in average): because of improved renal function 8, because of transplantation 8, because of exitus 23 patients were lost, 21 patients switched to haemodialysis (HD). The average eGFR was 14,2 mL/min at the beginning of PD, at the end of observation it was 12,4 mL/min: 65,7% of patients had reduced value, 34,3 % of them had stable or increased value.

The average daily diuresis was 2080 mL at the beginning of observation, at the end of the period it was 1670 mL. Average diuresis decreased in 64,7% of patients. GFR level decreased by 0,9 mL/min yearly, diuresis was decreased by 213 mL/year. The most expressed reduction was observed in patients transferred to HD program (GFR: -2,52 mL/min/year, diuresis: -409 mL/year).

Conclusions

The GFR and residual diuresis of patients in peritoneal dialysis program decreased only moderately during this short observation period except in case of those patients, who entered into HD program by necessity. The cause of this is investigated in our further study.

P-28**SURVIVAL OF PERITONEAL DIALYSIS TECHNIQUE AND PATIENTS**

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Introduction

Peritoneal dialysis (PD) is an optimal renal replacement therapy for patients with residual kidney function.

Objective

To study survival of PD technique and patients treated initially with PD as a renal replacement therapy.

Patients and Method

From 2000 to 2014 we had 209 patients treated with PD. Course of illness [improved renal function, kidney transplantation (Tx), conversion to haemodialysis (HD), exitus] time spent in PD and survival in different patient groups were examined.

Results

At the end of the study 46 (22%) patients were treated with PD, 163 patients were dropped out: 11 patients had improved kidney function, 29 were transplanted, 69 patients got into HD, 54 had died.

Survival of PD technique is 2,6 ±1,7 years in case of patients treated with PD currently and that of dropped patients is 2,2±1,9 years, respectively. The longest technical survival (2,5±2,1 year) was observed in case of patients got into HD program. According to the patient's survival the best result (7,8±2,3 years) was observed in PD→HD→Tx group ones, the second best group was in transplanted (Tx) group (7,7±3,4 years). In patients treated initially with PD currently with HD the average survival is 5,7±3,0 years. The shortest survival (2,1±1,7 years) was detected in patients died in PD program.

Summary

The survival of PD technique was 0,2-9,5 (average 1,3-2,7) years in different patient groups. When renal function improved (1,3±1,2 years) and in case of transplantation (2,1±1,6 years) PD program's duration was relatively short.

Patients survival was 1,2-11,7 (average 2,1-6,8) years depending on the course of illness.

P-29

COURSE OF ILLNESS OF PATIENTS WITH OR WITHOUT DIABETES IN PERITONEAL DIALYSIS PROGRAM

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Introduction

Continuous ambulatory peritoneal dialysis (for example CAPD) makes it easy while the absorbed glucose makes it difficult to treat patients with diabetes.

Aim

To evaluate the course of illness of diabetic or non-diabetic patients treated with peritoneal dialysis (PD).

Patients and Method

From 2000 to 2014 80 patients (38%) had diabetes out of 209 patient treated with PD. In both groups drop out rate [due to improvement in kidney function, transplantation (Tx), switching to haemodialysis (HD) and exitus] was examined. PD techniques and patients survival rate were also observed.

Results

The average age of diabetic (D) and non-diabetic (ND) patients at start of peritoneal dialysis 63,4 vs. 61,2 years. In the examined period 83 percent of D patients and 74% of non diabetic patients dropped out from program. The cause of drop out was different. From PD to Tx 2 patients were transferred from diabetic group while from ND group 27 patients were transplanted. 37%-of diabetic patients got into HD program, while 30 % of non -diabetic patients got into HD program. Death rate was 36% in diabetic patients while in non diabetic group it was only 19 %! The survival rate of technique was not different in the two groups (2,3±1,7 vs. 2,3±1,9 years). The survival (including time spent in HD and with transplanted kidney) was better (4,2±3,4 years) in non diabetic group while D group's survival was only 3,3±2,4 years.

Summary

PD technique gives same life expectancy for diabetic patients as for non-diabetic ones. Essential difference is that much more patients were transplanted from ND group which gives them a better chance for survival. A significant difference was observed in mortality: the mortality rate was almost double in D group comparing to ND group.

P-30

THE ROLE OF BIOIMPEDANCE FOR THE DIAGNOSIS OF FRAILITY IN PATIENTS OLDER THAN 75 YEARS WITH CHRONIC KIDNEY DISEASE STAGES 4 AND 5

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Introduction

There are evidences of necessity to evaluate frailty (biologic syndrome), sarcopenia (skeletal muscle loss and dysfunction) and nutritional status in elderly patients with CKD stages 4- 5, in order to give recommendations about therapeutic options, conservative therapy or dialysis.

Objective

To analyze if parameters measured by bioimpedance adds information in the diagnosis of frailty.

Methods

Longitudinal prospective study was conducted in 35 older patients, mean age 84±4 (74-91) years, followed in predialysis clinics, median 4 (1-13) years. We evaluated at baseline, at 6 months (m) and 12 m, physical performance (based on the criteria by L. Fried), biochemical nutritional and inflammatory markers (albumin, transferrin, cholesterol and C -reactive protein), and Bioimpedance parameters (fluid status (ECW/TBW), lean tissue index (LTI), fat tissue index (FTI), phase angle (PA) (50KHz).

Results

During de follow-up, nutritional and inflammatory biochemical parameters did not change. LTI and PA decrease, LTI: 11(9.6-13) vs 10.4 (8.9-12) p=0.001, and PA: 4.5(3.8-4.8)vs 4(3.5-4.4) p=0.001, the ratio ECW/TBW increase 0.49 (0.49-0.51) vs 0.51(0.48-0.52) p=0.014 . ECW/TBW correlated negatively with LTI (r=-0.625, p=0.000), and PA (r=-0.648, p=0.000).

Patients with clinical criteria of frailty were 13 (35%), they showed less LTI: 10(8.8-11.8) vs 11.4(10-13.2) p=0.05 and lower PA 3.8 (3.5-4.3) vs. 4.7(4.2-4.8) p=0.004 and higher ECW/TBW 0.50(0.49-0.52) vs. 0.49(0.48-0.50), p=0.045.

Based on the finding of ROC curves, PA has more discriminatory power than LTI for the diagnosis of frailty; the optimal cut-point of PA was 4.8 at baseline, and 4 at 6m.

Conclusions

Muscle mass and PA decreases during the follow up. Frail patients had less muscle mass and PA affecting hydration status. Bioimpedancia parameters, special PA gives us useful information about the integrated assessment of frailty; it could be a useful tool for clinical prognosis.

The role of Bioimpedance for the diagnosis of frailty in patients older than 75 years with chronic kidney disease stages 4 and 5.

P-31**SILENT PERFORATION OF BLADDER DUE TO INSERTION OF PERITONEAL CATHETER: A CASE REPORT**

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Introduction

The complications related to peritoneal catheter insertions are classified as early and late. No substantial differences concerning the patient outcomes have been established between catheter insertion techniques but everyone has different complications. Blind techniques are associated with more organ perforations. In this case we reveal an extraordinary silent perforation of the bladder and delayed diagnosis due to proper dialysate exchange and lack of any complains.

Case Presentation

A permanent peritoneal catheter was inserted to 79-year-old female with end stage renal failure due to diabetic nephropathy. Technoff catheter was placed with paramedian approach and percutaneously using Seldinger technique. There were no significant signs and pain during the procedure. Proper and complete drainage was achieved immediately after the insertion. Plain radiography revealed perfectly placed catheter which curved part was in the middle of the pelvic bottom. The first 2 exchanges were made appropriately but the following exchanges performed weekly were associated with increasing instant urge to urinate and a proper exchange at the same time. No any other complains and pain were described. The definitive diagnosis was made only with pelvic CT after suspicions found with ultrasound. Catheter was removed 4 weeks after insertion without any complications and fistulas. One year later the patient was still receiving maintenance haemodialysis. Lack of any complains during insertion should be related to diabetic neuropathy. The proper first exchanges should be explained with gradually entering the bladder, which may cause right exchange at first and then increased bladder filling with instant urge to urinate and complete drainage at the same time.

Conclusion

If on the plain x-ray the curved part of the catheter is found exactly in the middle of the pelvic bottom an abdominal ultrasound should be performed.

P-32**DETERMINING NURSE STAFFING LEVELS FOR PERITONEAL DIALYSIS CARE**

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Objective

To evaluate nurse-staffing levels in a peritoneal dialysis (PD) unit based on activities and time spent performing them.

Method

Qualitative design (focus group) in the first phase and quantitative cross-sectional design in the second. An instrument created based on the care activities identified by the focus group and the time spent performing these activities was measured over a 4-month period. The number of their occurrences in the month, multiplied by the mean time in hours for each of the tasks reflects the monthly time in hours that nurses spend conducting each activity.

Results

From the meeting with the experts the group was able to create an instrument that included all the care activities involved in PD nursing competencies. The list had 47 activities, with the most predominant being care assistance activities (29 listed), followed by management (12 listed), educational (5 listed) and research (1 listed). Direct patient care predominated consuming 55.3% of overall time. In relation to assistance (or support) activities, the nurse spends most time attending hospitalized patients, nursing consultation and training. In a unit with 47 PD patients, a daily workload for nurses of 6 hours, a nurse would spend 550.3 days to carry out the care, taking 11.7 workdays to care for one patient.. If a nurse spends 11.7 days on each patient and there is 225 working days, it is correct to say that there is a need of one nurse for every 19.2 patients.

Conclusion

It was possible to determine that nurse spent 11,7 per. patient and suggests a formula to determine nurse to patient ratio in peritoneal dialysis.

P-33

A COMPARISON OF EVOLUTION IN KIDNEY TRANSPLANT RECIPIENT DEPENDING ON PRE-TRANSPLANT DIALYSIS MODALITY

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Objectives

The outcome of patients undergoing kidney transplantation depending on dialysis modality previously received causes concern. Our aim is to describe and compare the evolution during the first 6 months post-transplantation in patients previously undergoing peritoneal dialysis (PD) vs. patients undergoing hemodialysis (HD).

Methods

Observational, cross-sectional study of patients previously on PD vs. HD receiving a first kidney transplant between January 2005 and December 2013, and receiving their graft from the same cadaveric donor. Parameters analyzed and compared using Fisher test (considering statistically significant $p < 0.005$) were: renal function, diuresis after surgery, hospitalization rate, incidence of acute rejection and mortality.

Results

Sixty-two patients underwent first kidney transplantation, 50% came from HD and 50% from PD. Mean nadir creatinine was 128ug/ml (SD 81) achieved with an average 90 days in the PD group (SD 64.90) and 169ug/ml in the HD group (SD 155) achieved with an average of 64 days (SD 44). The maximum diuresis achieved in the DP group was 3331ml (SD 915ml) and 2434cc in the HD group (SD 1131cc). The mean hospitalization rate associated with transplantation was 13.12days (SD 7.7) in DP and 15.2 days (SD 14.3) in HD. The average of post-transplant infections related to hospitalization was 5% in both groups ($p=ns$). The percentage of graft rejection in DP was 3.8% and 19.2% in HD. There were 2 cases of death with functioning graft in the DP group, and 2 cases in the HD group.

Conclusion

In our experience, there were not statistically significant differences between two modalities of dialysis in: evolution of renal function in the first 6 months after transplantation, the incidence of rejection or mortality.

P-34

CORRELATION BETWEEN SERUM PAPP-A LEVELS AND INFLAMMATORY INDICATORS IN PERITONEAL DIALYSIS AND HEMODIALYSIS PATIENTS

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Introduction

Pregnancy associated plasma protein-A (PAPP-A) belongs to matrix metalloproteinase family and its high levels have been found to be associated with cardiovascular events and renal failure. The objective of this study is to investigate the correlation between dialysis modalities and serum PAPP-A and inflammatory indicators.

Method

Thirty-six hemodialysis, 32 peritoneal dialysis and 30 healthy volunteers were included in the study. PAPP-A was measured using immunoenzymatic method (ELISA).

Findings

When compared to control group, serum PAPP-A level was significantly higher in hemodialysis and peritoneal dialysis group (hemodialysis group 657 ± 367 ng/ml; peritoneal dialysis group 493 ± 352 ng/ml; control group 69 ± 140 ng/ml; $p < 0.001$; Table 1). A significant negative correlation was determined between Serum PAPP-A level and serum albumin ($r: -0.432$, $p < 0.001$). No correlation was determined between Serum PAPP-A level and serum C-reactive protein (CRP), monocyte levels and neutrophil/lymphocyte ratio (NLR) ($p > 0.05$).

Result

In dialysis patients, serum PAPP-A level has increased independently from CRP and NLR. Low serum albumin levels and high PAPP-A levels, may constitute a predictor of mortality in these patient groups. Further studies are required for confirmation of this data.

Key Words: peritoneal dialysis, hemodialysis, PAPP-A, inflammatory indicators

	Hemodialysis (n = 36)	Peritoneal Dialysis (n= 32)	Control (n = 30)	p
PAPP-A, ng/ml	657 ± 367	493 ± 352	69 ± 140	<0.001
CRP, mg/l	19 ± 26	19 ± 29	6 ± 15	0.076
Albumin, g/dl	3.7 ± 0.3	3.5 ± 0.6	4.3 ± 0.3	<0.001

Table 1. Laboratory Parameters of Groups

P-35**FACTORS AFFECTING GERIATRIC NUTRITIONAL RISK INDEX IN PERITONEAL DIALYSIS PATIENTS**

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Background

Geriatric Nutritional Risk Index (GNRI) has been reported as a superior predictor of clinical outcome in patients undergoing hemodialysis or peritoneal dialysis (PD).

Objective

To clarify factors affecting GNRI in PD patients, we conducted this retrospective study.

Patients and Methods

We enrolled 21 PD patients (14 males, 7 females; mean age, 61±12 years; 62% diabetic; body mass index (BMI), 24.0±3.1 kg/m²; duration of PD, 16.6±13.8 months). GNRI was calculated from serum albumin and body weight, as follows: $GNRI = [14.89 \times \text{albumin (g/dL)}] + [41.7 \times (\text{body weight/ideal body weight})]$. Nutrition-related risk was classified into four groups by GNRI: major risk, GNRI <82; moderate risk, GNRI 82 to <92; low risk, GNRI 92 to ≤98; or no risk, GNRI >98.

Results

One patient showed major risk, 1 patient had moderate risk, and 4 patients had low risk of nutritional complications. The remaining 15 patients showed no nutrition-related risk. On univariate analysis, significant correlations were noted between GNRI and age ($r=-0.527$, $p=0.014$), BMI ($r=0.545$, $p=0.011$), albumin ($r=0.737$, $p<0.001$), residual kidney function (RKF) ($r=0.545$, $p=0.002$), dialysate-to-plasma creatinine concentration ratio ($r=-0.460$, $p=0.036$), and serum folic acid ($r=0.528$, $p=0.014$). In multiple regression analysis, RKF remained an independent correlate of GNRI ($\beta=0.523$, $p=0.007$).

Conclusions

GNRI was strongly associated with RKF in PD patients.

P-36**PROTEIN-ENERGY WASTING IN PERITONEAL DIALYSIS PATIENTS**

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Background

Protein-energy wasting (PEW) is the serious concomitant disease in patients with chronic renal failure (CRF) on peritoneal dialysis (PD).

Objective

To determine the prevalence and risk factors for PEW in patients on PD.

Methods

The study included 112 patients (50 men, 62 women, mean age 44±14 years) with CRF treated with continuous ambulatory peritoneal dialysis duration 6 - 84 months. Residual renal function had 62 patients; PET - 0,62-1,2; KT/V urea 2,1±0,3/week. Dietary interviews and food diaries, nutritional status using subjective global assessment (SGA), biochemical indicators of blood were research.

Results

PEW was diagnosed in 59 patients (52.7%): easy for - 29 (25.9%), moderate - 26 (23.2%), and heavy - 4 (3,6%); the frequency did not depend on sex, age, primary renal disease and duration of PD. Risk factors PEW were insufficient protein intake ($p<0.001$, IC 95%), the daily loss of protein with dialyzing solution ($p<0.001$, IC 95%), repeated episodes of dialysis peritonitis ($p<0.001$, IC 95%), syndrome of chronic inflammation ($p<0,004$, IC 95%), no residual renal function ($p=0.048$, IC 95%), high and medium-high transport characteristics of the peritoneal ($p=0.025$, IC 95%).

Conclusion

Patients on peritoneal dialysis represent a high-risk group for the development of PEW. PEW has a multifactorial origin.

P-37

CENTRAL HEMODYNAMIC IN PATIENTS ON PERITONEAL DIALYSIS

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Background

The aim of this study was to analyze the central hemodynamic in patients with chronic renal failure (CRF) undergoing continuous ambulatory peritoneal dialysis (CAPD).

Methods

We studied 19 non-diabetic patients (7 men, 12 women, mean age 32.3±7.4 years) with CRF, who treated CAPD. The comparison group consisted of 37 patients (23 men, 14 women, mean age 39.5±8.4) with CRF, who treated hemodialysis (HD). Central hemodynamic (heart rate, blood pressure (BP), stroke volume, stroke index, minute volume of blood, cardiac index, total peripheral vascular resistance) were studied during a single exchange of dialysate in PD-patients and 4-hour HD-patients. PD patients underwent 24-h ambulatory BP monitoring (ABPM), HD patients underwent 48-h ambulatory BP monitoring (ABPM).

Results

1 hour after the beginning of the cycle PD (introduction, exposure and removal of 2.27% dialysate from the abdomen) showed a significant increase in cardiac output, stroke volume, stroke index and cardiac index; after the completion of the cycle, these parameters have sought to baseline. Total peripheral vascular resistance throughout the cycle PD changed slightly. Start HD led to a reduction of all parameters of cardiac hemodynamic on average 18.5-28.5% increase in systemic vascular resistance and 28.0%. After the procedure, most patients showed an increase in, or return to the original values of all parameters. Circadian blood pressure profile in PD patients had a monotonous character. Carrying HD accompanied by a reduction or normalization of systolic and diastolic blood pressure the end of the procedure; by early next HD recorded a clear trend to increased systolic-diastolic hypertension.

Conclusion

PD unlike HD has a beneficial impact on the central and peripheral hemodynamic.

P-38

PERITONEAL DIALYSIS IN ACUTE TUBULAR NECROSIS IN TRANSPLANT RECIPIENTS

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Background

The aim of this study was to evaluate the effectiveness of peritoneal dialysis (PD) with acute tubular necrosis (ATN) in renal transplant recipients in the early postoperative period.

Methods

There were 9 patients with chronic renal failure after cadaveric kidney transplantation, which in the early postoperative period in connection with ATN continued PD. The comparison group consisted of 37 recipients of ATN that continue to hemodialysis (HD). The groups were matched by sex, age, duration of dialysis, kidney preservation duration, pattern of immunosuppressive therapy, blood biochemical parameters. In all patients were studied the frequency of complications, duration of oliguria, hypercreatininemia, inpatient treatment.

Results

Results of treatment of ATN kidney transplant in the early postoperative period are presented in the table.

Table. The results of treatment of recipients with ATN kidney transplant

Parameter	PD	HD
Duration oligoanuria day, the median (25% to 75%)	9 (5; 12)	14 (8; 20)*
Normalization of plasma creatinine concentration of day, the median (25% to 75%)	15 (12; 24)	24 (19; 33)*
Hemodynamic complications	0	43,2*
Hemorrhagic complications	0	13,5
The duration of inpatient treatment, day	59±14	61±17

Note: * - the differences were significant ($p < 0.05$)

Conclusion

Continued PD recipients with renal transplant ATN in the early postoperative period reduces the relative risk of hemodynamic and hemorrhagic complications in 0.7 times and reduces the duration of oliguria and hypercreatininemia 1.6 times.

P-39**PERITONEAL DIALYSIS IS AN OPTIONS FOR ELDERLY PATIENTS WITH END STAGE RENAL DISEASES?**

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Introduction

The number of elderly patients (>65 years) requiring renal replacement therapy is rising in the western societies. The selection of the most adequate renal replacement therapy should be tailored to meet individual needs, considering variables such as patient's choice, clinical status, social context and the patient's quality of life.

Aim

We have attempted to examine if chronic peritoneal dialysis (PD) has any benefits in the elderly and assess if dialysis adequacy parameters are associated with biochemical parameters in different groups of chronic PD patients.

Material and Method

The study included 55-patients divided in 2 groups (A - 41 patients < 65yrs. B - 14 patients > 65yrs.) treated by PD. We measured dialysis adequacy parameters such as Kt/V, weekly creatinine clearance, residual renal function (RRF), peritoneal equilibration test (PET): D/P (Crea 4h), blood pressure (BP), rate of PD-related peritonitis, medications, and biochemical parameters.

Results

The median time of PD was 41 months in group B and 32 months in group A. There weren't any significant differences between examined groups in dialysis adequacy parameters. Patients from group B had significantly lower blood pressure, serum phosphorus level and higher level of liver enzymes ($p < 0.05$). In group B, PD-time was correlated with creatinine level and weekly creatinine clearances, Kt/V with weekly creatinine clearances, serum albumin level and SBP, Hb with creatinine level ($p < 0.05$). There was no correlation with inflammatory markers such hsCRP, procalcitonine and fibrinogen.

Conclusions

The elderly patients on PD experienced technique survival comparable with that of younger patients. Our results indicate that chronic peritoneal dialysis is a suitable dialysis option for elderly patients with end-stage renal disease.

P-40**IS PD A VIABLE TREATMENT FOR PATIENTS WITH END-STAGE RENAL DISEASE DUE TO AUTOSOMAL DOMINANT POLYCYSTIC KIDNEY DISEASE (ADPKD)?**

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Objectives

PD can be a treatment option for patients with ADPKD with end-stage renal disease (ESRD). However, literature data about poor technical survival of ADPKD patients on PD are conflicting.

Methods

We included retrospectively all PD patients of our unit during the last decade. Clinical and laboratory data were obtained at the initiation of the method. We performed a technique survival analysis (the event was permanent switch to hemodialysis, while censoring was transplantation, death or still on PD). Patients who died during the first three months of PD were excluded. Davies comorbidity index was calculated. Cox proportional hazards model was used to analyze technique failure.

Results

148 patients were included in the study; 21 patients started PD due to ADPKD, while 127 patients due to other primary kidney disease (28% glomerulonephritis, 15% diabetic nephropathy, 41% unknown aetiology). In the technical survival analysis for the whole cohort, the median time was 66 months (95% CI 39.3-92). In the Cox regression analysis baseline serum albumin and ADPKD as primary kidney disease were risk factors for dropping PD. The main reason for leaving PD was ultrafiltration failure in the ADPKD group (61.5%). Then, we compared the two groups (ADPKD vs the rest of PD patients) concerning their baseline characteristics. The only statistical difference between the two groups was the comorbidity index (4.8% high comorbidity in ADPKD group vs 22.8%). Kaplan Meier analysis between the two groups revealed marginal statistical significant difference ($p = 0.053$). Median survival times was 47 months (95% CI 29.6-64.3) for ADPKD group vs 83 months (95% CI 60.3-105.7) for the rest.

Conclusion

In this cohort, ADPKD patients with ESRD can perform PD successfully for a sufficient time (median time 47 months). However, this technical survival time is less than that of patients with primary kidney disease other than ADPKD.

P-41**VALIDITY OF DUAL ENERGY X-RAY ABSORPTIOMETRY AND BIOIMPEDANCE IN ASSESSING BODY COMPOSITION AND NUTRITION IN PERITONEAL DIALYSIS PATIENTS**

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Objectives

PD patients are at risk of protein malnutrition. Three methods for evaluation are commonly available: dual-energy X-ray absorptiometry (DXA), bioimpedance (BI) and subjective global assessment (SGA). DXA, BI and SGA were compared for body composition evaluation.

Methods

72 PD patients were simultaneously scanned with measurements of DXA and BI, and an evaluation of SGA. Measurements included lean tissue mass (LTM), fat tissue mass (FTM) and, for BI, over-hydration (OH), intracellular water (ICW) and extracellular water (ECW). LTM and FTM were indexed to body area (LTI and FTI respectively). Conventional biochemical variables were measured, and clinical data collected. Results were compared to published values for normal individuals.

Results

There was good agreement between BI and DXA for average values of FTM (difference 0.9 kg) and LTM (0.3 kg). There was however considerable intraindividual variation with 1SD = 5.7 for FTM and 5.6 kg for LTM. Significant independent factors affecting the difference (DXA-BI) were FTM: OH (beta -0.0.03, $p < 0.01$) and ICW (0.55, < 0.001); LTM: OH (0.81, < 0.01) and ICW (-0.48, < 0.001).

Obesity (FTI $> 90^{\text{th}}$ normal percentile) was common: DXA 43%; BI 54%. Muscle wasting (LTI $< 10^{\text{th}}$ percentile, BI only) was also common (28%), and 53% were malnourished by SGA. Agreement between BI and SGA was poor: 14/37 (38%) of SGA-malnourished had a low LTI; 8/35 (23%) SGA-normals had low LTI. SGA was closer related to LTI (BI) than LTI (DXA). Positive correlations were seen between plasma albumin and LTI, FTI and ICW. Comorbidity was associated with increased OH, clinical malnutrition, reduced FTI, but not LTI.

Conclusion

Obesity and muscle wasting were common. DXA and BI gave similar results, but with considerable intraindividual variation, mainly due to OH and ICW. Agreement between SGA and BI was poor. Assessment of the prognostic value of these methods would help to identify their relative merits.

P-42**PERITONEAL DIALYSIS AS RESCUE RENAL REPLACEMENT THERAPY IN PATIENTS WITH VASCULAR ACCESS EXHAUSTION**

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The vascular access exhaustion for hemodialysis (HD) is a frequent cause of inevitable transfer patients for peritoneal dialysis (PD). The aim of this study was to evaluate the adequacy of dialysis, the technical survival and the follow-up of these patients.

Methods

A total of 25 patients (60% male, 68% caucasian, mean age at PD onset 49 ± 19 years) on PD program for vascular access exhaustion between 2007 and 2014 were evaluated retrospectively.

Results

Patients were in renal replacement therapy (RRT) in mean 7.5 ± 6 years. The majority (52%) of patients performed automated PD with long day dwell and daytime exchanges. Twenty-one percent of patients were not autonomous, 60% were anuric, 92% were high-average transporters and had a mean weekly kt/v of 1.95 ± 0.5 . In six patient (24%) were verified an early PD exit (before 3 months), of which 2/6 died from infectious situations and 4/6 were transitioned back to HD. The others patients (n=19) remained at PD in mean 26 ± 17 months (minimum 5, maximum 63). Subsequently, 47% patients were again transferred to HD, 16% were transplanted into super-urgent, 5% died and the remaining (24%) continue in PD. Five of these last patients have no possibility of a definitive vascular access for HD and have simultaneously contraindication for transplantation.

Conclusions

Despite the patients with vascular access exhaustion are not be the perfect candidates for PD, this technical may be a bridge to achievement a definitive vascular access for HD or to renal transplantation. When there isn't possible another RRT, PD can prolong the life of patient with a dialysis acceptable efficacy. Given their limitations, this technical should rather be seen as a RRT choice for vascular preservation.

P-43**PERITONEAL DIALYSIS (PD) IN ELDERLY: IS IT POSSIBLE TO ACHIEVE LONG-TERM SUCCESS IN PATIENTS OVER 75 YEARS?**

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Introduction

Although PD is an alternative to replacement therapy in renal function, learning difficulties, and the need to support carers do that is underutilized in this population. However, PD has considerable advantages as it reduces hemodynamic instability, improves mortality in the first two years against HD, preserve vascular acces, maintains residual diuresis and may even help reduce cognitive decline. As a matter of ongoing controversy, it is interesting to communicate our series.

Objectives

1. Evaluate experience in elderly PD program in HUS 2. Analyze the ratio of peritonitis and technique survival 3. Determine number of days of hospitalization / year

Methods

In the range of 2003-2015 began DP 128 HUS patients, of whom 23 were aged> 75 years. (81,41+-8; 66%females). 35% came originally from HD. Etiology of ESRD (NAE40%, Vasculitis 5%, type2 DiabetesM 21%, Analgesic nephropathy 3%,unknown etiology31%). Peritoneal transport type: 70% medium high, medium low 15%, 15% higher. Type of DP: APD: 92%, CAPD: 8%. Average learning time: 5days.

Results

In 10 cases there was no peritonitis, and the rate of hospital admissions was 5days/year. Peritonitis ratio:1/48. The technique failure was 5% (diaphragmatic leak, recurrent inguinal hernia, catheter malfunction, failure UF). Cause output technique: renal transplantation (3 cases) and exitus (9cases). 10 patients have exceeded 3,5years survival and 3 6year of survival. Significantly, a man who started DP to 83 years and after 5.5 years without peritonitis or income, has independent activities.

Conclusions

1) DP may allow a long interval without complications at 40% of the elderly. (6,5years in some cases) Learning time is 5 days, although we must increase relearning. 2) Ratio of peritonitis may be good, reaching 1/48 in our program, which helps to preserve peritoneal membrane, reducing hospital admissions and increase efficiency. 3) DP is a viable technique in elderly> 75 years old and provides survival, acceptable quality of life and independence, being cost effective.

P-44**THE SAUDI PERITONEAL DIALYSIS CATHETER: MODIFIED CATHETER AND NEW TECHNIQUE: FAREWELL TO CATHETER MIGRATION**

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Objective

To introduce our new, three-cuff peritoneal dialysis (PD) catheter with the low-entry technique and to study its impact on catheter survival and mechanical and infectious complications.

Methods

This is a prospective randomized study which was carried out in a University Hospital over a period of 18 months. The new catheter and technique were used in thirty-six incident PD patients, while the conventional double-cuff PD catheter with the classic approach was used in 37 patients.

Results

Significantly higher survival rate ($p < 0.01$) in the new catheter as compared to the conventional 2-cuff Tenckhoff catheter. The difference in catheter survival was due to a significantly lower incidence ($p < 0.01$) of catheter-tip migration and a lower incidence ($p < 0.01$) of peritonitis with our new 3-cuff catheter with the low entry technique as compared to the 2-cuff Tenckhoff catheter. Dialysis fill and drain time was significantly shorter and Kt/V was better with our new catheter. At 18 months, catheter survival was 91.7% and 73% for the Saudi 3-cuff and the conventional 2-cuff Tenckhoff catheters respectively ($p < 0.01$).

Conclusion

The study demonstrates the superiority of our new catheter and our new technique over the traditional one in terms of catheter survival. This is due to fewer incidences of catheter tip migration in addition to lower peritonitis rates. Dialysis adequacy was better because of shortened fill and drain time.

Keywords: PD, three-cuff PD catheter, two-cuff PD catheter, migration, fill and drain time, peritonitis, catheter survival.

P-45**FLUID STATUS IN PERITONEAL DIALYSIS PATIENTS (DP): ASSESSMENT BY BIOIMPEDANCE**

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Objectives

Fluid overload and depletion have negative effects on PD outcomes. Since achieving normohydration is important, bioimpedance (BIS) is a promising technique for objective fluid status assessment; however, this assessment in patients with extreme body composition (malnourished, severe obesity) seems to be not accurate. We aimed to evaluate fluid status in PD patients and its relationship with body composition.

Methods

Cross-sectional study including 49 PD prevalent patients [49 (29-75) years; 57% male, 25% diabetics, SBP 130 (110-160) mmHg; DBP 80 (70-95) mmHg; APD/CAPD 59%/31%. Icodextrin use: 61%]

Hydration status was assessed by clinical parameters and bioimpedance (BCM). Prevalence of overhydration was assessed considering different cutoff point for OH/ECW (>15%; >10%; >0%). were compared between overhydrated and normohydrated groups in each case. Differences between groups regarding clinical, biochemical and body composition parameters were analyzed. ROC curve was performed to establish the OH/ECW cutoff point to determine overhydration in obese patient. Obesity was defined as FAT>30%.

Results

Overhydration was present in 5(10%), 15(30%) or 30(60%) patients weather OH/ECW were >15%, 10% or 0% respectively. Overhydrated patients, regardless the cutoff point, had significantly lower fat and phase angle (PA); without difference in lean body mass. However, patients with lower LTI had higher OH/ECW ($p=0.001$). No clinical parameters or biochemical differed between groups. No correlation between OH and 24h diuresis, ultrafiltration or RRF was found.

Regarding body composition, we found an inverse correlation between OH/ECW and PA ($p=0.001$) and FTI ($p=0.001$). Using a ROC curve, OH/ECW>2,5% could be a good cutoff point to define overhydration in obese patients (83% sensibility, 50% specificity).

Conclusion

The prevalence of overhydration in PD patients was 10% by classical definition for hemodialysis patients (OH/ECW>15%) but as high as 60% considering definition for normal population (OH/ECW=0). In obese patients, OH/ECW>2,5% could be a good cutoff point to define overhydration.

P-46**THE PREVALENCE, SEVERITY AND RISK FACTORS FOR GASTROINTESTINAL SYMPTOMS IN PERITONEAL DIALYSIS PATIENTS**

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Objectives

Gastrointestinal (GI) symptoms are one of the most common complaints of peritoneal dialysis (PD) patients, and may correlate with nutritional status, life quality, peritonitis rate and possibly mortality. Therefore, the aim of this study was to analyze the prevalence, severity and possible risk factors for GI symptoms in PD patients.

Methods

A total of 72 PD patients, without previous history of gastrointestinal malignancies and episodes of bowel obstruction, were asked to complete Gastrointestinal Symptom Rating Scale (GSRS) questionnaire, containing 15 questions divided in 5 groups, concerning a presence and severity of 5 dimensions of gastrointestinal symptoms: reflux, indigestion, abdominal pain, constipation and diarrhea. Multiple regression analysis was used when studying the impact of correlated factors (general data, Kt/V, rGFR, serum potassium and albumin levels, anemia, therapy) on occurrence of GI symptoms in PD patients. We also used bivariate logistic regression to examine the value of GSRS in peritonitis prediction.

Results

All of the patients reported the presence of at least one gastrointestinal symptom, mostly indigestion (93.1%), constipation (90.3%) and reflux symptoms (86.1%). The average GSRS score was 7.4 ± 1.6 , with the highest mean score for constipation, 2.3 ± 1.5 . There was statistically significant negative correlation between hypokalemia ($B=-0.84$; $p=0.033$), hypoalbuminemia ($B=-0.1$; $p=0.042$) and lower residual GFR ($B=-0.33$, $p=0.001$) and occurrence of GI symptoms. We also found statistically highly significant negative correlation between hypokalemia and constipation ($B=-0.858$; $p<0.001$). Analysis showed that the constipated PD patients were more susceptible to gram-negative acute peritonitis (OR 3.84; CI 1.36-10.92).

Conclusions

Present study demonstrated a high prevalence of GI symptoms in PD patients. Better control of correlated factors, serum potassium level and regulation of bowel emptying, may improve quality of life of PD patients and lower their peritonitis rate.

P-47**JOB SATISFACTION AND ASSOCIATED FACTORS AMONG HEMODIALYSIS AND PERITONEAL DIALYSIS NURSES**

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Background

Job satisfaction has a special implication for the healthcare services, since the quality of care provided by nurses is negatively affected by problems related this satisfaction. Aims of this study were to assess and compare demographic and professional characteristics and job satisfaction levels in hemodialysis (HD) and peritoneal dialysis (PD) nurses. Another aim was to determine the relationship between satisfaction and demographic factors in dialysis nurses.

Methods

This is an observational, multicentric, cross-sectional study. A total of 159 nurses from 44 dialysis centres in Turkey were included. Socio-demographic Information Form and the Minnesota Satisfaction Questionnaire were used to collect data.

Results

The average satisfaction score in dialysis nurses was 3.48±0.66. The job satisfaction score of HD nurses was similar to PD nurses' score (table 1). With regard to age, gender, educational level, marriage status, the number of children, having hobbies and any organic diseases, length of employment, hours worked per week, work in shifts, and also attending training and social programmes; intrinsic, extrinsic and total satisfaction scores were not different ($p>0.05$). Choosing to work in dialysis reluctantly was characterized by higher intrinsic satisfaction. Extrinsic satisfaction and total satisfaction scores were higher among nurses who had no problems with administration and did not want to change job.

Conclusions

Job satisfaction is similar between HD and PD nurses. Nurses, who are characterized by low levels of job satisfaction want to change their institutions. Administrators should support dialysis nurses in order to increase their satisfaction.

P-48**RELATION OF VOLUME STATUS WITH MALNUTRITION-INFLAMMATION-ATHEROSCLEROSIS IN PERITONEAL DIALYSIS PATIENTS**

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Aims

Chronic fluid excess and hypertension are factors of high mortality in peritoneal dialysis patients. In this study we aimed to evaluate relation of malnutrition, inflammation and atherosclerosis with volume parameters that we determine with echocardiography, NT-PRO BNP, bioimpedance analysis.

Method

31 female (%41,5) and 44 (%51,5) male; total 75 peritoneal dialysis patients with average age of $53 \pm 13,3$ are included in this study. Mean peritoneal dialysis duration was determined as $41,5 \pm 31,9$ months. Patients were compared with 52 healthy control group. 48 (%64) patients SAPD, 18 (%24) patients CCPD, 9 (%12) patients were applying ise other APD types. Left ventricle ejection fraction, left atrium diameter, left ventricle end diastolic diameter and end systolic diameter had been measured with echocardiography. Overhydration (OH), total body water (TBW), extracellular water (ECW), intracellular water (ICW), fat free mass (FFM), fat tissue index (FTI), lean tissue index (LTI), fat tissue mass (FTM) were measured with bioimpedance spectroscopy non-invasively. Carotis artery intima-media thickness (CA-IMT) was used as atherosclerosis finding whereas CRP was used as inflammation marker. Serum albumin and prealbumin levels were used to determine nutrition status.

Findings

In female and male PD patients serum prealbumin, NT-proBNP values were significantly high ($p < 0,05$) whereas serum albumin levels were significantly lower ($p < 0,05$). Systolic blood pressures of PD patients were significantly higher ($p < 0,05$) from control group. We revealed cross relation of serum NT-proBNP with albumin levels ($p < 0,05$) and positive relation with SVKı ($p < 0,05$) measured by echocardiography. Significant positive relation ($p < 0,05$) of ECW excess with systolic blood pressure increase were present. Mean systolic blood pressure, CA-IMT, NT-proBNP levels, echocardiography parameters such as LAD, LVDD, SVKı were significantly higher ($p < 0,05$) in patients with water excess determined by bioimpedance method. Whereas EF and serum albumin levels were significantly lower ($p < 0,05$) in patients with water excess.

Results

In our study we revealed significant correlation between volume status determined by bioimpedance method and malnutrition, atherosclerosis.

P-49

PERITONEAL CATHETER INSERTION: PRE-PERITONEAL TUNNELING IN LAPAROSCOPIC TECHNIQUE, A SINGLE CENTRE EXPERIENCE

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Introduction

Catheter dislocation is occurrence of Peritoneal Dialysis. It's described between the PD' mechanical complications.

Three cases in which laparoscopy surgical tech: cath pre-peritoneal tunneling is proposed.

1. Young woman 48 ys old, suffering from ESRD due to tubulointerstitial nephropathy to diuretics and NSAIDs abuse. 1st, peritoneal cath insertion with LPT technique. Catheter dislocation. 2nd, LPS displayed distal end cath dislocation in sub-diaphragmatic area and omentum wrapped. Total omentectomy and tube debridement which has been pegged to the round ligament. 3rd, LPS, peritoneum incision and pre-peritoneal tunneling cath. The patient had no more disfunction. APD has performed regularly for 12 months and was later transplanted. The tube removal during kidney transplant was smooth.
2. Young male 55 ys old suffering from ESRD due to HIV nephropathy, two years APD age. Recurrent ES infection from St. Aureus complicated with tunnel infection and peritonitis. Antibiotic treat with sterilization: cath removal and inserted on the other side by means of pre-peritoneal tunneling. Patient is currently being APD and from 8 months is waiting for a kidney transplant. No recorded complications.
3. Two old men, aged respectively 72 and 87 ys old, CRF secondary to NAS. In both cases, it was necessary to define the surgical chance than the opportunity to practice general anesthesia. Obtained it, both patients were subjected to the same in LPS with tube insertion and fixing by pre-peritoneal tunneling.

Results

Same hospitalization, good pain control, none surgical and septic complications, at list all patients started CAPD on 2nd day.



P-50

ANALYSIS OF THE QUALITY OF LIFE IN PATIENTS ON PERITONEAL DIALYSIS

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Objectives

End stage renal disease and it's treatment, significantly disrupt patients' quality of life (QoL). In addition to the survival, quality of life of patients on peritoneal dialysis (PD) represent an important indicator of the outcome of treatment. The aim of the study is to evaluate QoL of patients on PD and analyze the factors that affect it.

Methods

The study included 64 patients on PD for at least 6 months. QoL was assessed by short-form Kidney Disease Quality of Life questionnaire (KDQOL-SF), which includes 19 domains, 8 concernig general health, and 11 specific to renal disease. We examined the impact of demographic, clinical and laboratory parameters on the QoL of these patients.

Results

The average age of our population was 61.2 ±11.4years, of which 62.5% were elderly, with predominance of male -62.5%. The mean treatment duration was 36.05 ± 24.82 months. Diabetes was a primary disease of 26.6% of patients. The worst score of the general health assessment was in domain of social functions, the best in domain of pain. In domain specific for renal disease, worst score was in working capacity domain, and the best in domain of encouragement dialysis patients. Patients who had less than 5 drugs in therapy (7 domains), were on antihypertensive therapy (8 domains), and oral iron (6 domains), had significantly better QoL. There was a significant positive correlation between the albumin levels (8 domains) and better adequacy of PD (5 domains) with better QoL, but presence of comorbidity adversely affected QoL (8 domains). The average length of treatment, presence of diabetes and older age had no impact on QoL.

Conclusion

Better adequacy of dialysis, correct nutrition, well-regulated hypertension and anemia could significantly improve the QoL in patients on PD. Peritoneal dialysis doesn't impair QoL in population of older patients and diabetics.

P-51**PREDICTORS FOR SERUM ALBUMIN VARIABILITY IN CONTINUOUS AMBULATORY PERITONEAL DIALYSIS (CAPD) PATIENTS**

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Objective

Hypoalbuminemia is an indicator for mortality and morbidity in dialysis patients. Based on dynamic change of serum albumin levels, present study was conducted to investigate the predictors for serum albumin variability in continuous ambulatory peritoneal dialysis (CAPD) patients.

Methods

A total 298 CAPD patients who received regular PD in one hospital-fascinated PD unit and aged more than twenty years were recruited. The study duration was six months. The study subjects were divided into four quartiles by mean albumin levels within six-month period. Variables were assessed including demographics, laboratory data, dialysis adequacy indices, drug history (antihypertensive, vitamin D, iron), history of parathyroidectomy and hospitalization. The albumin variability was defined as decreased or increased serum albumin levels by calculating differences between mean albumin levels and baseline albumin levels.

Results

The mean albumin levels were 3.37, 3.72, 3.95, 4.26 gm/dL respectively in four quartiles (Q1-Q4). The age was 56.0, 53.8, 52.5, 50.4 years respectively. The hospitalization was increased in the Q2 and Q3 quartiles, the ratio in four quartiles were 14.7%, 20.6%, 23.7%, 4.1%, $p=0.006$. The significant predictor for serum albumin variability (decreased or increased) in six-month was baseline cholesterol (OR 1.72, 0.52, 0.31 in Q2-Q4 when Q1 as reference, $p=0.049$). The other factors did not have significant prediction for albumin variability including age, gender, PD duration, body mass index, routine laboratory data, dialysis adequacy indices (Kt/V, Ccr), and drugs use (vitamin D, antihypertensive, iron etc).

Conclusions

Present study showed demographics, routine laboratory data and drug history cannot be as predictors for serum albumin variability in six-month period in CAPD patients. Although baseline cholesterol level had a marginal prediction effect for serum albumin variability, the validation needs to be confirmed by more investigations.

P-52**REMOTE MONITORING FOR HOME DIALYSIS: A LANDSCAPE ASSESSMENT OF POLICIES IN 4 EUROPEAN COUNTRIES**

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Objectives

Remote monitoring (RM) might represent an opportunity to better manage end-stage renal disease (ESRD) patients treated at home, i.e., home hemodialysis (HD) or peritoneal dialysis (PD). This research was conducted to identify public policies on RM in 4 European countries.

Methods

The medical literature, the internet and the Ministry of Health websites (Germany, Italy, Spain, UK) were searched to identify RM policies for ESRD, but also for chronic diseases such as diabetes, heart failure (HF), chronic pulmonary obstructive disease (COPD), and hypertension. RM was defined as the surveillance of device transmitted outpatient data. All searches were conducted in Q1-2014 and complemented by one-hour interviews with 4-5 payers/policy makers per country. Information gathered included: existing policy, disease areas, RM reimbursement level, type of RM services covered, other existing incentive (e.g., quality indicators), past or ongoing assessments of RM technologies, disease areas perceived to benefit the most from RM, and concerns.

Results

All 4 countries had policies on RM and/or telehealth. Most countries had or are having pilot projects (mainly in diabetes, HF or COPD). RM value was perceived to be moderate to high. HF obtained the highest average rating (4.2±0.4) while ESRD obtained the lowest (3.4±0.8). Concerns about medical information sharing and the capital investment required were raised in interviews. Patients recently discharged from hospital or patients living remotely or patients with serious and complicated diseases are believed to benefit most from RM. Formal reimbursement is only scarcely available and mostly for heart failure (HF).

Conclusions

In the 4 countries surveyed, RM has attracted a lot of interest for its potential to increase healthcare efficiency in chronic diseases. RM value for PD and home HD had the lowest recognition. Incentives to use RM technology are seldom seen, likely due to the perception that evidence of clinical/economic impact is still insufficient.

P-53

DIAGNOSTIC OF PLEURO-PERITONEAL COMMUNICATION IN PATIENTS ON PERITONEAL DIALYSIS - CASE REPORT

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Objectives

Penetration of dialysate in extra peritoneal space is one of the most common mechanical complications of peritoneal dialysis. Hydrothorax is a result of fluid accumulation in the pleural space. It occurs in 1.6-10% of patients on peritoneal dialysis and primarily is right-sided.

Case Report

Patient 64 years old, the main cause of chronic renal failure is diabetic nephropathy. He has suffered from diabetes mellitus and high blood pressure for twenty years, and last 4 years from dilated cardiomyopathy. For the last three years he has known for renal failure. He is on CAPD program from December 2013. The patient appears with a prominent dyspnoea on January 28th 2014. The pleural effusion on the right side was evaluated on heart and lung radiography. Thoracontesis was performed and 1000 ml of sero-hemorrhagic content was evacuated. Pleural fluid was contained 28.36. mmol/L of glucose, 104.4 IU/L of LDH and 16.1 g/L of total protein while serum was contained 9.41 mmol/l of glucose 457 U/L of LDH and 53.8 g/L of total protein. Control radiography showed pleural effusion with the same characteristics. In order to complete diagnosis, dynamic and static pleuro-peritoneal scintigraphy with ^{99m}Tc-Sn was done. Increased activity of colloids in the right lung was detected on dynamic scintigraphy at the end of the recording, while pathological activity of radio colloid was observed in the middle part of the right lung on static scintigraphy. Peritoneal dialysis was temporarily suspended inpatient. After eight weeks treatment was continued with CAPD scheme: 4x1500ml Baxter: 2x1.36%+ 1x2.27%+ Extranet ("dry night").

Conclusions

Inadequate ultrafiltration after initiating CAPD therapy led to the pleuro-peritoneal effusion, which was confirmed on peritoneal-pleural scintigraphy. Peritoneal-pleural scintigraphy represents a reliable and non-invasive method for diagnosing penetration of dialysis fluid in the pleural cavity.

P-54

CALCULATED SERUM OSMOLALITY IS RELATED TO PERITONEAL CLEARANCE, TRANSPORT TYPE AND FLUID REMOVAL

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Objectives

Endstage renal disease is resulting in a hyper-osmotic status due to the accumulation of osmotically active substances. The aim of the study was to evaluate the associations between calculated osmolality, peritoneal clearance, peritoneal transport type and fluid removal.

Methods

Serum osmolality was calculated from sodium, glucose and urea (osmolality = sodium * 1.86 + glucose / 18 + blood urea nitrogen / 2.8 + 9; osmolality in mOsm/kg, sodium in mEq/l, glucose in mg/dl and blood urea nitrogen in mg/dl) in 71 adult peritoneal dialysis patients (age: mean±SD 63±15 years) during 196 peritoneal equilibration and clearance tests (median two tests per patient). Daily fluid removal represented the sum of peritoneal ultrafiltration and urine output. The relation between osmolality, peritoneal transport type (D/P creatinine), peritoneal clearance (Kt/V and creatinine clearance) and daily fluid removal was analysed.

Results

Calculated serum osmolality was in the range of 272 to 329 mOsm/kg (mean ± SD 301±9 mOsm/kg). Four cases presented calculated osmolality values below 280 mOsm/kg; 81 cases were in the range between 280 and 300 mOsm/kg; whereas the majority of cases (n=111) had values above 300 mOsm/kg. As expected, there is a significant negative correlation between calculated osmolality and peritoneal clearances (osmolality versus peritoneal Kt/V: r = -0.32, p<0.001; osmolality versus peritoneal creatinine clearance: r = -0.38, p<0.001). Faster peritoneal transport type was associated to lower calculated osmolality (D/P creatinine versus osmolality: r = -0.29, p<0.001) and lower daily fluid removal (D/P creatinine versus fluid removal: r = -0.23, p<0.001). Calculated osmolality was positively related to daily fluid removal (r = 0.32, p<0.001).

Conclusions

Calculated serum osmolality depends on peritoneal clearance. Higher fluid removal seems to sustain hyper-osmolality, whereas lower fluid removal is leading to hypo-osmolality. Fast peritoneal transport status is associated to reduced fluid removal causing secondarily hypo-osmolality.

P-55**PERITONEAL SCINTIGRAPHY IN THE DIAGNOSIS AND TREATMENT OF DIALYSATE LEAKAGE**

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Objectives

Dialysate leakage represents a noninfectious complication of peritoneal dialysis (PD). We present our experience regarding peritoneal radionuclide scintigraphy in diagnosis and treatment of leakages.

Methods

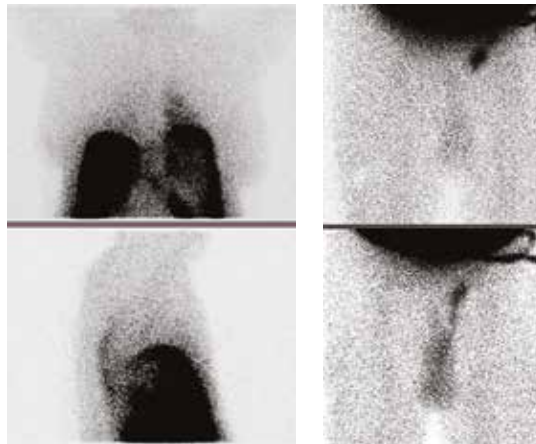
We reviewed the files of all patients of our Unit and recorded all leakages. We focused on cases using peritoneal scintigraphy- (99 m technetium sulfur colloid was instilled in 2 L of 1.36% dextrose dialysate. Sequential gamma camera static images were obtained at 0 minutes, 60 minutes and 2 hours).

Results

We found 12 leakages in 192 patients (6%). 7 cases were exit-site and peri-tunneled leakages, 3 pleural (hydrothorax) and two leakages in genitalia region. In the first 7 cases diagnosis was made by clinical examination and no further diagnostic procedure was used. Peritoneal scintigraphy was performed in the last 5 cases. The method proved the pleuroperitoneal leakage (Fig 1) in 3 patients and inguinal hernias in 2 (Fig 2). Patients with pleural leakage stopped PD permanently, while patients with inguinal leakage were treated surgically and were able to continue on PD

Conclusion

Peritoneal scintigraphy is an easy method in showing the pleural and inguinal leakages and guiding clinicians for treatment decisions.

**P-56****EVALUATION OF ADHERENCE AMONG PATIENTS ON PERITONEAL DIALYSIS**

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Background

As in the management of chronic diseases in general, in the case of dialysis patients proper cooperation is important. During education the patient interacts with the nurse, this connection basically determines the long-term life expectancy and quality of life in peritoneal dialysis. According international surveys only 20-50% of patients comply with instructions, therefore adherence and patient - centered approach can improve the results.

Objectives

We assessed by a questionnaire the cultural, socio-economic, medical and cognitive factors affecting adherence - in search of controllable elements.

Methods

Our currently treated PD patients (n = 31, male / female 19/12, age 62.5 ± 11.7 years) filled out a questionnaire specially designed for adherence screening of this patient population. The questions concerned to accompanying information received from the person ordering the medication, drug taking habits, knowledge of the effects of drugs, characteristics of medication errors.

Results

Our results show that patients do not receive adequate information getting new medication, often gather information from other sources (n = 14). The supporter background within the family (n = 9) is important, difficult to evaluate the role of financial factors. In many cases, due to forgetfulness, travel disruption or failure of timely drug replacement (n = 17) the causes are reversible. We found several patients thought that it is not always necessary to take the medicine (n = 5).

Conclusion

In spite of stronger patient-nurse-physician relationship in PD there is a considerable disruption of adherence. The nursing education must establish a genuine internal motivation for adherence.

P-57**PERIODONTAL STATUS AND DENTAL CARE OF PATIENTS ON PERITONEAL DIALYSIS**

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Background

In haemodialysed patients chronic dental inflammation is a strong and independent non-traditional cardiovascular risk factor. The dental health status of peritoneal dialysis patients seems to be worse than in haemodialysis. Gram negative bacterial accumulation on the teeth may activate several immunoinflammatory processes and could cause endotoxaemia with systemic proinflammatory response, which might generalize atherosclerotic processes. Prevention of infective complications in peritoneal dialysis moreover involves education in how to develop and maintain an optimal oral hygiene level.

Methods

We evaluated the effect of a dental care education session and visitation of a dentist's surgery in our patients on peritoneal dialysis. A total of 24 patients - 11 men and 13 women, average age 59,2 year 10 of them were diabetic - were given this special type of care. We analysed the previous 4 months and the next 4-7 months clinical and laboratory data comparing the mean leucocyte number, C-reactive protein (CRP), erythropoietin dose, haemoglobin and ferritin level, serum albumin.

Results

The main findings of this pilot study were that the dental care was associated with a significant decrease in leucocyte number ($p=0,013$), and CRP ($p=0,013$). Along with proper iron supplementation the ferritin level increased from 260,5 ng/ml to 311,5 ng/ml ($p=0,0008$). There were no significant changes in haemoglobin and serum albumin. The erythropoietin dose slightly reduced.

Conclusions

The present study indicates that the education and consequent eradication of focal oral infection can beneficially influence the systemic pro-inflammatory status. Fortunately, this is a modifiable source of infection in patients on peritoneal dialysis. Further studies are required to establish whether this effect could improve the cardiovascular risk profile in this high risk population or contributes to protection against peritonitis. In conclusion we should organise regular dental control for our patients to make better their estimated survival.

P-58**SERUM CARDIAC TROPONIN T (cTnT) LEVEL IN STABLE CONTINUOUS AMBULATORY PERITONEAL DIALYSIS (CAPD) PATIENTS**

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Introduction

Increased serum cTnT levels are characteristic for dialyzed patients and have multifactor etiology.

Objectives

To compare serum cTnT levels between asymptomatic CAPD patients and control groups (patients who received renal graft and healthy volunteers). To establish serum cTnT predictors in stable CAPD patients.

Patients and Methods

Serum and dialysate cTnT levels were checked in 21 asymptomatic patients (age 59.0 ± 18.2 years) treated with CAPD for 15.6 (0.4 - 96.1) months. Control group included 48 healthy volunteers (age 56.7 ± 16.5 years) and 23 patients who received renal graft (age 54.6 ± 10.9 years) with serum creatinine level below 3 mg/dL.

Results

Serum cTnT level in CAPD patients was 0.032 (0.012 - 0.476) ng/mL, and was comparable to level in patients who received renal graft (0.023, 0.006 - 0.096 ng/mL) but higher than in healthy volunteers (0.010, 0.003 - 0.045 ng/mL, $p < 0.0001$). There was a positive correlation between serum cTnT level and dialysate cTnT level ($r = 0.783$, $p < 0.001$), and daily cTnT excretion with dialysate ($r = 0.801$, $p < 0.001$). There was a negative correlation ($r = -0.648$, $p = 0.001$) between serum cTnT level and daily diuresis (1067 ± 761 mL). In MARSplines model (GCV 0.001, corr. $R^2 = 0.965$), serum cTnT predictors in CAPD patients were: daily cTnT excretion with dialysate (5 references), blood bicarbonate level (4), weekly Kt/V (2), serum albumin (2), serum cholesterol (1), age (1), and diabetes mellitus (1). Regression methods also pointed out daily cTnT excretion with dialysate as the most important indicator of serum cTnT level.

Conclusions

Transperitoneal cTnT excretion is the strongest predictor of serum cTnT level in patients treated with CAPD.

Key words: cardiac troponin T, troponin excretion with dialysate, peritoneal dialysis, renal graft

P-59**EVALUATION OF THE CAREGIVER'S PSYCHOSOCIAL AND MENTAL STATE IN PERITONEAL DIALYSIS (PD)**

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Background

The life quality caregiver's of patients with PD is significantly changed by home treatment. The mental and social status of caregivers directly affect the quality of the patient care.

Methods

We have conducted a questionnaire based survey for the 33 caregivers of 24 PD patients at our dialysis center. We examined the social and mental status of the caregivers and compared it by evaluating the questionnaire scoring the burnout level (Zarit Caregiver Burden Scale (CBS).

Results

According to the CBS scores, 16 of the caregivers didn't show signs of burnout 12 persons burned out group. 84% (28/33) of the caregivers felt the excessive responsibility a burden. Among the burnout groups, 15 of the 17 relatives with higher education while the education level of the not burned out group is lower. The burned out caregivers live among better living conditions, more of them are in active work status, while the earning indicators of the non-burned out ones are lower. We found a correlation between the method of treatment and the burnout status. We found a significant connection between the occurrence of complications and the level of burnout. We didn't find a correlation between the time spent in PD care and the burnout degree.

Conclusion

The care for the PD patient poses a higher burden for active relatives. The occurrence of negative change in the interpersonal relationships of the patients must be examined in the background of recurring complications. One of the reasons for the emergence of burnout may be the assumption of excessive responsibility.

P-60**RE-EMBEDDING CATHETER TECHNIQUE FOR ACUTE KIDNEY INJURY: A CASE REPORT**

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Background

We have reported a re-embedding catheter technique for chronic peritoneal dialysis (PD) patients at high risk of PD catheter removal or who hope to spend the end of life at home on PD again. We recently applied this technique at the discontinuation of PD in a patient with acute kidney injury (AKI).

Case Report

A 50-year-old woman who had been on PD for AKI due to hypertensive urgency in 2009 had been discontinued from PD after 7 months because her creatinine levels was decreased to creatinine 2 mg/dL. We selected the re-embedding catheter technique because renal function did not normalize, and she hoped to undergo PD as a future renal replacement therapy. She reached end-stage kidney disease 4 years after discontinuing of PD, and PD was resumed after exteriorization of the PD catheter.

Conclusion

We consider the re-embedding catheter technique as a useful method for AKI patients who do not recover normal renal function.

P-61**ORAL GLUCOSE TOLERANCE TEST AND SERUM INSULIN LEVEL UNDERGOING CONTINUOUS AMBULATORY PERITONEAL DIALYSIS**

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Background

The aim was to evaluate the state of glucose intolerance in non-diabetic peritoneal dialysis (PD) patients.

Methods

75 gram Oral Glucose Tolerance Test (OGTT) was done in 41 PD patients without history of Diabetes (22 males, 19 females: mean \pm SD, 53.8 \pm 13.2 years). The results of 75 gm OGTT were compared to that of the normal group (n=41) and the impaired glucose tolerance (IGT) group (n=41), both with normal renal function.

Results

Among 41 patients, nine (22%) had IGT and three (7.3%) had diabetes. In fasting glucose, there was no difference in glucose level between the PD (93.2 \pm 7.3 mg/dl) and the normal group. (95.4 \pm 7.9 mg/dl, P=0.65). But with 2 hours, glucose level for PD patients (135.7 \pm 38.5 mg/dl) was higher than that of the normal group (103.0 \pm 14.8 mg/dl, p=0.02) but lower than that of the IGT group (155.9 \pm 15.5 mg/dl, P=0.006). For PD patients, fasting insulin levels were 8.7 \pm 4.3 μ U/ml respectively, and the fasting insulin levels of PD patients were not significantly different from those of the normal (7.4 \pm 3.5 μ U/ml) but those of IGT group (14.5 \pm 3.3 nU/ml) were significantly high (P=0.03). Fasting and 2 hours C-Peptide levels were persistently higher for PD patients compare to those of the normal and IGT groups.

Conclusion

Our results indicated that according to 75 gram OGTT, most of PD patients were non-diabetics, but they had higher 2 hours glucose and insulin levels than that of normal group. And For the PD patients, fasting and 2 hours C peptide levels were significantly high

P-62**PLASMA FREE AMINO ACIDS IN PATIENTS UNDERGOING PERITONEAL DIALYSIS**

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Background

Patterns of plasma free amino acid has been shown to be altered in patients with renal failure. However, no speculation has taken place how its alterations effect in patients undergoing peritoneal dialysis (PD). In addition, there is no reference value of the plasma free amino acid in PD patients. Thus, the present study aimed to find the amino acids which have a relationship with some clinical parameters.

Subjects and Methods

This cross-sectional study was undertaken in thirty seven patients (21 men, 16 women) undergoing PD in Tohoku University Hospital between Nov, 2014 and Apr, 2015. 39 plasma amino acids were measured. Body composition was monitored using bio impedance device. Blood and urinary samples were collected at the same day as body composition parameters. Echocardiography was demonstrated every 3 months and LVMI was calculated. Relationship between plasma free amino acids and the parameters of body composition, blood and urinary analysis, and LVMI were evaluated.

Results

Significant correlation between 3-Methylhistidine (3-MH) and many clinical parameters was observed, especially between muscle parameters, grip strength, muscle volume and skeletal muscle volume measured by bio-impedance monitor. In addition, there was also significant correlation between cardiovascular parameters, including systolic blood pressure and LVMI. A multiple regression analysis of these parameters have demonstrated that 3-MH was the independent contributing factor for muscle and cardiovascular parameters.

Conclusions

These result suggests that 3-MH associated with muscle and cardiovascular parameters and might be an independent predictor for muscle and cardiovascular status.

P-63**METASTATIC CALCIFICATION MIMICKING SARCOMA-LIKE TUMOR IN PERITONEALLY DIALYZED PATIENT**

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Disorders of mineral and bone metabolism are common in patients with chronic kidney disease. One of the hallmarks of disturbed calcium-phosphate homeostasis are metastatic calcifications.

We present a case of 24-years-old patient, refugee, peritoneally dialyzed for three years, who was admitted due to growing tumor around the left hip. Laboratory tests showed normal level of the parathyroid hormone, hyperphosphatemia and serum calcium concentration in the upper limit. Patient was treated with calcium based phosphate binders. He also received, due to unknown reason, high doses of ascorbic acid for a few months in dose of 1 gram per day .He totally ignored dietary indications.

X-rays and MRI suggested sarcoma type tumor. Biopsy was performed, which showed metastatic calcification. Interestingly, there were no significant calcifications in cardiovascular system (normal valves in echocardiography and minimally visible calcifications in blood vessels of both limbs).

Due to the size of the tumor and its close localization to the joint, the patient underwent successful surgical excision of this mass. Calcium based phosphate binder and vitamin C were discontinued and sevelamer hydrochloride was introduced.

In conclusion, presented case highlights distinct mechanism of vascular and tissue calcification. It is a matter of a debate whether high doses of vitamin C may precipitate aforementioned phenomena.

P-64**TAKE ON CHARACTERISTICS OF INCIDENT PD PATIENTS IN A MULTICENTER INTEGRATED CARE SETTING**

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Low PD use relates with type of medical and economic structures, physician preferences and lack of patient's choice.

Objectives

To analyze HD/PD take on and its relationship with the type of previous referral and provided care.

Methods

Retrospective analysis of 547 incident patients starting dialysis in 23 HD/PD clinics in 2012. Early referral (ER) considered if patient known \geq 3months in Nephrology, and scheduled initiation of dialysis with a permanent access was considered planned (P).

Results

Population: 30% diabetes, mean age 64 years, 84% with previous medical care of renal disease, 49 % late referral, 80% modality informed, 58 % unplanned start, 11% PD (3% early switch from urgent HD). PD therapy in non-planned start applied in 5/59 PD patients. No differences in HD/PD take on were observed for gender, diabetes, initial renal and predialysis follow up, at structured units or in elapsed time between early follow up and dialysis start. PD patients ($p=0.02$) received more modality information than HD (92% vs. 78%) and were mainly under 65 years ($p < 0.001$). PD incidence varied according with different studied groups:

Studied groups: n (% vs. col.)	All patients n= 547	HD n= 488	PD n= 59	P-value
ER + P	168 (31)	133 (27)	35 (59)	<0.001
Late referral + P	63 (12)	58 (12)	5 (9)	
ER + Unplanned start	113 (20)	104 (21)	9 (15)	
Late referral + Unplanned start	203 (37)	193 (40)	10 (17)	
Optimal care: ER + modality informed + P	121 (22)	96 (20)	25 (42)	

Conclusions

Despite commitment to offer PD/HD as complementary treatments, PD incidence is still low probably due to the high incidence of late referred patients to our clinics. Optimal care provision is important to improve outcomes and patient's as drivers of choice but also to apply for timely referral.

P-65

A PRACTICAL APPROACH TO SAVING LIVES OF THOSE WITH ACUTE KIDNEY INJURY (AKI) USING PERITONEAL DIALYSIS IN LOW TECH SETTINGS

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Objectives

Many developing countries dealing with the burden of non-communicable diseases have an insurmountable task of organizing and funding renal service for its citizens. Those suffering from reversible AKI are often undiagnosed and left untreated. Children and women bear the greatest disease burden in many developing countries. Gravity driven PD has proven an effective modality to successfully treat AKI. Among the many challenges to overcome are the need for reliable laboratory services, training and the continual supply of consumables.

Methods

AKI PD programs have been ongoing in Benin, Ghana, Tanzania, Cameroon and Ivory Coast with support provided by the Sustainable Kidney Care Foundation (SKCF) and the Saving Young Lives consortium comprised additionally of the International Society of Nephrology (ISN), International Society for Peritoneal Dialysis (ISPD) and International Pediatric Nephrology Association (IPNA). PD consumables including catheters were donated for two years to start the programs. Hospitals agreed to continue to purchase supplies after the donation period to maintain sustainability. Timely and accurate diagnosis of AKI is critical, because patients suspected of chronic kidney disease (CKD) were excluded due to the lack of available treatment.

Results

Of the 93 patients treated, approximately 55% recovered kidney function, 12% recovered but were diagnosed with CKD and 33% died. Patients were treated for an average of 10.6 days. Malaria (12%) and sepsis (11%) were the leading causes of AKI. Because kidney biopsy is mainly unavailable, 13% of the cases were of unknown etiology.

Conclusions

PD is a practical and effective modality of renal replacement therapy to treat AKI in low-resource settings, saving lives which otherwise would have been lost. In these patients, AKI treated with PD therapy was associated with 68% survival and with 55% having full recovery, making this a viable treatment modality. AKI should no longer be a death sentence.

P-66

GRAFT FUNCTION DELAY, GRAFT THROMBOSIS AND WOUND DEHISCENCE ASSOCIATES WITH BODY COMPOSITION IN PERITONEAL DIALYSIS AND HEMODIALYSIS PATIENTS UNDERGOING KIDNEY TRANSPLANTATION

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Objectives

The relationship between body composition and morbidity and mortality in dialysis patients is well established; however, the association between pre-transplant body composition and post-transplant outcomes in renal transplant recipients is less clear. We here evaluated whether pre-transplant body composition is related to immediate outcomes after kidney transplantation (Rtx).

Methods

Cross-sectional study including 76 (hemodialysis, HD: 52, peritoneal dialysis, PD: 24) dialysis patients [median age 52 (31-72) years, 61% male] undergoing measurement of body composition (by BCM) prior to RTx. Immediate outcomes after RTx including graft function delay, graft thrombosis and wound dehiscence were recorded.

Results

Median body mass index, BMI, was 25 (19-34) kg/m² [HD 26 (21-34) vs PD 25 (18-36) kg/m²; p=0.3], median lean tissue index (LTI) was 13.0 (9.7-16.9) kg/m² [HD 13.3 (9.5-16.9) vs PD 12.5 (10.0-18.1) kg/m²] and median fat tissue index (FTI) 12.0 (6.0-22.0) kg/m² [HD 12.9 (5.8-21.4) vs PD 10.5 (6.4-25.2) kg/m²]. Body composition did not differ significantly between PD and HD. 55 patients (72%) presented graft function delay; these patients had non-significant lower values of LTI [12.8 (9.5-17.1) vs 13.5 (10.3-16.9) kg/m²; p=0.6] and significantly higher FTI [12.8 (6.0-25.2) vs 10.6 (4.1-17.5) kg/m²; p=0.03]. Eight patients (11%) with wound dehiscence had lower LTI [10.5 (6.6-14.7) vs 13.4 (5.8-20.5) kg/m²; p=0.01] and higher FTI [21.0 (10.6-29.7) vs 11.4 (5.8-20.5) kg/m²; p=0.003]. Additionally, 9 patients (12%) presented graft thrombosis and FTI was significantly higher in this group [17.4 (9.6-28.3) vs 11.9 (5.8-20.7) kg/m²; p=0.05]. In multivariate analysis the association between FTI and abovementioned outcomes remained significant also after adjustment for confounders (age, gender, diabetes, dialysis modality and type of donor and donors' age when appropriate).

Conclusion

Immediate outcomes after RTx in PD and HD patients associate with body composition. Higher adiposity was associated with higher incidence of graft function delay, graft thrombosis and wound dehiscence.

P-67**AN ALTERNATIVE THERAPY FOR CRITICALLY ILL PATIENTS WITH HIGH RISK OF BLEEDING-A PILOT STUDY**

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Objectives

To evaluate the effectiveness of acute peritoneal dialysis for the critically ill patients with high risk of bleeding.

Methods

Newly admitted patients with kidney failure (AKI or CKD stage 5) and another organ dysfunction, and at least one of the following: 1. active bleeding; 2. thrombocytopenia; 3. liver cirrhosis with coagulation dysfunction; 4. post-operation (<1 week); 5. newly onset haemorrhage (cerebral, respiratory, digestive, etc.) were selected. The patients were percutaneously inserted a catheter and underwent continuous ambulatory peritoneal dialysis. If the patient was hyper-catabolic or when the patient demand a dose of >8L/day, the automated peritoneal dialysis was performed. All the patients were followed up till 90 days after dialysis initiation.

Results

Totally 128 eligible patients, 24 discharged within 3 days, 1 patient died within 24h, 42 patients refused to join the study, 61 patients finally enrolled. The mean age was 51.1±20.1 years, 40.8% was male, diabetes was 37.7%, AKI 11.5%, CKD stage 5 was 75.4%, the baseline creatinine was 878.72±471.38 umol/l, haemoglobin 75.1 ± 24.8 g/l, initial dose was 7.8±2.4 l/d, APACHE II scored 26.3±9.6. There were 7 types of bleeding tendency, i.e., digestive haemorrhage (29.6%), prolonged APTT (18.0%), thrombocytopenia (18.0%), cerebral haemorrhage (18.0%), cerebral haemorrhage 14.8%, hemoptysis (13.1%), fundus bleeding (3.3%), post-operation (3.3%). The 90 day survival was 90%, the survivors, 16% patients recovered from uremia. The prescribed Kt/V was 1.51 ± 0.61, while delivered Kt/V was 1.34 ± 0.50.

Conclusions

In our pilot study of patients with high risk of bleeding, the 90 day survival was 90% and 16% patients recovered from uremia. peritoneal dialysis showed special advantages in this selected subgroup of critically ill patients with bleeding tendency.

P-68**WHEN TO REMOVE THE PD CATHETER AFTER RENAL TRANSPLANTATION? (RT)**

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Introduction

There seems to be consensus that the time of removal of the peritoneal catheter after RT may be delayed until renal function and the patient is stabilized, but there are few publications about it.

Methods

We analyzed retrospectively patients on Peritoneal Dialysis Unit (PD) who have received a RT between May 1995 and March 2015 gathering medical history data relating to the peritoneal catheter removal and complications.

Results

108 patients transplanted from PD, 32 women/76 men with a mean age at the time of TR 50 +/- 13 years (range 16-80) were analyzed. Two patients received RT of living donor and 106 of cadaver. The catheter used in all was a straight Tenckhoff with two cuffs. If renal therapy substitution was needed posttransplantation all patients were treated with hemodialysis.

The catheter was removed during surgery in nine patients (8%) due to exit or tunnel infection by Staphylococcus aureus or Pseudomonas aeruginosa. The withdrawal was delayed in 91 patients (84%) and 8 has not yet been removed. The average withdrawal time was 4.1 +/- 2.7 months. The indication of withdrawn was: stable renal function in 85 (93%), stable pancreatic and renal function in 4 and exit site infection in 2 (3%).

Mean creatinine at the time of removal was 2.1 mg/dl +/- 1.8 mg / dl. All catheters were removed surgically under local anesthesia. The mean duration of hospitalization was 2.1 +/- 1.8 days (0-12). Four patients (3.7%) had complications during withdrawal (one hematoma, two hemorrhagic shock and one surgical wound infection). 15 (18%) patients suffered complications before withdrawal: 13 exit site infection, one peritonitis associated with urinary fistula and one spontaneous peritonitis.

Conclusions

In our experience the removal of the peritoneal catheter may be delayed until renal graft function were stabilize since the rate of complication is low.

P-69**PERITONITIS IN PERITONEAL DIALYSIS (PD): WHAT BETTER TOOLS ALLOW TO IMPROVE A GOOD RATIO (1/48)? FACTOR ANALYSIS**

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Introduction

Reducing the rate of peritonitis is a goal of continuous improvement and one of the essential factors to preserve the peritoneal membrane and decrease the failure of the technique. Although many factors (predialysis selection, solutions, mode of PD catheter insertion technique) one of the fundamental aspects is relearning, care of the catheter orifice and continuous monitoring of nasal carriers of staphylococci aureus in patients and caregivers.

Objectives

1. Analyze the impact of the administration of hypertonic saline (20%) in orifice on peritoneal infections.
2. Assess the impact of monitoring and systematic treatment of nasal carriers of staphylococcus aureus in patients and caregivers on the rate of peritonitis.

Methods

We evaluated two populations: 1) 128 patients reviewed during six years in our unit DP peritonitis with a ratio of 1/48. Features: APD 95% Average age: 64.2 + -20.3 years, 55% male, 32% Diabetes M 2) 26 patients evaluated monthly prevalent in the last 12 months. (APD: 100% male: 40%, average age 70,1+-17)

Since March 2014, after modifying protocol proceeded to heal with saline to 20% hole catheter and nasal cultures were taken serially both patients and families dealing with nasal mupirocin when they were positive for staph au. The rest of the evaluated factors remained unchanged (65% predialysis origin, insertion catheter and surgical antibiotic prophylaxis, implementation time-use catheter 24 days, average learning time: 5days, biocompatible solutions percentage of 100%, start of PD: 10ml / min)

Results

In the last 12 months there were 4 peritonitis in 26 patients reviewed so that the ratio of peritonitis improved to 1/60. 3 patients were admitted for 24 days due to respiratory infection, congestive heart failure and peripheral vascular disease. Exitus 2. Transfer to HD: 2; Renal transplantation: 3.

Conclusions

1. The systematic incorporation of systematic nasal cultures and administration of hypertonic saline to 20% in the orifice of peritoneal catheter decreased the ratio of peritonitis going to 1/60 and the average hospital admissions 1day/year.
2. The coordinated review of medical/nursing protocols and quality control favor the continuous improvement of the PD program, benefit patients and improve efficiency.

P-70**"PD BOOKLET" INITIATIVE IS USEFUL AND EFFICIENT FOR PD PATIENTS TO MANAGE THEIR DIET**

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Protein energy wasting is a severe complication in peritoneal dialysis (PD) patients. Daily losses of protein into the dialysate, decreased appetite due to glucose overload related to PD solutions and a too restrictive diet are the main factors. Therefore, nutrition education remains a crucial aspect of PD patients care but it requires specific teaching tools.

Objectives

To create and evaluate an educational tool suitable for PD patients to improve their nutritional knowledge and food intake.

Methods

We performed an interventional, prospective study of "PD booklet" containing main nutritional information and dietary advices created by PD dietician. All PD patients received individual explanations of this "PD booklet" which included cooking modes, protein intake, restriction of potassium, phosphorus and salt intake. "PD booklet" impact on nutritional knowledge was evaluated before and 1 month after its introduction in PD patients and in nephrologists and nurses by the use of a questionnaire. Biochemical parameters were recorded to assess the effect of guidance on nutritional parameters in PD patients in daily practice.

Results

We included 33 patients, 11 nephrologists and 7 nurses. Among 20 patients (H/F: 11/9) who completed this study, plasma prealbumin levels increased in 55% of them. Low prealbuminemia (< 30 mg/dL) was found in 20% at baseline and only in 5% after 1 month. Serum potassium levels were reduced in 55% of patients, whereas serum phosphorus levels remained stable. "PD booklet" improved the knowledge in PD patients and nephrology team; the average increase was estimated as 18% and 9%, respectively.

Conclusions

Despite lack of significantly statistical difference because of a small number of patients, our results demonstrate favorable trends in nutritional parameters and knowledge of PD patients and nephrology team. Therefore proposed "PD booklet" seems to be a useful and efficient educational tool for helping PD patients to manage their diet.

P-71**A SURVEY OF BELIEFS & PRACTICES OF HEALTHCARE PROFESSIONALS MANAGING CHRONIC KIDNEY DISEASE AND RENAL REPLACEMENT THERAPIES IN ENGLAND**

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Objective

Despite a continued interest in Home dialysis patient numbers remain low in England. A continuous survey is being carried out in England involving dialysis nurses and Nephrologists in order to establish and monitor the relationship between their beliefs and practices.

Method

An ongoing monthly survey is conducted, consisting of 25 Nephrologists and 15 dialysis nurses in the England. Nephrologists were asked to provide data for 2 patients who are currently on dialysis and 2 who will start dialysis within the next 6 months. Nurses are asked to provide data on the next 4 patients they review requiring RRT within the next 6 months.

Results

Based upon 674 Nephrologist replies and 342 Nurse replies about 2764 patients not yet on dialysis and another 1448 patients on dialysis, the following information was collected:

	HD(satellite or in centre)	Home HD	Peritoneal Dialysis
Modality of patients on dialysis at start of consultation	71.8%	12.8%	15.5%
Modality of patients starting dialysis following nephrologist consultation	69.4%	12.2%	18.4%
Opinion about suitable modalities for patients seen(can choose more than 1)	76.2%	44.1%	53.1%
Opinion about the most appropriate modality (only choose 1)	47.8%	17.3%	34.9%

Responses for the most appropriate modality for patients requiring RRT in the next 6 months:

- Nurses chose PD for 22.5%
- Nephrologists chose PD for 46.2%

Conclusion

There appears to be a disconnect between what HCPs perceive is the best modality for patients and what they actually receive. However, there appears an even bigger disconnect between what the Nephrologists perceive is the best option and what nurses feel is optimal. Further research is needed to understand this paradox between belief and action and their role specific dynamics.

P-72**EFFECT OF TIMING OF DIALYSIS COMMENCEMENT ON CLINICAL OUTCOMES OF NON DIABETIC PATIENTS WITH PLANNED INITIATION OF PERITONEAL DIALYSIS IN A SINGLE CENTER**

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Objective

The optimal time of dialysis initiation is unclear. The aim of this study is to assess the effect of starting peritoneal dialysis early in non diabetic patients of ESRD on survival and withdrawal outcome.

Method

We performed a retrospective analysis of patients in a single center from January 1, 2009 to December 31, 2012. We intended for 104 cases of non-diabetic patients who introduced peritoneal dialysis observed until December 31, 2014. The patients comprised two groups according to eGFR: the early initiation group (eGFR 6 or more: 53 cases) and the late initiation group (eGFR less than 6; 51 cases). Survival rate and withdrawal rate were analysed by Kaplan-Meier plots.

Results

In this total incident population (n= 104; mean age, 65 years), 53 patients had the early initiation group (eGFR μ 6 ml/min/1.73m²) and 51 had the late initiation group (eGFR <6 ml/min/1.73m²). eGFR values(mean+/- SD) in the early group were 9.1 +/- 3.1 and 4.3 +/- 0.9 in the late group (p<0.01). Serum Cre levels were higher in the late group (p=0.004). During a median follow-up period of 2.90 years, 16 of 53 patients in the early initiation group (30.1%) and 9 of 51 in the late initiation group (17.6%) died (log-lank test, p=0.15), and 13 of 53 (24.5%) in the early group, 11 of 51 (21.5%) in the late group withdrew from peritoneal dialysis (log-lank test, p=0.498). There was no significant between the groups in survival rates and withdrawal rates.

Conclusion

In this study, early initiation of peritoneal dialysis in non diabetic patients with ESRD was not associated with an improvement in survival or withdrawal outcome.

P-73**A UNIQUE CASE OF ENCAPSULATING PERITONEAL SCLEROSIS!**

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Introduction

Encapsulating peritoneal sclerosis (EPS) is an uncommon, serious complication. It is divided into primary and secondary forms according to the underlying etiological cause. The secondary form is the most common and may occur in patients undergoing long-term peritoneal dialysis (PD) in relation to long-term exposure of peritoneum to glucose degradation products. Other triggers remain controversial.

Case Report

A 39 year-old female with end-stage renal disease secondary to Alport syndrome. Past surgical history denoted a tubar ligation. After 6 months of Tenckhoff catheter placement, she started PD. Outflow failure was noticed with abdominal pain at the infusion time. Laparoscopic exploration confirmed an extraluminal catheter occlusion by adhesions and omentum entrapment. Omentectomy and adhesiolysis were performed and complicated by hemoperitoneum. After one week, patient denied to continue PD and chose hemodialysis. After 9 months, still under medical treatment, she presented with lomber pain, without other symptoms. Physical examination normal. Labs: serum urea 30 mmol/L; creatinine 412 µmol/L; CRP 22 mg/dL; urine leucocytes 30/hpf; urinary culture E. coli. Abdominal X-ray: diffuse peritoneal calcification. Abdominal CT scan: peritoneal thickening, calcifications and adhesions. Patient was treated with antibiotics for urinary tract infection and was started on Tamoxifen 10 mg daily. Currently, she remains asymptomatic, well-nourished, without lab abnormalities, other than kidney impairment.

Conclusion

Although it remains unclear, we cannot confirm this was an idiopathic SEP. Patient past history of tubar ligation shouldn't be a limitation, but it was the only previous invasive procedure that could cause some local reaction. Moreover, a foreign body like Tenckhoff catheter was probably an adjuvant factor. Finally, according to some data, Alport syndrome which is a basement membrane disorder may increase susceptibility to fibrosis/sclerosis and SEP.

To the best of our knowledge, multiple factors contributed to a disproportionate peritoneal inflammation and fibrosis which evolution and prognosis is unknown.

P-74**TRANSITION BETWEEN HEMODIALYSIS AND PERITONEAL DIALYSIS: A SINGLE UNIT EXPERIENCE**

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Objectives

Hemodialysis (HD) and peritoneal dialysis (PD) should be regarded as complementary methods of renal replacement therapy. Approximately 10–20% of patients on PD are transferred annually to HD due to technique failure. Much smaller proportion of patients changes modality from HD to PD, predominantly due to vascular access problems, cardiac disease or patient preference. In the present study, we set out to describe the outcomes and survival of patients when they are shifted from a modality to another from one methods to the other.

Methods

We have analyzed retrospectively a cohort of patients treated during the period from January 2007 to January 2015, both patients transferred from HD to PD: Group 1, or from DP to HD: group 2. The clinical and biological data (clearance, Kt / v, rates hemoglobin, and residual renal function) were analyzed in all patients. The patients and technique survival was evaluated in both groups.

Results

Seven patients were transferred from HD to PD (Group 1). They have a mean of age 48, 57 ±13,5 years and the median duration on PD was 23,14 ±20,94 months. The reason for the transition from HD to PD was vascular problems in all cases. Within 4 years after PD initiation, one patient died.

A more important number of patients were transferred from DP to HD (G2): 44 patients, which représente 25% of the total number of treated patients with PD. The main reason for the transition in this group was the loss of dialysis efficiency and peritonitis.

Conclusions

The concept of integrative care is clear, allowing the life of patients to be prolonged. Therefore, it would be very positive to avoid risky vascular access procedures in excess for patients in conditions requiring peritoneal dialysis.

P-75**PD IN THE FRAIL ELDERLY. OUR EXPERIENCE**

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The uremic aged patient (>75 y.o.) in PD carries many elements of noteworthy fragility.

Protracting for years, the duration of substitutive treatment amplifies this weakness.

- Weight loss (-4.5 kg/year)
- Fatigue (self reported at least in 3 days/week)
- Reduction in muscle power (hand-grip)
- Reduction in physical activity (estimable with PASE)
- Reduction in walk speed (known path: more than 7 seconds to cover 4.57 m)

The patient is considered frail if at least 3 out of 5 items are present; if there are <3 items, he/she is considered pre-frail.

Out of total number of 257 patients treated in PD between 2001 and 2014, 40 of them were > 75 y.o. (M=22, F=18).

Tab. 1. Comorbidity Prevalence in DP "over 75" (y.rs 2001-2014).

Y.rs	75-79	80-84	> 85	total
Ischemic heart disease	13	10	12	25
Cardiac impairment	10	8	4	22
Peripheral arterial disease	8	9	5	22
Cerebrovascular disease	4	6	5	15
BPCO	4	3	2	9
Vasculitis	1	1	0	2
Cerebral ictus	4	0	0	4
Diabetes mellitus	5	5	1	11
Neoplasia	1	0	0	1

37 DP over 75 are frail and only 3 are pre-frail. Kt/V and weekly creatinine clearance (CCL) and outcome or surviving at 1yr. of PD are not significantly different from those of the other ages. Average surviving is 2,9 +/- 1,6 yrs. Only 2 over 75 proceeded to hemodialysis. Life quality indices are similar to remaining PD patients.

In over 75 y.o. PD patients there is a >6% growth trend, due to familiar caregiver.

References

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P-76**ENCAPSULATING PERITONEAL SCLEROSIS AS A COMPLICATION OF A LONG-TERM "MOSAIC" OF ESRD THERAPIES**

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Objectives

Encapsulating Peritoneal Sclerosis (EPS) is the most dangerous complication of peritoneal dialysis (PD). EPS can occur during PD (classic EPS), after kidney transplantation (TX) or after a rapid shift to hemodialysis (HD).

Methods

Retrospective analysis of cases of EPS in PD transplanted patients in a single center over 35 years of follow-up. Description of sequences of the EPS presentation.

Results

From July 1979 to December 2014, 173 PD patients underwent kidney transplantation in our center. Five cases (2.9%) of EPS occurred: one 6 months after the TX (typical post-transplantation EPS); the other 4 cases occurred after more than 20 years of different renal replacement therapies (RRTs) (mean 346±20 months) many of them with functioning TX (mean 227±24 months); in some cases the time lag since the end of PD and the occurrence of EPS was of many years (mean 6±1). The mean time in PD had been 71±31 months, in HD 49±30 months. Two patients died 10 and 41 months after EPS diagnosis, respectively after 332 and 367 months in RRTs. During the same period other 21 EPS cases (2.8%) have occurred among the 747 PD patients never transplanted. No cases of EPS was manifested after direct transfer from PD to HD.

Conclusions

In our experience EPS prevalence in transplanted PD patients is not greater than in not transplanted PD patients. In patients for many years on RRTs, EPS occurs even after a long time of the cessation of PD, especially after many treatments and long periods in TX. It is possible that PD is acting only as a side event on the tissues affected by fibrotic processes formed for a long time in RRTs and/or due to the immunosuppressive therapy. To its features this form can be defined "composite EPS" and should also be considered in PD patients transplanted since many years.

P-77

REVIEW OF PLEUROPERITONEAL LEAK IN A COHORT OF PERITONEAL DIALYSIS PATIENTS IN THE LAST 17 YEARS

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Objectives

Hydrothorax secondary to pleuroperitoneal leak is a unusual complication in patients on peritoneal dialysis (PD) but usually requires the discontinuation of the technique. The aim of the study is a review of cases of pleuroperitoneal communication in patients in PD in our center over 17 years.

Material and Method

Retrospective descriptive study of pleuroperitoneal communication in PD. Demographic and personal history, modality and time in PD, diagnostic method, pleural effusion localization, treatment and recurrence were recorded.

Results

202 patients started PD in a period of 17 years between 01/01/98 to 31/12/14 in our center. Six cases were recorded (incidence 3%). Medium age 45.5 ± 16.3 years (range 17-63), 66% female, medium body mass index (BMI) 21.6 Kg/m² (range 18.4-24.2), none diabetic. Four patients on continuous ambulatory PD (CAPD) mode and two in automatical PD (APD). The median time on PD was 32 days (range 1-124). Clinical manifestations were sudden dyspnoea in three patients, and low ultrafiltration rate the other three. Localization on the right side in all of cases. Diagnosis of pleural effusion was made by chest x-ray and thoracentesis. Isotopic peritoneogram was practised only in two patients and the result was normal in both. Peritoneal rest for a month and the temporary transfer to haemodialysis was the treatment in half of patients; PD was reinitiated in the same mode and in all of cases the relapse was occurred. Two patients were transferred definitely to haemodialysis due to massive and early pleural effusion.

Conclusions

Pleuro-peritoneal communication in PD is a rare complication of the technique, predominantly in young women with a low body mass index. In our experience, hydrothorax was localized always on the right side, with relapse in 100% after the peritoneal rest. The normal isotopic peritoneogram not rule out the presence of pleuro-peritoneal communication in our series.

P-78

SERUM ENDOCAN LEVELS AS A PREDICTIVE MARKER OF DECLINE IN URINE VOLUME IN PERITONEAL DIALYSIS PATIENTS

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Backgrounds

In peritoneal dialysis (PD) patients, preserving residual renal function (RRF) is associated with improvement of their survival. Endocan is a soluble proteoglycan expressed in vascular endothelium. Serum endocan levels are elevated in a large number of diseases such as sepsis or cancer, and may reflect endothelial cell dysfunction.

Objectives

We evaluated the association of serum endocan levels with the loss of urine volume or other laboratory parameter in PD patients.

Methods

This longitudinal, observational cohort study was conducted with 30 patients who underwent PD at Nagasaki University Hospital in Japan between 2011 and 2014. Serum samples of each patient were collected at the time of peritoneal equilibration test, which was annually performed. RRF was measured with 24-hour urine collections. Serum endocan levels were measured by enzyme-linked immunosorbent assay, and retrospectively analyzed the relationship with the amount of urine loss or other laboratory data.

Results

Serum endocan levels positively correlated with serum creatinine and b2 microglobulin but not the level of proteinuria, urine volume or D/P creatinine. By multiple linear regression analysis, serum endocan levels and proteinuria at baseline was found to be significantly correlated with a decline in urine volume.

Conclusions

Our results indicate that serum endocan levels as well as the level of proteinuria may become predictive marker of decline in urine volume in PD patients. In addition, it is suggested that endothelial dysfunction may be involved in the decline of urine volume in PD patients.

P-79**ASSOCIATION WITH PERITONEAL DIALYSIS EFFLUENT ANGIOPOIETIN-LIKE PROTEIN 2 LEVELS AND PERITONEAL FUNCTION IN PERITONEAL DIALYSIS PATIENTS**

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Objectives

However Peritoneal dialysis (PD) is a beneficial treatment for patients with end-stage renal disease, ultrafiltration failure is one of critical complications of PD. Recent reports suggest that chronic inflammation and angiogenesis concern the increase of peritoneal permeability in PD patients. On the other hand, Angiotensin-like protein 2 (Angptl2) is a protein which is structurally similar to angiotensin, and is primarily secreted by adipose tissue. Recent reports suggest that Angptl2 regulates chronic inflammation and angiogenesis via promoting the production of inflammatory cytokines such as IL-6. Thus, we supposed that Angptl2 might increase peritoneal permeability, and there have been no studies which assess PD effluent Angptl2 levels in PD patients. We intended to measure PD effluent Angptl2 and IL-6 levels, and investigate the relationship with peritoneal function.

Methods

Subjects were 33 ambulatory PD patients of our hospital. PD effluent samples of each patient were collected at the time of peritoneal equilibration test, which was performed at 12 and 24 months after the start of PD. Angptl2 and IL-6 Levels were measured by ELISA, and analyzed the relationship with D/P creatinin.

Results

A positive correlation was observed between PD effluent Angptl2 level and D/P creatinine, both at the time of 12 and 24 months (12 months later: $r=0.64$, $p=0.003$, 24 months later: $r=0.70$, $p=0.013$). PD effluent Angptl2 and IL-6 levels had positive correlation at the time of 12 and 24 months (12 months later: $r=0.54$, $p=0.012$, 24 months later: $r=0.66$, $p=0.012$). By immunohistochemistry, Angptl2-positive cells were observed in adipocytes, fibroblasts, and macrophages.

Conclusions

Our results indicate that PD effluent Angptl2 level may become an indicator of peritoneal function in PD patients. It is also indicated that Angptl2 is locally secreted in peritoneal cavity and may increase the peritoneal permeability in PD patients via promoting the production of IL-6.

P-80**ASSESSING THE GLYCEMIC VARIATION IN PERITONEAL DIALYSIS PATIENTS WITH TYPE 2 DIABETES BY USING A CONTINUOUS GLUCOSE MONITORING SYSTEM**

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Objectives

To assess the opinions those are negative about peritoneum dialysis introduction of the diabetes patients. Because the method of the peritoneal dialysis accumulates peritoneal dialysis fluid, which contains glucose of 1.5% (1,500 mg/dl) or 2.5% (2,500 mg/dl) used as a serum osmotic pressure material in abdominal cavity, glucose is absorbed while it accumulates abdominal cavity, some say that its blood sugar control becomes more difficult.

Methods

We investigated glycemic variation in peritoneal dialysis patients with type 2 diabetes by using a Continuous Glucose Monitoring. (iPro2; Medtronic, Northridge, CA, U.S.A) The study included 9 peritoneal dialysis patients with type2 diabetes (3 females and 6 males; mean age 66.2 ± 10.5 years; mean duration of peritoneal dialysis: 4.7 ± 4.1 years; PET(peritoneal equivalent test) Low 2 persons, Low Average 5 persons, High Average 2 persons). Method of the diabetes treatment: insulin 2 persons, insulin+DPP4 4 persons, DPP4 2 persons, medicine free 1 person. CGM was performed 5days

Results

As for the result, the mean blood sugar level was around 180mg/dl, and the fluctuation range of the blood sugar was 70 mg/dl. It was under blood sugar level 100mg/dl and might present a hypoglycemia symptom.

Conclusions

The glycemic variation had a bigger blood sugar level change with the meal than a blood sugar level change by the peritoneal dialysis fluid exchange. It showed that peritoneal dialysis enable diabetes patients appropriate blood sugar control, though the glycemic variation was still wide and might cause hypoglycemia. Measures to narrow the glycemic variation need to be studied more in clinical studies.

P-81**PERITONEAL BLEEDING IS NOT ALWAYS A DIALYSIS COMPLICATION**

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A 17 years old girl arrived in Emergency Area in critical conditions. She was extremely pale and weak. Furthermore bleeding through urinary tract and bloody peritoneal fluid were observed. According to her medical history she has been doing peritoneal dialysis for 19 months. Last control documented systemic hypertension. Because of severe anemia (Hb: 6,6 g/dl), macrohaematuria and peritoneal bloody fluid appearance she was transported in Nephrology Unit to further investigate on bleeding causes. Once there, since she has received red cell transfusion, her clinical conditions improved, though peritoneal fluid continued to be bloody and clinical conditions immediately declined. Suspecting hemoperitoneo, ultrasounds were done and instrumental investigations showed multiple cystic kidney lesions, bleeding cystis and aneurismathic anomalies in renal parenchyma. Acute bleeding was caused firstly by aneurismathic vascular lesion in hypertensive condition, making embolectomia necessary. In addition macrohaematuria was linked to kidney cystic ropture in renal pelvis, with haemorrhagia through urinary tract. Finally, her clinical findings (facial angiofibroma, seizures, intellectual disability, heart rabdomyoma with early onset, lymphangioliomyomatosis, autosomal dominant polycystic kidney disease and angiomyolipomas) were suitable with tuberous sclerosis (TSC), a rare genetic disease where TSC1 or TSC2 gene mutation expresses anomalous protein. Typical lesions are hamartomas. They could grow in every part of the body, especially heart, skin, nervous system and kidneys. Clinical signs are age-related. Heart rhabdomyomas is common in foetus. Then, cutaneous and neurological symptoms are prevalent. Early dialysis treatment is provided because of kidney involvement. In conclusion, the incidence of kidney bleeding is so spread in young TSC affected patients (>90%), that we must rule out hemoperitoneo in every TSC affected teenaager with signs of anemia.

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P-82**THE RELATIONSHIP AMONG FATIGUE SYMPTOM, SERUM NUCLEAR FACTOR - κ B AND 25(OH) D LEVEL IN DIALYSIS PATIENTS**

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Objectives

Nuclear factor- κ B (NF- κ B) is a family of transcription factors that functions as a master regulator of immune response. In vitamin D deficiency leads to NF- κ B activation and chronic inflammation and chronic fatigue. We aimed to compare levels of 25(OH) D and NF- κ B, proinflammatory cytokines (IL-1 β , IL-6, sIL-6R, IL-8, TNF- α) and antiinflammatory cytokines (IL-4 ve IL-10) and life quality, fatigue symptoms in hemodialysis (HD) and continuous ambulatory peritoneal dialysis (CAPD).

Methods

The study included 29 CAPD patients [16 male, 13 female], 29 HD patients [15 male, 14 female] and 20 age matched healthy controls [10 male, 10 female]. Fatigue symptoms were evaluated by using vitality scores of Short Form 36 (SF 36). Results: Except IL-8 and IL-1 β , levels of all proinflammatory cytokines were higher in both HD and CAPD patients compared to those of controls ($p < 0.05$). As an antiinflammatory cytokines IL10 levels were lower in both HD and CAPD dialysis patients compared to those of controls ($p < 0.05$). We found vitality scores of SF 36 as $42,0 \pm 23,9$ in CAPD patients and $32,8 \pm 18,9$ in HD patients and these results was below a community based average score. Neither in HD nor in PD patients we detected a relationship between serum 25(OH)D levels and vitality scores of SF 36 ($p > 0.05$). In both HD and CAPD patients NF- κ B and serum 25(OH)D levels was not correlated ($p > 0.05$). There was vitamin D deficiency in our study groups. In CAPD patients serum 25 (OH) D levels was $15,8 \pm 12,1$ ng/ml, and $9,6 \pm 5,9$ ng/ml in HD patients ($p < 0.05$).

Conclusions

Both HD and CAPD patients there is an imbalance that favors a proinflammatory state. In HD and CAPD patients fatigue symptoms and vitamin D deficiency is very common.

P-83**VIDEO DIALYSIS: THE VIRTUAL PERITONEAL DIALYSIS PARTNER**

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Objectives

An ageing population results in the admission to PD of fragile, elderly patients needing a partner, often elderly themselves and not always available, to perform dialysis. This study aims to assess whether the prototype of remote assistance delivered by our Center called Video Dialysis (VD) is a valid support for starting patients (pts) on PD who are unable to perform dialysis alone or for preventing them from dropping out.

Methods

The pt is provided with a home device with a monitor, and a camera controlled by a PC in the Center using dedicated software and a webcam. Video communication is via an ADSL/SHDSL connection, and voice communication by hands-free phone. The nurse checks the preparation of the material from the center, guides the pt through the dialysis, and records weight, pressure, edemas, Cytur test, exit-site and glycemia in diabetics.

Results

VD was used with 21 pts (age: 71.5±9.6): 10 from the start of dialysis (7 on CAPD, 3 on APD) and 11 after a variable time on PD. The VD supported 16 pts directly, and elderly partners in 5 cases; 7 pts lived alone.

During follow-up (412 months/pt) there were 1/51.5 peritonitis/months-pts and 14 drop-outs (12: deaths; 1: transplant; 1: HD). The errors recorded in 7 pts assessed prospectively for 9 months were: 10 in the preparation of material and 23 in the performance of dialysis, 17 of which (1/2.5 months/pt) could potentially cause peritonitis.

In VD, clinical assessment makes it possible to adapt dialysis to hydration, hypotension therapy to pressure and insulin to glycemic variations, and to diagnose catheter infection (1) and lipothymia (2).

Conclusions

VD is an excellent tool when starting or continuing PD for correcting technical errors and solving clinical issues when a patient or partner are unable to perform the procedure unassisted.

P-84**PD IN NON-PEDIATRIC PUBLIC CENTERS IN ITALY: RESULTS OF THE 4th GSDP-SIN CENSUS 2012 (Cs-12)**

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Objectives

To know PD modalities and results in Italy.

Methods

The Census was carried out by means of an on-line questionnaire in all the 224 non-pediatric public centers which PERFORMED PD in 2012. The results were compared with those of previous Censuses: 2010 (Cs-10), 2008 (Cs-08), 2005 (Cs-05).

Results

Incidence. In 2012 PD was begun (first treatment for ESRD) by 1,433 pts (CAPD: 54.3%) and HD by 4,700 pts (%PD-incidence= Cs-12: 23.4%; Cs-10: 23.3%; Cs-08: 22.8%; Cs-05: 24.2% - p=NS), with a further increase in incremental PD (Cs-12: 28.8%; Cs-10: 22.8%; Cs-08: 18.3%; Cs-05: 11.9%; p<0.001).

Prevalence. At 31/12/2012 there were 4,299 patients on PD (CAPD: 46.1%) (%PD-prevalence= Cs-12: 17.1%; Cs-10: 16.6%; Cs-08: 16.7%; Cs-05: 16.8%; p=NS), 24.5% of whom were on assisted PD (family members: 82.3%; paid caregivers: 12.4%; nurses: 0.7%; NH: 3.0%).

Out. In 2012 there was no change in the PD drop-out rate (30.9 ep/100yrs-pt) (death: 481; transplant: 290; switch to HD: 511 pts). The main reason for transferring to HD remained peritonitis (28.2%).

Peritonitis. The peritonitis rate (1,179 episodes) was 0.284 ep/yrs-pt.

EPS. The incidence of new cases of EPS in 2011-12 (43 cases=0.505 ep/100yrs-pt) remained unchanged compared to 2009-10 (44 pts= 0.529 ep/100yrs-pt) and 2004-08 (146 pts= 0.701 ep/100-yrs-pt).

Other results. Compared to 2010, in 2012 the number of Centers using 3.86% for PET increased (30.8% vs 15.6% -p<0.001), while the number carrying out home visits remained unchanged (56.3 vs 59.4%). This study did not take into consideration 93 pts on "non renal" PD (HF, cirrhosis).

Conclusions

Cs-12 confirms the extensive use, stability and good results of PD in Italy. Incremental PD and assisted PD are on the increase. EPS remains a rare event.

P-85

EFFLUENT DIALYSATE CANCER ANTIGEN 125 CONCENTRATIONS IN PATIENTS ON CHRONIC PERITONEAL DIALYSIS TREATMENT: RELATION WITH DIALYSIS QUALITY PARAMETERS, PERITONITIS AND MEDICATIONS

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Objectives

The aim of this study was to evaluate longitudinal changes in drained dialysate cancer antigen 125 (dCA-125) levels and to assess relationships between dCA-125 and dialysis quality, peritoneal membrane transport rates, dialysate glucose load, peritonitis and use of erythropoiesis stimulating agents (ESA), inhibitors of angiotensin-converting enzyme (ACEi) and statins in patients affected by end-stage renal failure during the first 6 months of peritoneal dialysis (PD) treatment.

Methods

The study included 20 patients, 11 male and 9 female (mean age 62,90±12,69 years), using conventional low pH glucose-based dialysis fluids. Peritoneal equilibration test (PET), Kt/V and creatinine clearance were calculated according to guidelines. Effluent CA-125 levels were determined as two steps immunoassay using CMIA technology of the ARCHITECT CA-125 II, Mannheim, Germany. Data concerning peritonitis, use of ESA, ACE inhibitors and statins were collected in all patients.

Results

During the 6-months follow-up, concentration of drained dialysate CA-125 significantly decreased (28.83±25.35 vs 16.56±14.65 U/mL, p=0.016*). We found: a statistically significant negative correlation between dCA-125 and PETcreatinine after 6 months of PD treatment (p=0.13*); a decrease of effluent dCA-125 in all patients nevertheless the use of ESA, ACEi and statins, the decrease being statistically significant in the subgroup on ACEi therapy (p=0.019*) and in the subgroup not using statins (p=0.013*). No correlation was found between dCA-125 and glucose load nor other dialysis quality parameters. Peritonitis occurrence and glucose load did not influence dCA-125.

Conclusions

Drained dialysate CA-125 levels decreased significantly during the first 6 months of peritoneal dialysis treatment and the decrease was significant in the group not using statin therapy; they inversely correlated with PETcreatinine; they did not correlate with quality of dialysis and they were not influenced by peritoneal glucose exposure, peritonitis and ESA application. Therapy with ACEi seemed not to be protective for peritoneal membrane.

P-86

OFFERING PATIENTS THERAPY OPTIONS IN UNPLANNED START (OPTIONS): HOSPITALIZATION AND INFECTION RATE IN PD AND HD PATIENTS

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Objectives

Unplanned dialysis is a well-known problem in dialysis units across Europe and worldwide, with 30-50% of patients commencing dialysis in such a way. The consequences of unplanned start (UPS) include increased morbidity and mortality, higher cost, temporary dialysis access usage, and prolonged usage of CVC. Therefore, we aimed to investigate the infection and hospitalization rates among UPS patients who completed an educational programme and chose a dialysis modality.

Methods

OPTIONS is a non-interventional, prospective, multi-centre, observational study of 270 UPS patients starting dialysis therapy. 26 centres in 6 European countries participated and implemented the UPS Programme into their routine clinical practice. The recruited patients fulfilled the inclusion criteria for UPS, gave informed consent and were followed for 12 months. The rates were calculated as a number of events divided by the total duration of therapy. The ratio of rates HD/PD was obtained through negative binominal regression technique using SAS GENMOD and log link function.

Results

In total 211 patients were treated with HD and 102 PD (subjects could contribute to both HD and PD due to changes in modality). HD patients had more hospitalisations - overall HD/PD ratio 1.12 with ratios relating to dialysis access of 2.43; dialysis access infections 1.24; the unplanned dialysis start 2.32, and other causes 0.77. In terms of infection, HD patients had more serious infections - septicaemia HD/PD was 12.98; tunnel infection 1.85 but less peritonitis 0.17 and exit site infection 0.26. Thus overall infection ratio was 0.70.

Conclusions

Unplanned start patients are at risk of hospitalisation and infection. Our results show that HD UPS patients have a 12% increased risk for hospitalization compared to UPS PD patients. HD patients are more at risk of severe infections such septicaemia, but PD is associated with a risk of peritonitis and exit site infection.

P-87**THE UK PERITONEAL DIALYSIS CATHETER STUDY – AN ANCILLARY STUDY TO PDOPPS**

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Objectives

Robust evidence on the most appropriate peritoneal dialysis (PD) catheter insertion pathway in individual clinical circumstances is lacking. Medical insertion pathways may provide a more responsive access service, however the UK PD access audit found that catheter function at 3 months was poorer for the medical than surgical insertion (1). The main purpose of this research is to determine relative PD outcomes associated with surgical and medical pathways controlling for case mix. This will inform dialysis units' decision to either focus their efforts on improving a single surgical pathway or to practice a mixture of insertion pathways.

Methods

We have designed a multi-centre prospective cohort study (1350 patients, 45 dialysis centres, 18 month recruitment window) to establish the outcomes associated with different pathways of catheter insertion, dialysis unit-level policy associated with pathway use, and patient-level factors (e.g. case-mix, urgent start), employing both a patient-level and an instrumental variable analytic design. Health economic benefits of these pathways will be determined using the cohort data, enriched by additional information obtained from more long-term follow-up study in a subset of patients and via Hospital Episode Summary data linkage. We undertook user group work and centre visits as part of questionnaire development.

Results

We will present information on study design, instrument development, governance mechanisms and recruitment demographics. We will present study questions that have been developed with input from patient partners.

Conclusions

We will present progress with a prospective cohort PD catheter insertion study that is being initiated in the UK and is an ancillary study to the international Peritoneal Dialysis Outcomes and Practice Patterns Study.

1) UK Renal Registry 15th Annual Report: Chapter 8 UK Multisite Peritoneal Dialysis Access Catheter Audit for First PD Catheters 2011. Briggs V et al Nephron Clin Pract. 2013;123 Suppl 1:165-81.

P-88**HYDRATION STATUS ASSESSMENT: MAN OR MACHINE**

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Objectives

Continuous overhydration is associated with increased morbidity and mortality in patients undergoing Peritoneal Dialysis (PD). Health professionals are capable of estimating our patients' hydration volume through clinical perception but, using other tools such as bioimpedance, it is possible to assess it more objectively. Our objectives were to determine the correlation between the hydration status of the PD patients treated in our unit when estimated using bioimpedance and when estimated by health professionals' clinical perception. Evaluate whether it is possible to improve the professional's clinical perception.

Methods

Descriptive, observational study. 37 PD patients were included. 1 resident, 1 nephrologist and 4 nurses took part in the study. The estimation of the patients' hydration status was compared using the two methods. The data are given as mean \pm standard deviation and percentage over/underhydration with respect to the Urea distribution volume (V). Pearson's correlation coefficient and the Bland-Altman plot were used for the statistical analysis.

Results

111 determinations performed on PD patients were analysed. The mean overhydration estimated by bioimpedance was 2.77 \pm 2.05 litres versus 2.04 \pm 1.67 litres by the health professionals. The correlation between the two methods was significant ($r:0.33$; $p<0.003$). There is no important scatter between the estimations by the two methods, showing a tendency to underestimate our patients' hydration status ($-0,24\%$, $p<0,05$). My clinical perception, as resident, became increasingly accurate as the 4-month study progressed.

Conclusions

We found a high correlation between the two methods. Although bioimpedance may help the clinician to identify more objectively minor changes in volemia, it does not replace the professional's clinical perception. Furthermore, this perception can improve with input from all of the patient's clinical parameters, helping to give a more accurate estimation.

P-89

WHICH IS THE OPTIMAL EXCHANGE TIME IN INTERMITTENT AND TIDAL AUTOMATED PERITONEAL DIALYSIS (APD)? COMPUTER SIMULATIONS USING THE THREE-PORE MODEL

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Introduction/Objectives

Increasing the dialysate flow by rapid exchanges will increase the efficiency of APD. However, an increased frequency of exchanges will reduce the contact time between the dialysate and the peritoneal membrane by the increase in time spent for fill and drainage. Thus, too frequent exchanges will reduce the efficiency of the dialysis. Accordingly, the present study aimed to determine the optimal exchange times for intermittent and tidal APD with regard to ultrafiltration and solute clearance by using the three-pore model.

Methods

Simulations were performed for either intermittent APD (IPD) or tidal APD (TPD). IPD was simulated for fill and drain volumes of 2 L, while TPD was simulated using a tidal volume of 1 L, with large drains and subsequent fills occurring after every fifth dwell. The fill flow rate was set at 200 mL/min and the drain flow rate was set at 350 mL/min (rapid phase) + 36 mL/min (slow phase), assuming a transition point at 5.6 min. Solute clearance and UF were simulated to occur during the entire dwell including both fill and drain periods.

Results

The optimal exchange times for urea occurred at ~33 min and ~12 min for IPD and TPD, respectively. The optimal exchange times were slightly higher for creatinine and phosphate, but lower for β 2-microglobulin and albumin.

Conclusions

According to the current simulations, IPD provides better UF and small-solute transport compared to TPD when the flow rate is lower than 75 mL/min (4.5 L/h) with an optimal exchange time at ~33 min (60 mL/min) for urea and UF. For flow rates exceeding 75 mL/min, the shorter fill- and drain periods in TPD leads to an improved clearance of small solutes and UF compared to IPD, but with a lower cost-efficiency. At rates exceeding 150 mL/min (9 L/h) both techniques become increasingly inefficient.

P-90

VASCULAR ENDOTHELIAL GROWTH FACTOR IN PATIENTS ON PERITONEAL DIALYSIS

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Objectives

The aim of the study was to determine the serum and peritoneal effluent VEGF concentrations in patients on chronic PD and to assess the relationship between age, gender, comorbidities, dialysis modality and vintage, therapy with erythropoiesis stimulating agents (ESA), angiotensin-converting enzyme inhibitors (ACEi) and statins and VEGF concentrations.

Methods

Data on the use of ACEi, ESA, and statins were collected from patients' medical histories. VEGF was measured in serum and peritoneal effluent using the quantitative sandwich enzyme immunoassay (ELISA) kits (Quantikine® Human VEGF, R&D Systems, USA & Canada). Complete blood count and standard biochemical analyses were performed in fasting venous blood samples. Dialysis and residual components of Kt/V and normalized weekly creatinine clearance were calculated based on 24-hour urine and effluent collections. Peritoneal transport type was determined using the peritoneal equilibration test.

Results

Samples from 63 PD patients (39 males and 24 females, average age 61.97 ± 11.01 years) were analyzed. The average serum and effluent VEGF concentrations (231.84 ± 173.91 pg/mL and 38.39 ± 49.38 pg/mL, respectively) correlated significantly ($p = 0.002$). No significant difference was found in serum and effluent VEGF concentrations in relation to demographic characteristics, comorbidities, dialysis modality, therapy with ESA, ACEi, and statins. Patients treated with PD longer than 5 years had significantly higher serum VEGF levels ($p < 0.05$). Correlation analysis showed a statistically significant relationship between statin therapy and lower effluent VEGF concentration ($p = 0.030$). Serum VEGF concentration significantly correlated with fibrinogen serum concentration ($p = 0.034$) and glycemia ($p = 0.004$). Effluent VEGF concentration significantly correlated with cholesterolemia ($p = 0.004$).

Conclusions

Serum VEGF concentrations were significantly higher in long term PD patients, and peritoneal effluent VEGF concentrations were significantly lower in patients receiving statins, suggesting a protective effect of those drugs on peritoneal membrane.

P-91**POLYURETHANE PROSTHESIS FOR EARLY CANNULATION AS AN ALTERNATIVE TO CENTRAL VENOUS CATHETER**

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Introduction

Autologous arterio-venous fistulae is an optimal vascular access for haemodialysis. Arterio-venous fistula is not faultless and 40% of fistulae never mature. In patients with no possibilities to create effective native arterio-venous fistulae haemodialysis with using a proper prosthesis gives a chance to avoid a catheter.

Objectives

Evaluation of usefulness polyurethane prosthesis as an emergency vascular access for haemodialysis.

Material and Methods

The study involved 23 patients, 18 men and 5 women, in 29 – 83 years. Eight patients were in predialysis period, for 17 patients (2 in predialysis) it was a secondary procedure. All patients had implanted AvFlo prosthesis (Nicast, Israel). There were 5 loops in the forearm and 18 straight segments in the arm. Six patients underwent an urgent operation, because of lack of any vascular access. For others it was an elective operation.

Results

The longest observation period was over 36 months. Twenty one grafts were used for hemodialysis within 1-42 days, one prosthesis was removed due to infection, one patient died before initiation of dialysis. All grafts implanted for urgent indications were successfully cannulated within 24 hours.

Conclusions

Implantation of polyurethane prosthesis provides an effective vascular access for dialysis and enables avoidance of CVC. Low infection rate improves the final outcome.

P-92**PLEUROPERITONEAL COMMUNICACION, RARE COMPLICATION IN PERITONEAL DIALYSIS: HOW DO WE DIAGNOSE?**

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Objective

Communication pleuroperitoneal Secondary hidrotorax is an infrequent complication in peritoneal dialysis (PD), but it have an high dropout rate. It have relation with pleuroperitoneals congenital or adquired or lymphatics disorder. It appears at the beginning of the DP (50% on the first month), with an incidence of 1,6 to 10%, this is more common in women, patient with polycystic and right location. Possibly due to dyspnoea, ultrafiltration loss (UF) and hydrothorax (trasudate with more glucose than plasma). The confirmation may need scintigraphy with 99mT-MAA. Treatment is usually conservative with a transfer to hemodialysis (HD) it having as other possibilities the pleurodesis or surgery.

Methods

We present 7 patients. We analyze their characteristic and our experience in diagnosis and treatment.

Results

N= 7. An average age 55,71+-15,48. 71% women and 29% men. No patient had polycystic.

- Presentation: 6 with disnea and UF reduction. 1 asymptomatic. The pleural effusion was right in 6 patients and left in 1 patient. It appears in the 7 first months after to start DP, except in one patient, who was at 10 years.

- Diagnosis: Examination of pleural fluid was diagnostic in six (liquid glucose > blood glucose). En one patient the liquid glucose (173) < blood glucose (200), confirming the diagnosis by scintigraphy (picture 1)

- Treatment: all treatment was conservative with temporal HD and restar DP with low volumes (recurrence 100%). Absence of recurrence in all the patient to pass to HD

Conclusions

The diagnosis of hydrothorax in DP patients should consider always the possibility of pleuro-peritoneal communication. In the absence of typical findings of pleural fluid, it's essential to evaluate other examinations, scintigraphy being good technique. We try conservative treatment in all cases with recurrence in 100% and resolution to pass HD

P-93

KLOTHO AND FGF-21: INNOCENT OR GUILTY ON NUTRITIONAL STATUS IN PERITONEAL DIALYSIS?

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Objectives

Volume status, lean and fat tissue are important predictors in patients on dialysis. To investigate whether those new metabolic regulators (klotho and FGF-21) may play a role in PD, we measured plasma concentrations and correlate with comorbidities, nutritional status and inflammatory markers.

Methods

All body composition measurements were performed with the BCM (Body-Composition-Monitor; Fresenius Medical Care). Clinical and laboratorial data were collected. Two Elisa kits were used to measure klotho and FGF-21.

Results

We studied 58 prevalent PD patients, 40 were male (69%), mean age was 55.7 years old, 17 pts (29.3%) had diabetes mellitus and 8 pts (13.8%) had ischemic heart disease. Time on PD was on average 27.41 months. At the beginning of the technique, 11 patients (19%) had obesity (body index mass >30 Kg/m²). In a Pearson's correlation, serum FGF-21 values were correlated with albuminaemia ($r=-0.347$; $p=0.008$), nPCR ($r=-0.408$; $p=0.003$), litres per treatment ($r=0.307$; $p=0.019$), renal residual function ($r=-0.474$; $p<0.001$), volume overload ($r=0.454$; $p<0.001$) and lean tissue ($r=0.294$; $p=0.029$). In a Pearson's correlation, serum klotho values were correlated with lean tissue percentage ($r=-0.33$; $p=0.014$), fat tissue percentage ($r=0.277$; $p=0.041$), volume overload ($r=0.299$; $p=0.026$) and albuminaemia ($r=-0.33$; $p=0.011$). In a multivariate analysis (linear regression) FGF-21 was closely related with albumin ($B=-541.57$; IC (95%) -1016.88-(-66.27); $p=0.026$), nPCR ($B=-1495.38$; IC (95%) -2764.03-(-226.73); $p=0.022$) and number of hospital admissions ($B=247.91$; IC (95%) 61.03-434.78; $p=0.01$), in a model adjusted to diabetes and time on PD. In a linear regression, klotho serum levels were associated with fat tissue percentage ($B=29.63$; IC (95) 394.18-803.9; $p=0.041$) and albumin levels ($B=-291.64$; IC (95%) -553.79-(-29.48); $p=0.03$), in a model adjusted to diabetes and time on PD.

Conclusions

Metabolic syndrome and its prognostic implication among patients on peritoneal dialysis (PD) remain controversial. In our cohort of PD patients, serum FGF-21 levels were associated with nutritional parameters.

P-94

PERITONEAL DIALYSIS TIME ON THERAPY – AN INDEPENDENT PURPOSE BUILT PATIENT EDUCATION AND TRAINING CENTRE COMPARED TO STANDARD HOSPITAL TRAINING

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Introduction

The success of Peritoneal Dialysis depends upon various factors but one of the most accepted is the way a patient is trained and motivated to dialyse. Baxter has set up a purpose built patient education and training centre to deliver patient training in group sessions in a non-clinical environment. The training is structured over a number of days and delivered in a variety of interactive sessions, with understanding assessed during the period. The specialist "Patient Training Centre" employs a team of qualified renal trained nurses to provide all training and education. Clinical responsibility for patients who come to the centre remains with their referring renal unit.

Methodology

The analysis compared time on therapy defined by days dialysed, of 2 cohorts of patients (144 per cohort, one cohort of patients from the "Patient Training Centre" and one cohort of patients who were NHS trained). From the 2 cohorts 4 patients per month were selected from January 2008 to December 2010 finishing data collection in December 2013.

Results

Comparison of mean time spent on PD was undertaken by the Mann - Whitney U test which was statistically significant ($p<0.001$)

The mean time spent in PD in the Training Centre cohort was 1198.34 days (3.28 yrs) and the mean time spent in the NHS cohort was 636.07 days (1.74 yrs). The mean difference in time was 562.32 days (1.54 yrs) with 95% CI (471.62 -653.02) days or (1.29 -1.79) yrs.

Conclusion

Patients trained in the "Patient Training Centre" had significantly higher time on therapy compared to those who were trained in hospital setting in traditional ways. This highlights the importance of structured training that may result in longer time on therapy.

P-95

CONCENTRATIONS OF TRANSFORMING GROWTH FACTOR BETA1 DURING FIRST SIX MONTHS OF PERITONEAL DIALYSIS

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Objectives

To determine TGF- β 1 levels in serum and drained dialysate, to assess their relations to gender, age, diabetes, peritonitis and use of erythropoiesis stimulating agents (ESAs), inhibitors of angiotensin-converting enzyme (ACEi) and/or statins.

Methods

The study included 20 patients, 11 men, 9 women, mean age 62.90 ± 12.69 years, free of peritonitis during the first 6 months of PD. We used the sandwich enzyme-linked immunosorbent assay (ELISA) test Quantikine Human TGF- β 1, R&D Systems, USA & Canada, to detect TGF- β 1 in serum and drained dialysate.

Results

There was no statistically significant difference of TGF- β 1 concentrations in serum (26.82 ± 16.60 ng/mL vs 27.94 ± 14.70 ng/mL) and drained dialysate (0.9 ± 0.84 ng/mL vs 1.19 ± 0.79 ng/mL) at the beginning and after first 6 months of chronic PD, in patients of different gender, age and diabetic patients versus non-diabetic. The significant positive correlations between sTGF- β 1 levels and glycemia ($p = 0.016$) at the beginning and cholesterolemia ($p < 0.0001$) after 6 months of PD treatment was found. Expression of TGF- β 1 in effluent dialysate was significantly lower in patients on chronic PD using ACEi therapy. Patients on ESA had slightly lower sTGF- β 1 concentrations after the first 6 months of PD treatment.

Conclusions

At baseline serum and drained dialysate TGF- β 1 concentrations were not affected with gender, age, diabetes mellitus. After 6 months of PD the serum and drained dialysate concentrations of TGF- β 1 significantly increased and they were higher in patients with unfavorable metabolic profile identified with glucose and cholesterol levels. Treatment with ESA and ACEi, as well as peritonitis episodes did not affect significantly TGF- β 1 levels in serum and drained dialysate. In patients starting PD on statins therapy TGF- β 1 levels in serum and drained dialysate suggested a protective effect of statins on peritoneal membrane, but after the 6 months follow-up statins did not influence significantly TGF- β 1 levels.

P-96

ORAL ACTIVE VITAMIN D: WHAT'S THE EFFECT ON PERITONITIS IN PERITONEAL DIALYSIS PATIENTS?

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Peritonitis is the main complication of peritoneal dialysis (PD) and is a leading cause of hospitalization, catheter loss, technique failure and increased mortality. As the Vitamin D (VitD) receptor is expressed on immune cells and these immunologic cells are capable of synthesizing active VitD (aVitD) metabolite, VitD acts in an autocrine manner in a local immunologic milieu. VitD can modulate the innate and adaptive immune responses. VitD deficiency is associated with increased susceptibility to infection. The aim of this study was to analyse the effect of treatment with aVitD (calcitriol, paricalcitol or alfacalcidol) on rate of peritonitis episodes/patient-year in a PD population. This prospective cross-sectional study considered prevalent adult patients in stable PD during 1 year, in a single center. Clinical and laboratory data were collected from all patients. In statistical analysis Poisson Model was used to determine the relative risk (RR) of peritonitis. The study population was divided into 4 groups (G): G 1 - patients with lower levels (< 10 ng/mL) of 25-hydroxyvitamin D [25(OH)D] non-medicated with aVitD; G 2 - lower levels of 25(OH)D medicated with aVitD; G 3 - higher levels (≥ 10 ng/mL) of 25(OH)D non-medicated with aVitD; G 4 - higher levels of 25(OH)D medicated with aVitD. We screened 96 adult patients ($m = 53.1\%$; $f = 46.9\%$), with mean age of 57.2 years, 17.7% with diabetes. G 1 had significantly higher risk of peritonitis when compared with G 2 (RR: 0.025; 95% CI: 0.005 to 0.050; $p = 0.045$) adjusted for age and albumin levels. Treatment with oral aVitD was independently associated with decreased rate of peritonitis in patients with lower levels of 25(OH)D. Further studies will have to be done to validate these promising findings.

P-97**EFFECT OF PRE-TRANSPLANT DIALYSIS MODALITY ON KIDNEY TRANSPLANTATION OUTCOME**

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Objectives

Effect of pre-transplant dialysis modality on allograft and recipient survival after renal transplantation is controversial. In the present study, we evaluated the influence of the pre-transplant dialysis modality on early and late graft function. Post-transplant complications, causes of graft loss and patients survival were compared.

Methods

We evaluated retrospectively the influence of the pre-transplant dialysis modality on patient and graft survival, we also compared complications. Patients included was aged more than 18 years and had been on dialysis (Peritoneal dialysis (PD) or Hemodialysis (HD)) for at least 3 months before renal transplantation without a switch from one dialysis modality to the other.

Results

Between November 2007 and November 2014 ninety nine patients were transplanted.

During follow-up, patients were divided in two groups: the first G1 including 85 patients initially taken in HD and a second group G2 including 14 patients who were initially on PD before renal transplantation DP. The mean age was 31.4 ± 13.3 years in the first group and 32.1 ± 8.6 years in the second group. G1 had a mean duration of 43.5 ± 45.2 months compared to the duration of the peritoneal dialysis was 19.6 ± 16.1 months. After transplantation, the delayed of graft function higher with treatment by HD observed in 16.9% of cases Vs no case in G2, also acute rejection was more frequent in the first group. The long-term graft loss was 9.7% in HD compared to no in DP ($p = 0.48$). No significant differences were found between the two techniques regarding GFR., although infection rate was higher in hemodialysis patients compared to patients who were on peritoneal dialysis.

Conclusion

In patients receiving renal transplantation, both modalities was associated with low morbidity, good preservation of GFR but infection was more frequent in the HD group.

P-98**PREDICTORS OF PERITONITIS IN PD PATIENTS: IS THERE A PLACE FOR CHARLSON COMORBIDITY INDEX?**

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Peritonitis is the main complication of peritoneal dialysis (PD) and is a leading cause of hospitalization, catheter loss, technique failure and increased mortality. The Charlson comorbidity index (CCI) was originally designed to classify prognostic comorbidity in longitudinal studies and is a predictor of patient survival. Several studies had reported PD regimen and hypoalbuminemia as predictors of peritonitis. The aim of this study was to analyse the relationship between CCI and peritonitis episodes in a PD population. This prospective cross-sectional study considered prevalent adult patients in stable peritoneal dialysis during 1 year, in a single center. Clinical and laboratory data were collected from all patients. A Charlson CCI score was calculated for all study patients using baseline medical diagnoses. In statistical analysis Descriptive statistic, Chi-square and Linear regression model were used. The study population was divided into 2 major groups (G), based on the severity of comorbidity: G1 - patients with mild/moderate CCI < 5; and G2 - patients with severe CCI ≥ 5 . We screened 56 adult patients (m = 46.4 %; f = 53.6 %), with mean age of 55.3 years, 16.1 % with diabetes, 50 % were in automated PD and 19.6% had hypoalbuminemia (serum albumin < 3.5 g/dL). G1 was constituted by 48.2 % of the patients and G2 by 51.8% of the patients. Peritonitis episodes, during 1 year follow-up, occurred in 3.7 % patients in G1 and 34.5 % patients in G2 ($p = 0.002$). In Linear regression model, we found that a higher CCI was an independent predictor of peritonitis ($r = 0.306$; $p = 0.047$) when adjusted for age, PD regimen and serum albumin. We emphasized the importance of evaluation of comorbidities as an important predictor of peritonitis in PD patients.

P-99**HYDROTHORAX AS A COMPLICATION IN PATIENTS UNDERGOING PERITONEAL DIALYSIS – CASE SERIES**

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The increased intra-peritoneal pressure secondary to the intraperitoneal fluid in patients undergoing peritoneal dialysis (PD) is responsible for mechanical complications. Rarely, in patients with an acquired or congenital diaphragmatic defect it can be responsible for a pleuroperitoneal leak and hydrothorax. This serious complication occurs more often in the right hemithorax and at the first month of treatment.

We present four cases of hydrothorax secondary to a pleuroperitoneal leak. The first patient is a 72 years-old man with chronic glomerulonephritis who presented with dyspnea and right-sided hydrothorax in the first 24 hours of PD. PD was suspended and hemodialysis was started. Hydrothorax resolved and the patient chose to maintain hemodialysis program. The second case is a 46 years-old female with APKD presenting with fatigue and right-sided hydrothorax in the first 24 hours of PD. After pleurodesis and one month of hemodialysis, PD was reintroduced. The hydrothorax recurred. The patient was transferred to hemodialysis. The third patient is a 48 years-old woman with nephroangiosclerosis who started PD without immediate complications. Eight months later she refers left-side pleuritic pain and hydrothorax is diagnosed. She was submitted to pleurodesis and conservative therapy for 6 weeks. She restarted PD with success. The fourth patient is a 54 years-old man with chronic kidney disease of unknown cause who developed right-side hydrothorax after six months of PD without complications. He had no response to dialysate volume reduction and refused pleurodesis or surgery. He was transferred to hemodialysis.

These cases reflect the heterogeneity of presentation of hydrothorax in PD patients concerning location and timing as well as the success of pleurodesis. We presume there might be a relation between severity of presentation and early onset of hydrothorax.

P-100**IMPORTANCE OF PRESERVING RESIDUAL RENAL FUNCTION IN PERITONEAL DIALYSIS**

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Residual renal function (RRF) impacts on patient survival and quality of life of dialysis patients. Its longer preservation is a major advantage of peritoneal dialysis (PD) and should be also a target of adequacy. Decline in RRF contributes significantly to anemia, inflammation, and malnutrition in these patients.

The main objective was to understand the clinical and laboratory advantages of residual renal function in PD patients. We analyzed retrospectively, twenty eight patients with mean age of 49,1±14,0 years, and predominantly men (57,1%). The etiology of chronic kidney disease was uncertain in 25%, and due to diabetic and IgA nephropathies, both in 17,8%. Mean treatment time was 21,8 months and the modality most commonly used was CAPD (67,9%). We divided into two groups of 14 patients each one, accordingly to median of glomerular filtration rate (group 1 < 2,2 and group 2 ≥ 2,2 mL/min). There were no differences in age, gender and diabetes between two groups. Patients treated in APD regimen were more frequently associated to loss of residual renal function than CAPD (77,8 vs 36,8%, p=0,043). Residual diuresis was superior in group 2 (1450 vs 180 mL, p<0,001). To balance this difference, it was used higher volumes (1,9 vs 1,5 L, p=0,039) and hypertonic dialysates (2,2 vs 1,7%, p=0,019) in patients of group 1, to maximize peritoneal ultrafiltration (1501 vs 1243 mL; p=0,183). Patients of group 2 had also superior total weekly Kt/V (2,4 vs 1,9, p=0,025) and better hemoglobin values (11,3 vs 9,8 g/dL, p=0,018). No differences were seen between two groups in inflammation (C-reactive protein and ferritin), nutrition (albumin), arterial pressure and number of peritonitis.

Dialysis does not replace totally native kidneys and the loss of RRF can lead to deleterious consequences in these patients. This enhances the importance of strategies to preserve both RRF and peritoneal membrane.

P-101**HEPATITIS B SEROLOGIC TESTING AND VACCINATION IN PATIENTS UNDERGOING CHRONIC PERITONEAL DIALYSIS: A SINGLE UNIT STUDY**

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Objectives

Assess the Hepatitis B virus specific antigens and antibodies and response to vaccination in a single peritoneal dialysis unit

Methods

We have to investigate viral status in 51 patients in peritoneal dialysis of Sahloul peritoneal unit. Variables analyzed were age, sex, use of erythropoietin, duration on dialysis prior to vaccination, etiology of renal failure and Kt/v.

Seroconversion was measured after complete of the vaccination series

Results

51 patients, 29 men and 22 women were examined. Mean age was at 44, 01 ± 16, 12 years. Interstitial nephropathy was the main cause of renal insufficiency followed by diabetic nephropathy (31, 4% and 23, 5% respectively).

Mean duration of peritoneal dialysis was 30, 9 ± 22, 05 months

The mean value of hemoglobin, albumin, residual renal function was respectively 8, 7 ± 1,6g/dl; 29, 7 ± 4, 3 g/l and 2, 8 ± 3, 23ml/mn/1, 73 m2.

The majority of patient have negative HBs Ag (98% of cases) and 23, 5% have positive

Anti Hbc. Immune due to natural infection was observed in 13, 7% of cases.

15 patients have received recombinant B vaccine with a double dose at month 0, 1 and 2

Then seroconversion was measured.

Conclusion

The immunodeficiency of end-stage renal disease is manifested by increase susceptibility to infections and defective responses to vaccines against viruses.

Some characteristics were associated to lower seroconversion: older age, obesity, and peritoneal dialysis as a technic of renal replacement.

P-102**PERITONEAL DIALYSIS CATHETER FUNCTION – DEFINING THE PROBLEM AND THE ROLE OF SYSTEMATIC REVIEWING**

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Introduction

In the United Kingdom (UK) peritoneal dialysis (PD) is the renal replacement therapy of choice for only 20% of dialysis patients. Worryingly, rates of PD uptake continue to fall. Successful PD requires effective catheter functionality with little or no therapy-associated complications. In order to improve PD practice, the UK Renal Association has published guidelines to direct effective PD service delivery. Unfortunately, the medical evidence relating to these guidelines is minimal. In order to define gold-standard practice patterns that can improve PD uptake and PD patient outcomes, a detailed analysis of current evidence base is required. Previous authors have undertaken systematic review and meta-analyses relating to PD practices (e.g. surgical insertion techniques and catheter type), however, to date, no reviews or pooled analyses have determined the optimal PD catheter insertion modality (e.g. percutaneous, fluoroscopic, peritoneoscopic etc.). We intend to report the findings of such analyses.

Methods

A systematic review will be performed in order to identify interventional studies comparing “medical” insertion modalities (peritoneoscopic/fluoroscopic/percutaneous) against “surgical” insertion modalities (open surgical or laparoscopic). Depending on available literature, several clinically relevant end-points will be utilised for meta-analysis (e.g. catheter survival, complications etc.). Construction of a review protocol is currently in progress to define the search strategy.

Results

Narrative synthesis will be undertaken and quantitative outcomes of selected studies will be compared by meta-analysis and data presented to conference.

Discussion

Because of endpoint variation and inconsistent study definitions, challenges are anticipated in performance of this review and meta-analysis. Notably, catheter dysfunction is a particular challenge due to variable definitions. Indeed, no clear consensus exists as how to define catheter failure. Definitions of suitably comparative study outcomes will be addressed at part of the systematic review process.

P-103**BODY MASS ANALYSIS WITH BIOIMPEDANCE MEASUREMENTS ARE IMPORTANT IN HEMODIALYSIS AND PERITONEAL DIALYSIS PATIENTS AS PREVENTION OF MALNUTRITION**

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Objectives

Protein malnutrition is a common cause of morbidity and mortality in patients with renal replacement therapy. Determination of body mass composition with bioimpedance analysis is a useful tool for evaluation of nutritional status of patients with peritoneal dialysis and hemodialysis.

Methods

The aim of the study was to compare nutritional parameters in a group of dialysis patients using bioimpedance analyzing method. We analyzed 12 patients on peritoneal dialysis and 17 hemodialysis patients. A negative selection of patients on peritoneal dialysis in our study is present. Phase angle, lean tissue index, fat tissue index, body hydration status and routine biochemical blood analysis were evaluated. Average values of parameters with standard deviation, statistical significance ($p < 0.05$) and Spearman's correlation coefficients were calculated.

Results

Phase angle was lower in the group of patients on peritoneal dialysis (4.40 ± 1.06) than in the group of hemodialysis patients (5.025 ± 0.89), but non-significant. Phase angle was lower in women than in men and has a negative correlation with age, lean tissue index, body composition mass, albumins, creatinine, hemoglobin values and physical capacity in both sexes. Patients on peritoneal dialysis had lower values of albumins than hemodialysis patients (36.33 ± 3.42 vs. 39.05 ± 2.59 g/L, $p= 0.019$) and lower blood potassium values (4.42 ± 0.6 vs. 5.21 ± 0.97 mmol/L, $p= 0.021$). Lean tissue index values were lower in patients with peritoneal dialysis (13.98 ± 3.57 vs. 14.13 ± 2.78 kg/m², $p= 0.89$), but over-hydration is more frequent in patients on peritoneal dialysis (2.68 ± 2.53 vs. 1.92 ± 1.14 L). Values of i-PTH is negatively correlated with lean tissue index ($p= 0.026$).

Conclusion

Bioimpedance body mass composition analysis showed a better nutritional status in hemodialysis patients than in patients on peritoneal dialysis.

P-104**PD AS 'ULTIMUM REFUGIUM' BECAUSE OF INADEQUATE VASCULAR ACCESS (CASE STUDY)**

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Objectives

An anuric patient with 5-8 L interdialytic weight gain and had arteriovenous fistula preparation in several locations, suffering from temporary HD cannula thrombosis but rejecting PD repeatedly. PD treatment was performed due to vital indication to maintain the patient's fluid and electrolyte balance.

Method

Data collection using retrospective method.

Findings

Our 30-year-old patient had undergone pulmonary valve balloon dilatation in 2003. Due to chronic nephritis syndrome he entered to HD programme in emergency situation in August 2007. Following several provisional cannula implantation a Cimino-fistula was established, which was thrombotized several times, necessitating a temporary cannula implantation and the replacement of the previous one. The tip of the temporary HD cannula implanted in May 2011 could be visualised in the left pulmonary artery calling for a cardiosurgery consultation. A Tenckhoff-catheter was subsequently implanted, but the acute PD treatment proved insufficient. However, upon the implantation of a provisional femoral cannula thrombosis of the left femoral and popliteal veins and infection of the cannula exit site developed.

In June 2011 Tenckhoff catheter was implanted anew. The patient has been on CAPD since 24 June 2011.

Conclusion

The patient consented receiving PD treatment only when other options were not available. HD treatment would be urgently necessary. This would require a repeated pulmonary valve balloon dilatation to create a new Cimino fistula enabling the patient to be registered on the kidney transplant waiting list. Meanwhile our objective is to maintain the patient's euvoemia by PD. On 13 May 2013 he was hospitalised in Neurological Department due to right side hemiparesis, where he exited on account of circulatory and respiratory insufficiencies on 17 May 2013.

P-105

THE ASSOCIATION OF KLOTHO LEVELS AND RESIDUAL DIURESIS AND OVERHYDRATION IN PERITONEAL DIALYSIS PATIENTS

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Objectives

Klotho has been investigated as an anti-aging protein and decreased Klotho levels are associated with numerous complications in peritoneal dialysis (PD) patients. The main aim of the study was to evaluate the relationship between values of Klotho and residual diuresis and overhydration in PD patients.

Methods

The study was performed on 57 PD patients who were divided into two subgroups, depending on the serum concentrations of Klotho: group A- Klotho < 260 pg/ml (n=28; mean age 57.2±16.6), group B- Klotho ≥ 260 pg/ml (n=29; mean age 53.7±18.0). Serum Klotho was evaluated using the ELISA test. Residual diuresis was expressed in ml per day. The degree of overhydration was assessed by bioimpedance analysis (BIA) and clinical criteria. Additionally as an exponent of the volume overload of the circulatory system were determined NT-proBNP.

Results

Only 14% (n=4) of the patients in group B had clinical features of overhydration, while in group A 25% (n=7) patients. Residual diuresis tended to be higher in group B. The data revealed a tendency for higher fluid overload in BIA in group A. In group B was observed higher levels of NT-proBNP. However the differences were not statistically significant (table 1.). Surprisingly systolic and diastolic blood pressures were comparable in the two groups (table 1). Serum Klotho correlated negatively with overhydration according to BIA ($R = -0.27$; $p = 0.044$).

Table 1. Selected parameters in the subgroups.

	Group A	Group B	P value
Diuresis (ml/24h)	1333.3±1002.4	1787.7±789.5	0.055
Ovehydration in BIA (L)	1.9±2.2	0.9±1.4	0.068
Overydration in BIA (%)	2.7±3.3	1.3±1.9	0.056
NT-proBNP (pg/ml)	9534.0±12891.0	3355.1±4723.0	0.052
SBP (mmHg)	139.6±22.9	135.7±20.5	NS
DBP (mmHg)	81.3±14.6	79.8±12.9	NS

Conclusions

Serum soluble Klotho concentration probably related to residual diuresis and hydration status in PD patients. However, further research in this area is necessary.

P-106

GENDER DEPENDANT DIFFERENCES IN HAEMOGLOBIN CONCENTRATIONS OF PD PATIENTS

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Objectives

In the general population, haemoglobin (Hb) concentration is higher in men than in women. However, the target Hb levels in dialysis patients are set constant regardless of the patient's sex. The aim of this study was to evaluate the differences in Hb concentration between genders in patients undergoing peritoneal dialysis (PD) and to assess the usage of erythropoiesis stimulating agents (ESA) in these subjects taking gender into account.

Methods

The study was performed on the basis of the national PD registry, in 2180 prevalent PD patients. Longitudinal changes in Hb concentration and ESA dose were evaluated in a population of 89 incident PD subjects from a single PD centre. For comparisons, the weekly dose of ESA in patients not taking erythropoietin-beta was converted into erythropoietin-beta units.

Results

The study included 1023 women and 1157 men. The percentage of women on ESA was significantly higher than men (76 vs. 69%; $p < 0.001$). Similarly, the average weekly dose of ESA was higher in women (2691 vs. 2344 U; $p < 0.001$). In fact, gender turned out to be an independent predictor of ESA dosage in this group of patients. Despite that, the mean Hb was still lower in PD women than in men (11.2 ± 1.4 vs 11.5 ± 1.6 g/dl; $p < 0.001$). In 89 incident PD subjects, Hb concentration in women remained lower throughout the 36-month observation period despite a continuous increase in ESA dose, as compared to men.

Conclusions

Both in prevalent and in incident PD patients, the prevalence of ESA usage, as well as the average ESA doses, are higher in women than in men. This can be due, at least in part, to equal target Hb concentrations in both genders.

P-107**WHEN NOT TO TRUST THERAPEUTIC DRUG MONITORING: A CASE REPORT**

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Therapeutic drug monitoring (TDM) has been used since the early 1970's as a multidisciplinary approach to optimise drug therapy. More than 20 medications are now monitored in this way. Here, we describe the case of a peritoneal dialysis patient who was prescribed inappropriately large amounts of vancomycin due to erroneous TDM. Vancomycin levels became progressively lower on our immunoassays despite protocol dose increases and all prescribed doses being accounted for. When samples were sent to a different laboratory using a different immunoassay technique, vancomycin levels were found to be almost double the upper target range. We believe that the IgM antibodies which she developed naturally towards the infection concurrently caused a significant interference to the initial immunoassay technique used. Whilst immunogenic interference has been known to rarely occur in patients with autoimmune disease, this is a unique case as the patient did not have such a background.

P-108**GETTING RESEARCH OUTPUTS INTO PREDIALYSIS EDUCATION PROGRAMMES: IMPLEMENTING THE DIALYSIS DECISION AID BOOKLET**

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Objectives

There is a paucity of evidence-based, non-directive and accessible written information to support patients' dialysis decision making. We have developed and evaluated a patient decision aid and here describe activities undertaken to bridge the gap between research and practice and help renal services and patients access and use the decision aid thus ensuring quality of care post research.

Methods

1. The decision aid was developed for use within predialysis education. Research over two years ensured that was acceptable to patients and supports their understanding of, and decision making about, dialysis following established kidney disease.
2. Presentations at health professional and patient conferences plus journal articles, raised awareness of the rigour of its development and utility in practice.
3. Kidney Research UK lead the post-research dissemination and have made the 'Dialysis Decision Aid booklet: Making the right choices for you' available for all both electronically and in print. They also identify service and patient adaptations to support implementation activities.
4. UK and international recognition endorses its use in practice – NICE guidance support endorsed resource; Highly commended at 2014 BMJ Patient Information Awards; European Renal Best Practice; International Society of Peritoneal Dialysis; International Patient Decision Aid Standards.
5. Articles via newsletters, newspapers, websites, electronic social media raises awareness of the broader context for patients' managing chronic kidney disease.

Results

Feedback from staff and patients- "particularly patient friendly," "well written, accurate, and comprehensive resource". Between Sept 2014-May 2015: over 400 booklets distributed on request to renal nurses in the UK and Europe; copies sent to all UK renal unit Clinical Directors; 2 European organisations translating it for use in their countries; 265 copies downloaded directly by patients, carers and staff; 8 renal units bulk ordered copies for predialysis education.

Conclusions

There is variation in assimilation within practice and longer-term follow-up will help integrate this evidence-based resource into practice and further evaluate its impact on care.

P-109

COMPARING TIDAL PERITONEAL DIALYSIS TO CONTINUOUS VENOVENOUS HEMODIAFILTRATION IN CRITICALLY-ILL PATIENTS WITH ACUTE KIDNEY INJURY: A SINGLE CENTER EXPERIENCE

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Objective

Acute kidney injury (AKI) is an abrupt and usually reversible decline in the glomerular filtration rate (GFR). The term acute kidney injury (AKI) rather than acute renal failure (ARF) is increasingly used by the nephrology community to refer to the acute loss of kidney function. No modality of renal replacement therapy in the critically ill patient with AKI, including intermittent hemodialysis, peritoneal dialysis, and the many forms of CRRT, has been clearly shown to have a survival benefit. The choice of dialytic technique is dependent upon a variety of factors including availability, the experience of the clinician, hemodynamic stability, and the degree to which solutes and/or fluid must be removed. Patients with AKI requiring renal replacement have mortality rates in excess of 50%; a prognosis that has remained stable over several decades despite multiple advances in the practice of critical care medicine. Few studies have discussed the role of peritoneal dialysis on critically ill patients, and here we compared the outcome of AKI patients treated with tidal peritoneal dialysis (TPD) with an equal number of patients treated with continuous venovenous hemodiafiltration (CVVHDF).

Methods

Patients with acute kidney injury and multi-organ involvement were randomly selected to CVVHDF, (Group A) TPD, (group B). Cause and severity of renal failure were assessed at the time of initiating dialysis. Forty patients were randomized and analyzed. Principal outcome measures were hospital mortality, and secondary end points were recovery of renal function, metabolic and fluid control, and improvement of hemodynamic instability.

Results

The cause of AKI was sepsis in 28.6% and 26.3%, acute tubular necrosis in 28.6% and 26.3%, post-operative in 19.0% and 10.5%, contrast induced in 14.3% and 21.1%, disseminated intravascular coagulopathy in 4.8% and 15.8%, and cardiorenal syndrome in 4.8% and 0.0% in group A and group B respectively. There was no statistically significant difference in the median (IQR) systolic and diastolic blood pressure, and the median (IQR) time to start renal replacement therapy from consultation was almost equal in both groups [9 h (7.5-10.5) vs. 9 h (8.0-9.5)] respectively. Clearance, as reflected by BUN and serum creatinine was significantly better in the TPD than CVVHDF group ($p < 0.05$). Correction of metabolic acidosis and hyperkalemia was significantly better with TPD ($p < 0.05$). Net ultrafiltration was significantly better in the first 4 days [median (IQR) 1240 (1125-1260) vs. 940 (750-1100), $p < 0.05$] in patients treated with CVVHDF as compared to those treated with TPD. Recovery of renal function and survival were significantly better in patients treated with TPD ($p < 0.01$).

Conclusion

TPD seems to be more effective than CVVHDF in terms of clearance of uremic toxins. It also appears to be a safer method than CRRT with better outcome as reflected by recovery of renal functions and patients' survival.

P-110

ESTIMATING MODIFICATION OF OVERHYDRATION AND NUTRITIONAL COMPARTMENTS USING BIOIMPEDANCE BCM-FRESENIUS MONITOR AFTER DIFFERENT RESTING TIME IN PATIENTS IN PERITONEAL DIALYSIS

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Introduction

Humans exposed to upright posture suffer a gravitational displacement of blood and fluids to lowest part of the body and specially to lower limbs. When we adopt resting position, fluids inside of interstitial space and blood contained in large and small vessels, suffer a new redistribution to thorax and upper limbs. These changes of body fluids could influence measurement of bioimpedanciometry. Our aim was to analyze changes induced in parameters of overhydration (OH) and nutritional compartments estimated by bioimpedanciometry in peritoneal dialysis (PD) patients.

Patients and Methods

We performed in PD patients a bioimpedance spectroscopy analysis using BCM Fresenius monitor. Patients were in supine rest position on a bed and we took two measurements: the first just 3-5 minutes after resting and the second measurement after 30 min of resting. We compared parameters estimated with both measurements (few minutes vs 30).

Results

We included 37 patients, 60±20 years, 54,1% males, 72,5±13,2 Kg and BMI 27,7±4,6 Kg/m².

Absolute overhydration (OH) decreased with resting time significantly in -0,15±0,39 L ($p=0,021$) (rank -0,80 a +1,20 L). Relative OH also decreased in -0,93±2,23% (rank -4,3% a +5,8%), $p=0,016$.

Estimated extracellular cell volume (ECV) decreased in -0,19±0,20 L ($p<0,001$) without changes in intracellular cell volumen (ICV), although it varied between -2,5 kg and +1,9 kg. Total body water (TBW) decreased in -0,32±0,83 L ($p=0,024$), rank -2,6 L to +2,3 L. Lean tisular mass (LTM) decreased in -0,40±2,2 kg ($p=NS$), with rank -7 kg to +5,4 kg. Body cell mass (BCM) also decreased in -0,28±1,56 kg ($p=NS$) with rank -5,1 kg to +3,8 kg. Adiposse tisular mass (ATM) increased in 0,53±1,92 kg ($p=NS$) with rank -5 kg to 5,9 kg.

These changes of nutritional and hydration parameters did not relate with age, gender or time in PD. Patients with cycling PD vs manual PD showed higher decreases in OH (-0,32±0,23 vs -0,01±0,43 L, $p<0,001$) and in extracellular cell volume (-0,27±0,14 vs -0,13±0,23 L, $p=0,03$), without significantly differences in rest of parameters.

Conclusions

After different times of resting it occurs a significant redistribution of fluids from lower limbs to rest of the body that changes estimation of volumes of body water compartments. A measurement taked few minutes after supine position could inflate estimation of extracellular cell volumen and overhydration and induce important errors in estimation of nutritional compartments. So we recommend to wait in supine position at least 10 minutes before measurements are taken, as traditional literature recommends and not after few minutes as Fresenius recommends.

P-111**METFORMIN IN PERITONEAL DIALYSIS: A PILOT EXPERIENCE OF METFORMIN USE IN A COHORT OF PATIENTS**

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Objective

The antidiabetic drug metformin has been associated in a small number of patients with lactic acidosis. In spite of the fact that diabetes mellitus is the commonest cause of end-stage renal disease (ESRD) and that peritoneal dialysis (PD) is an expanding modality of treatment, little is known about the optimal treatment strategies in this large group of patients. The use of metformin has been limited in patients with ESRD because of the perceived risk of lactic acidosis and/or severe hypoglycemia. However it is likely that the use of this drug would be beneficial and that PD itself is a safeguard against the alleged complications.

Methods

The study involved 35 insulin-dependent type-2 diabetes patients (median age 54 (IQR 47-59) years on automated PD (APD) therapy. Patients with additional risk factors for lactic acidosis were excluded. Metformin was introduced with the daily dose ranging between 0.5-1.0 gm. All patients were monitored for glycemic control by blood sugar levels and Hgb-A1C. Plasma lactic acid levels were measured on weekly basis for 4 weeks then monthly till the end of the study. Plasma and peritoneal fluid metformin and plasma lactate levels were measured simultaneously.

Results

The median diabetes duration was 18 (IQR 14-21) years, the median time on PD was 31 (IQR 27-36) months and the median Hgb-A1C was 6.8% (IQR 5.9-6.9). The median anion gap was 11 (IQR 9-16) mmol/L and 12 (IQR 9-16) mmol/L ($p > 0.05$) and the median pH was 7.33 (IQR 7.32-7.36) and 7.34 (IQR 7.32-7.36) ($p > 0.05$) at the beginning and at the end of the study period respectively. The overall mean \pm SD plasma and peritoneal fluid metformin concentrations were 2.57 ± 1.49 mg/L and 2.83 ± 1.7 mg/L respectively. The mean lactate level across all patients was 1.39 ± 0.61 mmol/L, and hyperlactemia (level $> 2-5$ mmol/L) was found in 4/525 (0.76%) plasma samples whereas the patients presented no symptoms. None of the patients had plasma lactate level above 5 mmol/L. There was no correlation between plasma metformin and plasma lactate levels ($r = 0.27$).

Conclusion

In this pilot study we explored the use of metformin in a highly selected group of peritoneal dialysis- treated type 2 diabetic patients on insulin treatment with and without adverse effect. Although this study has demonstrated feasibility of metformin use in APD, it has not been large enough to demonstrate safety and a large scale study is needed.

Keywords: Metformin, lactic acid, BMI, ESRD, PD, acidosis, hypoglycemia.

P-112**THE DIVERSE USE OF AN ASSISTED AUTOMATED PERITONEAL DIALYSIS (aAPD) SERVICE GIVES FLEXIBILITY THAT ENABLES GROWTH OF THE PERITONEAL DIALYSIS (PD) PROGRAMME**

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Between 2006-2010 the utilisation of peritoneal dialysis as a treatment modality in our centre had declined, with a loss of nearly a third of our PD population. Following a review of our PD programme, it was clear that our own criteria for patients starting on PD was very restrictive. With an emphasis solely on self-care, many patients were not only being denied the choice of PD as a modality treatment, but the option to remain on PD, where ill health caused temporary or permanent barriers to self-care. For both planned and unplanned starts haemodialysis had become, by default, a first line renal replacement therapy.

In recognition of this, an aAPD programme was introduced, provided solely in-house, allowing rapid transfer of patients on to the programme. Although the primary focus was on the support it could give to the frail elderly, it soon became clear the flexibility the service could offer.

Since setting up the aAPD service, it has been accessed by in excess of 100 patients at some point during their time on PD. 36 patients were frail elderly and started on aAPD. 28 patients developed barriers to self-care requiring a temporary or permanent switch to aAPD. A further 9 switched due to 'carer burnout'. 4 patients were palliative. 24 patients used it as a bridge to independence, using it as an extension to our traditional training program. The service has also expanded to support patients with cardiac failure.

Currently there are 21 patients are our aAPD programme. This service not only supports the initiative to drive home based therapies, promote patient choice and make PD a first line renal replacement therapy, but the flexible use of the service has impacted hugely on our own PD population which has grown by a considerable 26%.

P-113**IMPACT OF DECISION MAKING TOOLS USE AT THE TIME OF MODALITY CHOICE AND PD TAKE ON IN A MULTICENTRE-MULTINATIONAL SETTING**

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Different factors have been attributed to low PD take on such as late referral, unplanned start, physician bias towards PD, large HD availability and lack of patient's choice. Some references apply for 50% of PD if a good modality information is provided.

Objectives

To analyze the impact of a structured modality information program with the use of decision making tools (DMTs) on type of modality choice and start.

Methods

Observational, prospective, multicentre and multinational experience. All patients under ESRD 4-5 and/or after an unplanned dialysis start if non-informed before were recruited to undergo a DMT process for RRT choice. Process included: personal values evaluation, RRTs information with different tools, deliberation and patient's modality election.

Results

444 patients, mean age 61,5 y. from 31 clinics in Poland, Hungary and Romania underwent a DMTs evaluation between August-December 2014. Staff considered PD as contraindicated in 45% of Polish patients, 32% in RO and 24% in HU. Reasons behind were mix causes and "other" than abdominal or mental. Home orientation was stated for 30% (PL), 40% (RO) and 54% (HU). Written information was largely used for 71 to 97% of patients; DVD in 9-21% and in centre HD/PD touring visits in 31-75%. PD as elected modality varied among countries: 10% (RO), 21% (PL) and 35% (HU). For patients who started dialysis (n= 163), PD was used in 10% (RO), 14% (PL) and 36% (HU).

Conclusions

Use of DMTs at the time of RRT modality choice is encouraging and complies with patient's empowerment. An increase in PD take-on has been observed in our institution after DMTs use. However, when compared with other references, our patient's PD election is still low and factors behind this fact needs to be elucidated with a larger recruitment pool (in process).

P-113a**GERIATRIC NUTRITIONAL RISK INDEX IS A SIMPLIFIED NUTRITIONAL INDEX IN PERITONEAL DIALYSIS PATIENTS**

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Objective

Geriatric Nutritional Risk Index (GNRI) is a promising tool initially proposed to predict nutrition-related complications. Main aim of this study was to validate the GNRI in chronic peritoneal dialysis (CPD) patients.

Methods

This study enrolled 146 patients (71 males and 75 females) from the PD unit of National Cheng Kung University Hospital, Taiwan. Patients were divided into 3 groups, group 1 is major risk and moderate risk in GNRI \leq 92 score (23 patients; 16%), group 2 is low risk with 92 score < GNRI \leq 98 score (50 patients; 34%), group 3 is no risk with GNRI >98 score (73 patients; 50%). We measured anthropometric, SGA, biochemical parameters, PEW (protein energy wasting), GNRI.

Results

Group 3 had significantly higher BMI, MAC, TSF, HGS, PS than group 1 and 2. In SGA, there were significantly higher scores with appetite, GI function, activity, stress, body fat and muscle, and total SGA score ($P < 0.0001$) in group 3 than group 1 and 2. In biochemical parameters, only serum albumin had significantly higher in group 3 than other groups ($P < 0.0001$). In PEW analysis, group 1 with PEW had 78%, group 2 had 50%, Group 3 had 14% ($P < 0.0001$).

Conclusions

The nutritional risk index with GNRI, the major risk and moderate risk was 16 % in our CPD patients, those patients had lower anthropometric parameters, SGA score, serum albumin levels, muscle strength, and higher percentage of PEW, so it is a simplified nutritional index in peritoneal dialysis patients.

P-114**SEPTIC TANK WASTE SYSTEM AND ICODEXTRIN**

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Introduction

Prescription of Icodextrin has been exponential since the beginning of the 21st Century. Cardio-renal syndrome patients are mostly treated with maltose-containing bags because of their fluid overload.

We here describe a potential problem of waste in septic tank systems because of Maillard reaction

Facts

The Maillard reaction is a chemical reaction between amino acids and reducing sugars. It is a form of nonenzymatic browning of food which typically proceeds rapidly from around 140 to 165 °C and also occurs in human body for instance in diabetes when glucose is adhering to hemoglobin to form HbA1C.

It is also a step in the formation of advanced glycation endproducts (AGEs).

Water is necessary during most of the steps of this reaction but is also an endproduct. Too much water in the compound (> 60 %) inhibits dehydration. On the opposite, no reaction occurs if water is < 30 %.

Optimal pH for the Maillard reaction is situated between 6 and 10.

Light reducing sugars are more able to start the reaction. Pentoses and riboses are more reagent than hexoses as glucose, galactose or fructose. Maltose or lactose aggregates of two sugars and are not as much reactive than simple sugars but if temperature rises over 30 °C, Maillard reaction can begin.

As soon as proteins from the drained dialysate, melted with maltose from the icodextrin bag, are put in the septic tank, this chemical reaction can occur.

Thus biofilms develop on pipes and concrete tanks which can lead to blockage

Clotted stools are glued in maltose-proteins compounds and can completely block up the pipes of the drainage field.

Conclusions

Maillard reaction can occur in septic tank waste system flushing Icodextrin drained bags because of the presence of proteins, water, maltose and temperatures over 30 °C. pH is adequate to start the reaction and form biofilm and clotted stools.

As this could block the septic tank, we suggest to our peritoneal dialysis patients not to flush the drained liquids in this kind of waste system.

P-115**THE INFLUENCES OF AMINO ACID DIALYSATE (NUTRINEAL) ON CLINICAL VARIABLES IN CAPD PATIENTS**

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Objective

Hypoalbuminemia in continuous ambulatory peritoneal dialysis (CAPD) patients is indicated malnutrition and an independent risk factor for death. Previous studies had demonstrated some benefits with 1.1% amino acid based peritoneal dialysis solution (Nutrineal) on changes of nutritional markers in CAPD patients. Present study reported the extended use of Nutrineal and the effects on variables of nutrition, biochemistry and dialysis adequacy in CAPD patients.

Methods

The study design was a retrospective, chart record review for one year in one hospital-facilitated PD unit. 32 patients who fulfilled the criteria of serum albumin level ≤ 3.5 gm/dL or normalized protein equivalent of total nitrogen appearance (nPNA) < 0.9 gm/kg/day prior to commencing Nutrineal one exchange per day were enrolled. 421 CAPD patients with dextrose dialysate were compared. Nutritional indices, nPNA, Kt/V and creatinine clearance were assessed for all patients prior to Nutrineal and at the end of study period.

Results

Subjects with Nutrineal were older than dextrose users (60.3 vs 53.5 years, $p=0.003$) and lower albumin levels at the baseline (3.29 vs 3.84 gm/dL, $p<0.001$). By linear regression model to evaluate the impact on clinical variables, Nutrineal revealed significant increase serum BUN level ($\beta=0.16$, $p=0.001$), nPNA level ($\beta=0.08$, $p=0.044$). In contrast, Nutrineal showed significant reduction serum albumin level ($\beta=-0.33$, $p=0.000$), phosphate level ($\beta=-0.12$, $p=0.008$), sodium level ($\beta=-0.19$, $p=0.000$), triglyceride level ($\beta=-0.11$, $p=0.019$).

Conclusion

Nutrineal increased marginal nPNA level, however, Nutrineal did not increase albumin level in one-year use in CAPD patients. A further study with longer duration and more patients' enrollment is indicated to clarify the long-term benefit of Nutrineal on clinical nutritional indices in CAPD patients.

P-116**ALANYL-GLUTAMINE ATTENUATES CELLULAR INJURY AND ENHANCES CYTOPROTECTIVE RESPONSES IN ENDOTHELIAL CELLS FOLLOWING EXPOSURE TO COMMERCIAL PERITONEAL DIALYSIS FLUID**

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Neovascularization and diabetes-like damage of vessels are important factors limiting PD. Bio-incompatibility of commercial PD fluids (PDFs) is responsible for morphological and functional changes occurring in the peritoneal membrane over time, ultimately leading to technique failure.

Here we study the effect of PDF supplementation with cytoprotective alanyl-glutamine (AG) on human umbilical vein endothelial cells (HUVEC) using proteomics.

In an established in-vitro PD model, we compared viability (by lactate dehydrogenase release) and protein profiles of HUVEC exposed to PDF +/- 8 mM AG diluted with medium or control. Using cyanine fluorescent dyes, and two-dimensional difference gel electrophoresis (2D-DIGE), significantly altered spots were detected and identified by mass spectrometry (MALDI-MS).

Reduced cellular viability in cells exposed to PDF, was attenuated by AG supplementation during PDF exposure thus exerting cytoprotective effect. Out of a common spot pattern of 993 spots, significant abundance changes ($p \leq 0.05$) were found in 261 and 131 spots in PDF and PDF+AG respectively compared to control. Of those, 104 spots were common whereas 27 spots showed significant changes exclusively following exposure to PDF supplemented with AG. Deeper insights on the effect of AG supplementation during PDF exposure was achieved by direct comparison revealing a set of 55 differentially abundant spots ($p \leq 0.05$) between PDF and PDF+AG. Interestingly, the majority (58.2%) of those spots showed restored abundance close to control levels when AG was supplemented. Protein identification and bioinformatics suggests a role for AG in attenuating or even reversing cytoskeletal injury caused by PDF exposure of HUVEC (CALD1; VCL; VIM; EZR; CFL1; TCTP; ANXA2), and improving cellular responses to PDF stress (HSPB1; PPIB; TCTP; PDIA6; PDIA3; ERP29; HSP90B1; TXND5; PRDX2; NACA).

In summary, this study elucidates potential mechanisms by which AG exerts cytoprotective effects in endothelial cells, offering therapeutic targets to reduce side effects of PD in vivo.

P-117**TRANSCRIPTOMIC EFFECTS OF PERITONEAL DIALYSIS FLUID SUPPLEMENTATION WITH ALANYL-GLUTAMINE DIPEPTIDE SUGGEST PERITONEAL IMMUNE-MODULATION IN A PILOT TRIAL**

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Peritoneal dialysis fluids (PDF) reduce immune defenses and increase inflammation in the peritoneal cavity. Low peritoneal glutamine levels may contribute to such complications. As a pilot clinical trial, PD patients were treated with PDF supplemented with alanyl-glutamine dipeptide (AlaGln) and the effect on peritoneal cell immune-modulation was studied. We aimed to link in-vivo cellular stress responses with immune mechanisms through transcriptome signatures revealed by RNA-sequencing (RNAseq) and microRNA (miRNA) microarray-analysis of cells from PD effluents.

In an open-label, randomized, crossover pilot trial at the Medical University of Vienna (EudraCT-2012-004004-36) 6 stable PD patients received either standard PDF (Physioneal40 3.86%, Baxter) or AlaGln-supplemented (8 mmol) PDF for two PD dwells (over-night, and 4h peritoneal equilibration test (PET)). Immune-modulation was assessed as ex-vivo stimulated cytokine release. Total RNA of peritoneal effluent cells from each dwell was subjected to RNAseq (Illumina TruSeq) and miRNA microarray-analysis (Affymetrix) followed by an integrated bioinformatics workflow.

AlaGln treatment resulted in significantly increased cytokine release following ex-vivo stimulation, indicating restoration of suppressed peritoneal immunocompetence. After QC and filtering for high quality reads ~98% of reads from each sample were mapped to the human genome. 9,797 genes were identified after filtering out low abundance genes (CPM<10). Unsupervised clustering and PCA revealed partial separation between treatments. Supervised (paired) analysis identified 13 differentially expressed miRNAs and 41 genes with >1.5-fold change ($P < 0.01$). Pathways and functional enrichment-analysis linked to immune response and immune-modulation.

The AlaGln-mediated improvement in peritoneal leukocyte immune-competence, together with the results of mRNA and miRNA analyses, allow correlation of the transcriptome status of peritoneal leukocytes in well-described clinical samples with ex-vivo stimulation assays as indices of functional immune-modulation. To strengthen these promising data, larger numbers of patients will be treated with Ala-Gln for a prolonged period in an international multi-center RCT.

P-118**LITHIUM RELATED CYTOPROTECTION IN PRIMARY MESOTHELIAL CELLS DURING EXPERIMENTAL PERITONEAL DIALYSIS**

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Following exposure to peritoneal dialysis fluids (PDF), mesothelial cells exhibit features of injury, leading to loss of peritoneal membrane integrity. This damage, as a consequence of non-physiological components of PDF, might be related to inadequate induction of protective cellular stress responses (CSR). Recently our group has shown that a potentially negative regulator of cell survival, glycogen synthase kinase-3 β (GSK-3 β) is upregulated by PDF, resulting in suppression of CSR. Lithium, a well described GSK-3 β inhibitor, augmented the restoration of adequate CSR following PDF exposure in immortalized mesothelial cells.

In this study confluent primary mesothelial cells were incubated with commercially available PDF (Extraneal®, Baxter). The effects of PDF with or without added lithium on cell injury were investigated using a lactate dehydrogenase assay. From correspondent samples either total RNA or total protein was extracted. The transcriptome was investigated using gene expression microarrays (Affymetrix) and the biological processes and pathways showing the PDF/Lithium dependence were characterized using the PANTHER database. Significant genes identified in the transcriptomics approach were subsequently verified on the protein level.

A dose dependent decrease of toxicity for PDF supplemented with lithium was associated with significantly differential expression of genes responsible for immune system processes and stress responses. The significantly enriched processes contain mainly chaperones, interleukins and cytokines as overrepresented protein classes. Furthermore, the inhibition of GSK-3 β was confirmed for lithium supplemented PDF by differential expression of genes associated with the Wnt-pathway.

The observed improvement of cellular stress responses confirms the cytoprotective potential of lithium as intervention in primary mesothelial cells and the pathways identified by transcriptome analysis will be the basis for in-vivo studies.

P-119**SYNTHESIS AND REGULATION OF SURFACTANT IN HUMAN PERITONEAL MESOTHELIAL CELLS**

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Surface-active phospholipids (SAPL) secreted by human peritoneal mesothelial cells (HPMC) form a lipid lining on the peritoneum, which acts as a lubricant preventing friction and adhesions and as a barrier to the transport of water-soluble solutes while permitting water flux. SAPL added to dialysate increase ultrafiltration capacity. Regulation of endogenous peritoneal SAPL homeostasis, however, is unknown.

Peritoneal HPMC were isolated from four non-uremic patients. Expression of key genes of the Kennedy pathway (rt-PCR), and synthesis and secretion of 12 SAPL (24h, ESI-mass-spectrometry) were analyzed in young and senescent HPMC (>Hayflick-limit, senescence-associated- β -galaktosidase positive) incubated with different solutions for 24h.

Composition of SAPL secreted from HPMC in vitro and into dialysate in vivo differs substantially from SAPL secreted from pneumocytes, with e.g. 9-30% of SAPL being Di-Palmitoyl-Phosphatidyl-Choline (DPPC), compared to 60% in pneumocytes. Glucose (0.1-4.25%) dose dependently reduced SAPL content of HPMC and SAPL secretion by up to 80 and 50%. The glucose degradation product 3,4DGE (0.1-100 μ M), calcium (0.1-2.5mM) and pH (5.5-8.1) had no systematic effect on gene expression and SAPL turnover. Low GDP fluid (BicaVera 1.5-2.3% glucose) reduced total SAPL and DPPC secretion slightly, high GDP fluid by 50% and Icodextrin by 70%. Dexamethason (10-50nm) dose-dependently increased total SAPL and DPPC secretion up to 3-fold and depleted cellular stores. Senescent HPMC expression levels of cholinkinase-alpha, phosphatidylcholin-transferase and of the rate limiting phosphocholincytidyl-transferase were 1.5-, 2-, and 6 fold higher than in young cells, SAPL content 4-fold and secretion rate 80% increased (1.63 nmol/ml/100000HPMC/24h).

Composition of SAPL secreted from HPMC differs substantially from pneumocytes. Glucose and high GDP PD fluids reduce HPMC SAPL storage and secretion. Icodextrin, which has been suggested for prevention of postoperative adhesions, in vitro, substantially reduces SAPL secretion. In contrast, senescent HPMC SAPL synthesis and secretion is markedly increased, possibly counteracting PD induced damage to the peritoneal membrane.

P-120

INCREMENTAL PD WITH THE NEUTRAL pH SOLUTION PREVENTS THE PERITONEAL DAMAGE: A SINGLE CENTER STUDY

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Objectives

Peritoneal dialysis (PD) solutions with neutral pH are generally used in Japan. Furthermore, incremental PD (Incr PD) is usually chosen at the start of PD in our hospital. The neutral pH solution and incr PD seem to protect the peritoneum. However, such studies are not yet sufficient. The aim of the present study is to clarify influences of Incr PD with the neutral pH solution to the peritoneal damage.

Methods

We evaluated D/P ratio of creatinine and peritoneal mesothelial cell area (MCA) in PD effluent at the PD initiation and after 2 years. In addition, residual kidney function (RKF) and biochemical markers in PD effluent at end of PET, such as cancer antigen 125 and prothrombin fragment 1 + 2 (F1 + 2) were also examined at the same time.

Results

We retrospectively assessed 14 PD patients (8 male, 59.2 ± 10.4 years, 10 diabetic, eGFR 5.4 ± 1.4 ml/min/1.73m²) who initiated Incr PD with the neutral pH solution. D/P ratio of creatinine was not a significant change (At the PD initiation: 0.62 ± 0.13, 2 years after: 0.67 ± 0.12, p = 0.118). MCA was not a significant change (At the PD initiation: 325 ± 21.3 μm², 2 years after: 313 ± 19.0 μm², p = 0.094). RKF (weekly kt/V urea) was at the PD initiation: 1.0 ± 0.28, 2 years after: 0.8 ± 0.54. Cancer antigen 125 and F1 + 2 in the effluent were not also significant change.

Conclusions

The present study showed that Incr PD with the neutral pH solution did not involve D/P ratio of creatinine and MCA in 2 years from the initiation.

P-121

INJURY-INDUCED INFLAMMATION AND INADEQUATE HSP EXPRESSION IN MESOTHELIAL CELLS UPON REPEAT EXPOSURE TO DUAL-CHAMBER BAG PERITONEAL DIALYSIS FLUIDS

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Objectives

Peritoneal dialysis fluids (PDF) may induce inadequate heat-shock protein (HSP) expression and injury related inflammation in exposed mesothelial cells. The aim of this study was to relate cellular injury to these cellular responses in mesothelial cells following repeated exposure to three commercial PDFs with different biocompatibility profiles.

Methods

Primary cultures of human peritoneal mesothelial Cells (HPMC) were exposed to a 1:1 mixture of cell culture medium and CAPD2 (single-chamber bag PDF, Fresenius), Physioneal® (dual-chamber bag PDF, Baxter) or Balance® (dual-chamber bag PDF, Fresenius) for up to ten days exposure time (4 dwells). Supernatant was analysed for LDH, IL-6, and IL-8, cells for HSP-72 expression and protein content.

Results

PDF exposure resulted in a bi-phasic pattern of cell damage switching from an earlier phase with increased injury by single-chamber PDF to a delayed phase with increased susceptibility to dual-chamber PDFs. Sterile inflammation was related to LDH release over time and could be reproduced by exposure to necrotic cellular material. PDF exposure resulted in low HSP-72 expression in all tested PDFs.

Conclusion

Exposure to single as well as to dual-chamber bag PDFs induce increased vulnerability of mesothelial cells to repeated exposure of the same solution. These effects occurred delayed with dual-chamber PDFs. Injury induced inflammation and impaired HSP expression upon PDF exposure might initiate a vicious cycle with progredient mesothelial cell damage upon repeated PDF exposure. Certainly, interventional studies and translation of these results into the in-vivo system is needed.

P-122**CANCER ANTIGEN 125 AND PROTEIN LEVEL DURING CAPD PERITONITIS**

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Objectives

To identify CA 125 and proteine level in PD effluent during CAPD -associated peritonitis and evaluate a relation to the severity and outcome.

Methods

Clinical records and reports of the patients who attended the PD program in Military Medical Academy during last 2 years. We analyzed 53 patients (24 male, 29 female), mean age 59.4 +/- 12.4 years, mean PD duration 34.9 +/- 11.33 months, treated with the usual conventional PD solutions. A total of 26 peritonitis episodes were identified. Diagnosis of peritonitis was made based on clinical signs of inflammation, number of white blood cells and culture from the PD fluid. Dialysis samples were also tested for CA 125 and protein level.

Results

The incidence of peritonitis in our centre was 1 episode / 31,86 patient months. Culture revealed: A positive culture in the peritoneal fluid was found in 88,46 % of the peritonitis episodes. A single gram (+) organism was found in 65,22 % of the positive culture cases, a single gram (-) organism was found in 34,78 % of the positive culture cases. There were not cases of fungal peritonitis. The dialysate mean value of CA125 in Gram + causers was 33.07 +/- 5.72 U/mL and 86,5 +/- 6.34 U/mL in Gram negative causers which was statistically significant difference. In contrast, comparing the mean dialysate values of protein-2,56g/l in Gram positive causers and 1,76g/l in Gram negative causers no statistically significant difference was revealed. We verified complete resolution in all cases of Gram positive peritonitis and loss of catheter in 2 cases of Gram negative peritonitis (25%)

Conclusions

Gram positive microorganisms are the most common finding in a CAPD peritonitis in our hospital. The more severe clinical consecution was verified in CAPD peritonitis caused by Gram negative microorganisms where level of CA 125 antigen was significantly increased. This fact could suggest that level of this antigen could be predictive factor of severity and outcome of CAPD peritonitis but more research is necessary to establish normal values and a significant change of CA 125 level during peritonitis.

P-123**PERITONITIS CAUSED BY S. PNEUMONIAE AND H. INFLUENZAE IN PERITONEAL DIALYSIS. IS IT UNCLEAR?**

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Introduction

Bacterial peritonitis is a disease frequently occurring in patients with peritoneal dialysis (PD) in a first year of treatment and it is often the reason for discontinuing this modality of renal replacement therapy. Streptococcus pneumoniae (Gram-positive cocci) and Haemophilus influenzae (Gram-negative coccobacillus) are rarely associated with this condition.

Case Report

A 59-year-old female with Chronic Kidney Disease (CKD) unknown etiology, hypertension, hyperlipidemia, hypothyroidism, cholesteatoma surgery and a total laryngectomy for carcinoma of the larynx in 2004. She developed two episodes of peritonitis in her first year in PD. The first episode was due to Streptococcus pneumoniae and the second to Haemophilus influenzae.

She reported adherence to this aseptic technique and no complications. The source of infection was not identified and there was no evidence of any infection elsewhere (samples of blood, urine, nasal and catheter exit-site swab were negative) including a normal chest X-ray. Only physical examination revealed an opening stoma of permanent tracheostomy. The peritonitis quickly responded and antibiotics were discontinued after 14 days.

Discussion a and Literature Review

S. pneumoniae and H. influenzae are found in the upper respiratory tract of 1-5% healthy adults and is commonly of serotype b.

In our case there were no symptoms or signs of respiratory, sinus, ear or urine infection, but presented an opening stoma of permanent tracheostomy and she only used face mask, not for stoma. Since then, she began to use two masks for face and stoma and she had not new episodes of peritonitis. It is unclear what the mode of infection in PD. We do not know if the infection was due to bacteraemia (less probable) or close contact with respiratory tract secretions colonized with pneumococcal or H. influenzae (carrier state) through the stoma.

P-124**IMPROVED PERITONEAL IMMUNOCOMPETENCE IN MICE WITH PERITONITIS BY ADDITION OF ALANYL-GLUTAMINE TO PERITONEAL DIALYSIS FLUID**

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PD fluids (PDF) increase inflammation and hamper immune defenses in the peritoneal cavity. Peritonitis represents a relevant factor of morbidity and mortality during PD. Parenteral administration of alanyl-glutamine (AG), has been shown to improve clinical outcome in critically ill and sepsis patients. Aim of the study was to analyze the effect of AG in PDF on peritoneal cells following exposure to combined cytotoxic and infectious stress.

Mice were exposed to 2x/day i.p. injections of PDF in combination with 107 CFU Staph.epidermidis on day 2 and 4. PDF was applied with or without 8 mM AG (10 mice/group). 4 mice were used as controls. Body weight and pain status were assessed every day. After 9 days, all mice were subjected to a 1h PD-dwell. Peritoneal and blood cell counts and cytokine levels were determined. For functional measurements of immunocompetence, fresh effluent was ex-vivo stimulated with LPS and analyzed for cytokine release.

Local inflammation tended to be more activated in the PD than in the PD+AG group. Basal levels of IL-6 and TNF- α levels in peritoneal effluents were lower with AG (IL-6 PD: 353.0 pg/ml vs. PD+AG: 53.3 pg/ml; TNF- α : PDF: 141.1 pg/ml vs. PD+AG: 53.4 pg/ml). Ex-vivo LPS stimulation of peritoneal cells resulted in increased cytokine release in controls (25 and 40-fold unstimulated) that were depressed in the PD group (3 and 10-fold unstimulated) and restored in the PD+AG group (30 and 25-fold, $p < 0.05$ vs. PD for IL-6), indicating improved cellular immunocompetence with AG in PDF.

This study supports the concept of increased inflammation and hampered immunocompetence in a model of combined intraperitoneal cytotoxic and infectious stress following exposure to infected PDF reflecting a clinical relevant situation. Addition of AG to PDF attenuated inflammation and restored immunocompetence thus providing first evidence that immunomodulatory effects of AG might be transferred into PD.

P-125**STRONGYLOIDES STERCORALIS - AN UNEXPECTED CAUSE OF EOSINOPHILIA AND RECURRENT STERILE PERITONITIS IN PERITONEAL DIALYSIS PATIENT**

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A 60-year-old woman with diabetic nephropathy, receiving intermittent peritoneal dialysis, presented with two peritonitis episodes with typical symptoms (abdominal pain, diarrhea and cloudy peritoneal effluent with elevated leukocyte count 800-1100/ μ L and neutrophil predominance), during first two months of treatment. All of the sampled effluent cultures proved to be negative, same as resuspended effluent sediment during second episode. First episode resolved 24h after initiation of empiric antibiotic therapy, but during the second, patient was left untreated, and outcome was the same. Patient's predialysis medical history of peripheral leukocytosis with eosinophilia, aggravated during both peritonitis episodes (Le 1232-1463/ μ L; Eo 1550-1630/ μ L), raised suspicion of parasitosis, gastrointestinal eosinophilia or malignancy. Microscopy of multiple stool samples and effluent sediment didn't show parasite existence. Analysed tumour markers were negative. Patient underwent esophagogastroduodenoscopy with biopsies, which showed Strongyloides stercoralis parasite in duodenal mucosa. After seven-day treatment with Albendazol 400 mg/d, all of the symptoms and eosinophilia resolved and no new peritonitis episode occurred.

S.stercoralis is a human parasitic roundworm prevalent in the tropics, but also in rural areas of Serbia. Their females usually live in small intestine, and can produce larvae which may auto-infect the host, transferring to the blood through mucosa. They can also produce reproductive soil-dwelling adults. Chronic infection mainly present with episodic gastrointestinal (vomiting, epigastric pain, diarrhea, weight loss), respiratory symptoms (cough, wheezing, pleural effusion) and skin signs (urticaria, larva currens). In immunocompromised, hyperinfection syndrome with systemic involvement and possible lethal outcome may develop. Hypothetically, infective larva migration through peritoneal blood vessels, may cause peritonitis in PD patients. Only one such case of peritonitis was described in literature. Diagnosis is made through larvae identification in stool samples or serodiagnosis. Ivermectin, Albendazole or Thiabendazole are the treatment choices.

Conclusion

Although rare condition, S.stercoralis should be considered in all culture-negative peritonitis in patients with eosinophilia.

P-126**PSEUDOMONAS EXIT SITE INFECTION: TREATMENT OUTCOMES WITH TOPICAL GENTAMICIN IN ADDITION TO SYSTEMIC ANTIBIOTICS**

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Objectives

Although, Pseudomonas exit site infection (ESI) is recognised as a major complication of PD with high risk of catheter loss due to refractory/recurrent infection or peritonitis, there is remarkably little literature about treatment outcomes. ISPD guidelines advise use of 1-2 antibiotics; in addition we change standard exit site care by stopping prophylactic mupirocin and starting regular use of gentamicin 1% cream.

Methods

Retrospective review of outcomes of Pseudomonas ESI from January 2012 until March 2015.

Results

During the study period a total of 135 patients were on PD with an overall incidence of any ESI of 1/33.7 patient months. There were 14 patients with ESI episodes with Pseudomonas with a rate of 1/97 per patient months. In total 13/14 patients with ESI episodes were treated with oral ciprofloxacin and/or intraperitoneal (IP) gentamicin or ceftazidime, plus topical gentamicin with a success rate of 46% (6/13). One patient had gentamicin resistant pseudomonas species and was treated successfully with topical Polyfax cream. Median follow-up time in cured patients was 385 days (74 - 1107). Six patients had associated Pseudomonas peritonitis, four during follow-up and two at initial presentation. Three patients had recurrent ESI with Pseudomonas with one successfully retreated with topical and IP gentamicin. In 7/14 patients (50%) the PD-catheter had to be changed or removed due to unresolved infections. Five of these patients changed to haemodialysis and two patients remained on PD.

Conclusion

Eradication of Pseudomonas ESI remains difficult even with the addition of topical gentamicin to the exit site. There should be a low threshold for catheter replacement.

P-127**EFFECTIVENESS OF EMPIRICAL CEFAZOLIN-AMIKACIN COMBINATION IN THE TREATMENT OF PERITONITIS IN PERITONEAL DIALYSIS PATIENTS**

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Objectives

Peritonitis is one of the most important complications of peritoneal dialysis (PD). 'Peritoneal Dialysis-Related Infections Recommendations' guideline of International Society of Peritoneal Dialysis recommended empirical antibiotic treatment for peritonitis. Usual combination is a first generation cephalosporin or vancomycin plus a third generation cephalosporin or an aminoglycoside. Due to the low rate of methicillin resistant organisms in our center, we start empirical treatment with intra-peritoneal cefazolin and amikacin. We aimed to investigate the effectiveness of this combination in PD patients with peritonitis.

Methods

This study included 171 PD patients followed in Diskapi Yildirim Beyazit Training and Research Hospital and Etlik İhtisas Training and Research Hospital Nephrology Clinics within two years. Peritonitis episodes, microorganisms grown, treatment and prognosis were recorded.

Results

171 patients (95 male, 76 female) were included. Mean follow-up period was 18.9 months. 79 patients (46.2 %) suffered peritonitis during follow-up. 103 peritonitis episodes were observed in these 79 patients. Peritonitis rate was 1 in 31.4 patient-months. Most of the episodes were caused by gram positive microorganisms (52.3 %) and especially coagulase negative staphylococci (33.0%). Ten gram positive microorganisms (8 coagulase negative staphylococci and 2 methicillin resistant staphylococci) out of 54 were resistant to cefazolin. Cefazolin was switched to vancomycin in these patients. There was one amikacin resistance among 20 gram negative microorganisms. There were 23 culture negative peritonitis episodes. Twenty-one of these episodes (91.4%) were successfully treated with cefazolin-amikacin combination. Eighty-five of 98 patients with bacterial peritonitis or culture negative peritonitis (86.7%) were successfully treated with this combination. PD catheter had been removed in 7 patients. Reason for removal of the catheter was fungal peritonitis in 4 patients, tuberculosis peritonitis in 1 patient and culture negative peritonitis unresponsive to medical treatment in 2 patients.

Conclusions

Empirical cefazolin-amikacin combination is an effective treatment for peritonitis in PD patients.

P-128**PERITONITIS RATE AND OUTCOME OF PATIENTS ON PERITONEAL DIALYSIS**

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Aim

The aim of the study was to determinate peritonitis rate and clinical outcome from episodes of peritonitis in patients on peritoneal dialysis.

Methods

Medical records of 83 patients undergoing peritoneal dialysis from January 1999 to December 2014 were retrospectively studied. Almost all patients were on continuous ambulatory peritoneal dialysis, except three patients on automated peritoneal dialysis. Culture-negative cases were also included in the total number of episodes of peritonitis. Vancomycin and aminoglycosides, with intraperitoneal route of administration, were the initial antibiotic selection. Clinical outcome was classified as primary cure, catheter removal or patient's death.

Results

There were 122 episodes of peritonitis during 198.1 patient-years, which yielded an overall peritonitis rate of 0.61 episodes per patient-year (1 peritonitis episode per 19.2 patient-months). The total number of patients who developed peritonitis was 43 (51.8%) and among them, the average number of episodes per patient was 3.1. From a total of 122 episodes of peritonitis, 8 (6.5%) were related to the exit-site infection, and 1 (0.8%) to tunnel infection. Gram-positive organisms were isolated in 50% of peritonitis episodes. Culture-negative were 17.2% of peritonitis episodes. Fungal peritonitis was detected in 2 (1.6%) episodes of peritonitis. The clinical outcome of peritonitis episodes was: primary cure in 106 (86.9%) episodes, catheter removal was required in 11 (9.0%) episodes, and patient's death was present in 5 (4.1%) episodes of peritonitis.

P-129**PSEUDOMONAS MENDOCINA: A RARELY REPORTED HUMAN PATHOGEN - THE FIRST CASE OF PERITONITIS**

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Pseudomonas mendocina is a low-virulence organism first isolated in 1970 from soil and water samples. We describe the first case of *P.mendocina* peritonitis and the sixth of infection in humans. A 22-year-old male in peritoneal dialysis (PD) for 15 months was admitted with peritonitis without exit-site infection. Empirical antibiotherapy was initiated with intraperitoneal cefazolin and ceftazidime in a continuous ambulatory PD (CAPD) regimen during 2 days: loading dose (LD) 1g/2L and maintaining dose (MD) 300mg/2L qid. Then he reinitiated day dry automated PD (APD) and oral ciprofloxacin (250mg bid) empirically. The peritoneal fluid (PF) culture revealed *P.mendocina*. The anti-pseudomonic coverage was maintained with oral ciprofloxacin and intraperitoneal ceftazidime, MD 1g/3L, for 21 days. The domestic water was analysed and contamination was not found. A normal PF leucocyte count was encountered 4 days after stopping the treatment. He returns to the hospital with peritonitis 2 days after. Intraperitoneal cefazolin and ceftazidime was initiated in CAPD during 2 days. *P.mendocina* has availability to form biofilm so for precaution the Tenckhoff catheter was transiently filled with alteplase. Contamination the domestic water was not found again. The patient shared the bathroom and towel with his colleagues, so we advised him for the importance of taking strict hygiene measures. He reinitiated APD regimen and intraperitoneal cefazolin (1.5g) and ceftazidime (1.5g) was maintained in long day dwell, plus oral ciprofloxacin (500mg bid) and fluconazole (50mg qd) for 21 days. The PF culture was negative. Nine days after initiate the treatment, PF showed normal leucocyte count. The patient is currently asymptomatic and performing PD. Could this relapse be due to the nature of this microorganism or to the antibiotic regimen chosen? Further research is needed about intermittent dosing requirement in APD.

P-130**EXIT SITE INFECTION LEADING TO EXTERNAL CUFF EXTRUSION IN A PATIENT WITH A LONG HISTORY OF APD TREATMENT**

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Objectives

Exit site infection (ESI) is a common complication of peritoneal dialysis (PD) treatment. It can resolve using local antibiotics, cause peritonitis with catheter removal or it can have other outcomes. We present a patient with a long history of PD treatment. His ESI led to external cuff extrusion, removal of the catheter and placement of a new catheter on the other side of abdomen at the same time.

Methods

65-years old patient, male, developed end-stage renal disease due to IgA glomerulopathy in year 2006. A Swan neck peritoneal catheter was inserted para medially, in the right lower abdominal quadrant. He started with CAPD and transferred to APD after three months.

Results

On a routine visit in December 2014, we noticed redness and purulent drainage at the exit site. The isolated bacteria were *Streptococcus agalactia*; he started taking amoxicillin/clavulanic acid orally for three weeks together with using povidone-iodine for exit site care and applying local chloramphenicol ointment. We took control swabs after one and two months, the same pathogen was isolated, the exit site still showed signs of infection. Three months after beginning of ESI, the patient came in with extrusion of the external cuff. There were no clinical signs of peritonitis, tunnel infection; peritoneal fluid culture was negative. After discussing his wishes about continuing PD treatment, we removed the catheter and inserted a new one in left lower abdominal quadrant. He was temporarily treated with hemodialysis for two weeks.

Conclusion

External cuff extrusion is a rare complication of ESI using Swan neck catheter. The cuff becomes infected while still in the sinus and is then extracted with tissue retraction around the cuff. With no signs of peritonitis, it is possible to insert immediately another catheter at a different site to minimize the period of temporary hemodialysis.

P-131**TUBERCULOUS PERITONITIS IN A CAPD PATIENT: LAPAROSCOPIC BIOPSY DIAGNOSIS**

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Objectives

Chronic kidney disease patients are still under risk of tuberculosis. The risk usually increases during the first 12 months after commencement of dialysis. Extrapulmonary tuberculosis may occur more frequently in this group of patients than normal population. Peritoneal tuberculosis is a rare but an important condition in CAPD patients and need urgent approach. The aim of this study is to present peritoneal tuberculosis case diagnosed by peritoneal biopsy.

Case report

60 year old male patient with diabetic nephropathy who has been on CAPD treatment for 5 months was admitted to the hospital with constitutional symptoms, abdominal pain and cloudy dialysate fluid. Patient had a history of pulmonary tuberculosis. Laboratory evaluation revealed increased C-reactive protein and dialysate leucocytosis (1820/mm³) with neutrophil predominance (70%). Radiography showed bilateral pleural effusion with right-side dominance. Intraperitoneal vancomycin and ceftazidime administration was started. The pleural fluid was in characteristics of exudate, acid-fast bacilli was negative and adenosine deaminase level was high 144U/L (normal range: 30-70 U/L). The cultures of urine, blood, and dialysate were negative.

Despite antibiotic therapy, signs of fever and cloudy dialysate persisted. Laparoscopic peritoneal biopsy was performed and pathology revealed histiocytes and granuloma structures consisting of Langhans type giant cells (figure 1).

Antituberculosis treatment was commenced with isoniazid, rifampin, and pyrazinamid. Peritoneal membrane function remained intact. After treatment, general condition of patient improved, fever and cloudiness of dialysate disappeared. Treatment continued for 12 months and no side effects of drugs was encountered. CAPD still continues successfully.

Results

Impaired cellular immunity can jeopardize CAPD patients for peritoneal tuberculosis especially when there is past history of pulmonary tuberculosis.

Conclusions

In a case of peritonitis without any laboratory yield, and no response to conventional antibiotherapy, the physicians should lead to investigation with laparoscopic

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PREVALENCE, CAUSATIVE AGENTS AND RISK FACTORS OF PERITONEAL DIALYSIS RELATED PERITONITIS IN VILNIUS

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Key words: peritoneal dialysis, peritonitis, risk factors.

Background

The aim of this study was to evaluate risk factors of peritonitis associated with peritoneal dialysis (PD) and common type of microorganisms causing peritonitis in two dialysis centres in Lithuania.

Methods

We retrospectively investigated all PD-related peritonitis episodes in 49 PD patients who visited two public centers of dialysis in yr. 2011-2014, and established the incidence of PD-related peritonitis. Sex, age at the start of PD, treatment type and type of connection systems were analyzed. Comorbidities, nutritional status, hygiene, education and socioeconomic status were recorded. We used Student's t-test and μ^2 test for statistical analysis.

Results

There were 49 patients who underwent peritoneal dialysis, 23 men (46.94%) and 26 women (53.06%). Median age at the start of peritoneal dialysis was 53 yr. (8-77). There were 63 episodes of peritonitis among 28 patients (57%), 17 were men (60.74%) and 11 women (39.26%). The incidence of peritonitis was one episode per 20 patient-months. Risk factors associated with the development of peritonitis included: male gender (OR 3.8636, 95% CI 1.1486 - 12.996, $p = 0.029$), patients with ischemic heart diseases (OR 9.5, 95% CI 1.8529 - 48.7085, $p = 0.0069$), lower socioeconomic status (OR 3.8636, 95% CI 1.1486 - 12.9967, $p = 0.029$), patients with lower concentration of albumin (p value = 0.00184). The culture-negative peritonitis rate was 33.3%. Causative pathogens of culture-positive peritonitis were: 49.2% Gram-positive and 17.5% Gram-negative bacteria. Staphylococcus epidermidis was the most frequent microorganism (25.4%). Outcome was classified as initial cure (90.5%), catheter removal (7.9%, 5 episodes) or patient death (1.6%, 1 patient). The mean duration of treatment with antibiotics 14.67 \pm 2.31 d, antibacterial treatment adjusted for 11 times (17.5%).

Conclusions

Our results confirm that male gender, ischemic heart disease, lower concentration of albumin and lower educational status are associated with peritonitis among patients on peritoneal dialysis.

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ACINETOBACTER BAUMANNII PERITONITIS IN TWO PATIENTS RECEIVING CONTINUOUS AMBULATORY PERITONEAL DIALYSIS

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Peritonitis is still the major complication of peritoneal dialysis (PD). Gram-negative bacteria is responsible in 15-35% of the patients. Here, we present community acquired Acinetobacter baumannii (A. baumannii) peritonitis in two PD patients.

First Case

A 49-year-old woman was admitted to our hospital with abdominal pain and cloudy dialysate for 12 hours. She was hypertensive and had gastric cancer surgery 6 weeks ago. She was afebrile and mildly hypertensive (130/80 mmHg) with diffuse abdominal tenderness. Other physical findings were normal. Dialysate examination revealed a white cell count of 226/mm³ with 78% neutrophils. Intraperitoneal Cefazolin and gentamicin were started. On 3rd day A. baumannii was isolated from dialysate and cefazolin was discontinued. Next day dialysate WBC count decreased below 100/mm³.

Second Case

A 70 year old woman applied with abdominal pain, nausea and cloudy dialysate of one day. Other findings were unremarkable. Intraperitoneal cefazolin and gentamicin were started. On 3rd day dialysate culture revealed A. baumannii and cefazolin was discontinued. After 48 hours dialysate cloudiness persisted and gentamicin was replaced with meropenem that decreased the WBC in the effluent below 100/mm³ and continued for 3 weeks.

Acinetobacter related peritonitis has rarely been reported in PD patients. A. baumannii comprises the majority with serious antibiotic resistance. Our cases underly the potential role of A. baumannii in community-acquired infections as well.

Table: Clinical Data for Patients with A. baumannii Peritoneal Dialysis (PD)-Related Peritonitis

Patient ID	Type of PD	Duration of PD	Previous episodes	Signs	Laboratory tests	Outcome
1	CAPD	60 Months	1	Abdominal pain, cloudy dialysate fluid	Hb:7.97gr/dl WBC:5310/mm ³ CRP:25.5mg/dl	Cured
2	CAPD	72 Months	0	Abdominal pain, nausea, cloudy dialysate fluid	H b : 13.5 g r / d l WBC:5940/mm ³ CRP:24.29mg/dl	Cured

Pt: patient, CAPD: CAPD = continuous ambulatory peritoneal dialysis; Hb = hemoglobin; CRP: C-reactive protein

P-134**PERITONEAL DIALYSIS INFECTIONS IN MALTA**

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Objectives

This study aims to analyse the microbiology and infection rates of PD patients in Malta between 2013-2014 and to compare with the previous five years.

Also to identify any changes due to the introduction of local guidelines in 2012.

Methods

This is a prospective study analysing peritonitis and catheter-related infections in all patients undergoing PD in Malta, between 2013-2014.

ISPD Guidelines were used to define peritonitis, catheter-related infections and standardise rates.

Microbiological data was analysed.

Results

The mean number of patients undergoing PD during 2013, 2014 was 85.80, 85.25. Mean age was 64.8 years, 60.4 years respectively. There was male predominance. Frequency of diabetes was 42%. APD was used in 55% in 2013, 43% in 2014. PD by proxy was done in 21%.

During 2013, 41 patients had PD peritonitis, 36 patients in 2014. Mean age was 64.8 and 60.4 years.

Peritonitis rates were 0.57 and 0.54 episodes/patient for 2013, 2014 respectively. There was one episode of MRSA peritonitis (1.8%) each year, but no infection-related PD deaths. The infection-related mortality rate during 2008-2012 was 4.4%, MRSA peritonitis rate 4.2%.

Catheter-related infection rates for 2013, 2014 and first quarter of 2015 were 0.35, 0.91 and 0.85 episodes/patient/year respectively.

In PD peritonitis, Gram-positive organisms predominated, at 0.40 and 0.26 episodes/patient in 2013, 2014 respectively, mostly Coagulase-negative *Staphylococcus*.

The predominant Gram-negative flora for 2014 were *Escherichia coli* and *Klebsiella* at 0.05 episodes/patient/year; *E.coli* and *Pseudomonas* for 2013, and *Pseudomonas* for 2008-2012 at 0.06 episodes/patient/year.

Regarding catheter-related infections, 50.6% were due to Gram-negative organisms. The predominant organisms were *Pseudomonas* and *Staphylococcus*.

Conclusion

There was an improvement in PD peritonitis rates. Mortality rates also decreased, especially after 2012, coinciding with the introduction of local guidelines. A change in flora was also noted with significant decreases in MRSA and *Pseudomonas* PD peritonitis.

P-135**ANATOMICAL LOCALIZATION OF EXIT- SITE AND ITS IMPACT ON INFECTIOUS COMPLICATIONS IN PERITONEAL DIALYSIS PATIENTS**

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Objectives

Peritonitis and exit-site infections are the most common and severe complications in peritoneal dialysis (PD) patients. The association between anatomical localization of exit-site and infectious complications has been not investigated previously. The objective of this study was to assess the impact of anatomical localization of exit-site on complications.

Methods

We examined the exit-sites of 48 (mean age: 50.3± 13.5 years; F/M: 24/24) PD patients. For defining anatomical localization of exit-site, distance between exit-site and specific landmarks [superior iliac crest, umbilicus and belt line] were measured. These measurements were corrected regarding body mass indexes of patients. The occurrences of exit-site infection, tunnel infection or peritonitis were also recorded.

Results

Coiled catheters were used in all patients and were inserted by nephrologists with percutaneous technique in 30 (62.5%) patients and by surgical technique in 18 patients (37.5%). In 40 patients catheter exit-site was placed on the left side of the abdomen, in 8 patients on the right side. Mean BMI was 25.4±5.6. Mean distance between exit-site and belt line was 3.8±2.0 cm (range: 0-9.5), distance between exit-site and umbilicus was 8.8 ± 2.3 cm (range:5-15), distance between exit-site and superior iliac crest was 9.7± 3 cm (range: 4-17). Exit-site infection was documented in 8 patients (16.6%), tunnel infection in 1 patient (2%) and peritonitis in 23 (%47) patients. BMI corrected distance between exit-site and umbilicus was significantly higher in patients with peritonitis (0.4± 0.1 vs. 0.3 ±0.1, p=0.018). Other measurements and BMI were not associated with infectious complications.

Conclusion

In our study, we showed that there was a correlation between the anatomical localization of the exit-site and the development of peritonitis. The exit-site localization being close to the umbilicus may help reduce peritonitis rates since it will be visible and allow easy daily care.

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CHARACTERISTICS AND OUTCOMES OF ASPERGILLUS PERITONITIS ABOUT THREE CASES

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Objective

Infectious peritonitis is a frequent complication of peritoneal dialysis (PD). The majority of cases involve bacterial pathogens, although an increased number of fungal isolates have been reported. Our objective is to describe characteristics and outcomes of *Aspergillus* peritonitis.

Methods

We report three cases of *Aspergillus peritonitis* in peritoneal dialysis evolving differently.

Results

1st observation: a 27 years old man patient with chronic renal failure due to chronic interstitial nephropathy treated by PD since 2012. In July 2014, peritonitis was diagnosed. Bacteriological examination returned negative and parasitological examination was positive for *Aspergillus flavus*. The patient was treated successfully for 30 days with voriconazole with removal of the PD catheter and HD transfer. Six months later, for good evolution, no septation or calcification in CT scans, a second catheter was introduced and currently the patient is well with APD.

2nd observation: a 24 year-old patient had been on PD since 2010. In January 2015, so that she consulted for abdominal pain and fever, peritonitis was suspected and treated by Vancomycin and ciprofloxacin. The evolution was marked by persistent abdominal pain, and parasitological examination of peritoneal effluent isolated *Aspergillus flavus*. She was treated by intravenous Voriconazole with removal of PD catheter and transferred to hemodialysis.

3rd observation: a 58 years women on PD since 2004, consult in August 2014, for abdominal pain and cloudy effluent was treated with Vancomycin and Ciprofloxacin with no improvement. *Aspergillus flavus* was isolated three days later but despite treatment with voriconazole she developed *Aspergillus* septicemia leading to death.

Conclusion

Aspergillus flavus peritonitis is a rare but potentially fatal complication PD, associated with High morbidity and mortality. If not leading to death, the inflammatory process usually causes irreversible damage to the peritoneal membrane with subsequent dropout from PD therapy.

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ALTERNARIA PERITONITIS IN PERITONEAL DIALYSIS PATIENTS: A CASE REPORT

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Objectives

Peritonitis still an important cause of morbidity and technique failure in patients with end-stage renal disease treated by continuous ambulatory peritoneal dialysis (CAPD)

Many different bacteria have been isolated from infected peritoneal effluent and the most common pathogens are gram-positive bacteria. Fungal peritonitis (FP) is a rare, but serious complication of peritoneal dialysis.

We describes an episode of peritonitis caused by an uncommon fungal organism, *Alternaria* species, which was treated by voriconazole.

Methods

Case report

Results

A 75-year-old female with history of hypertension, coronary artery disease and end-stage renal failure secondary to diabetes mellitus. After 2 years in CAPD, the patient had been in stable condition until the recent episode. She developed cloudy PD effluent and mild abdominal pain.

Laboratory examination of the effluent showed 2100 white blood cells (WBCs)/dL, with 74% segmented neutrophils. Bacterial cultures were negative, however, *Alternaria* species grew on 3 consecutive days from the dialysate. She was treated with voriconazole and her peritoneal catheter was removed and hemodialysis was initiated.

Conclusions

Alternaria peritonitis associated with CAPD has rarely been identified as the pathogen and only four cases were reported.

Alternaria is a dematiaceous mold of the Deuteromycete form-class of the fungi imperfecti. The organism arises from the soil and is a ubiquitous plant saprophytes

Risk factors these peritonitis include receiving systemic or intraperitoneal antibiotics within a month of developing the fungal peritonitis and recent bacterial peritonitis,

Whereas in our report no prior antibiotics was given before.

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INTRAPERITONEAL ALTEPLASE IN PREVENTION OF RELAPSING AND REPEAT PERITONITIS

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Objectives

To evaluate the efficacy and safety of intraperitoneal (IP) alteplase in the prevention of relapsing and repeat peritonitis within 6 weeks of antibiotherapy completion of a prior episode.

Methods

We performed an 18-month comparative study including a prospective cohort and a historical control group of patients with diagnosis of bacterial peritonitis. Patients in the prospective group received IP alteplase on day 3 (5 mg) and 10 (7.5mg) of every peritonitis episode.

Results

During the study period, 100 patients were on chronic peritoneal dialysis (PD) in our unit (53 in alteplase group; 47 in control group) and 48 peritonitis episodes were recorded (25 in 13 patients of alteplase group; 23 in 10 patients of control group). The two groups were similar in age, gender, diabetic status, time on PD and primary renal disease. There were more *Corynebacterium species* (6 vs. 1) and *Escherichia coli* (4 vs. 0) peritonitis in the control group. Relapsing or repeat peritonitis occurred on average 36 ± 7.1 days (alteplase) and 19.3 ± 9.9 days (control) after antibiotherapy completion and were caused by *Staphylococcus epidermidis* (n=5, including 2 in alteplase group), *E.coli* (n=3), *Corynebacterium species* (n=2) and *Staphylococcus aureus* (n=1). Relapsing/repeat peritonitis were more frequent in control group (p=0.012) and complete cure rate was superior in alteplase group (p= 0.004). There were no significant differences in dialysis catheter dysfunction (n=4 in alteplase group vs. n=0), need for catheter removal (n=2 vs. n=3), hospitalization (n=5 vs. n=9) or DP drop-out (n=1 vs. n=1). One patient died in control group, not related to peritonitis. There were no significant adverse events related to alteplase administration apart from a case of self-limited hemoperitoneum.

Conclusions

In this sample of patients, alteplase appeared to be an effective and safe adjuvant therapy in preventing relapsing and repeat peritonitis during the first six weeks following antibiotherapy completion.

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UNCONVENTIONAL T-CELL DRIVEN INFLAMMATORY RESPONSES DURING ACUTE PERITONITIS: IMPLICATIONS FOR DIAGNOSIS AND THERAPY OF PD PATIENTS

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Objectives

Infection remains a major cause of morbidity and technique failure in PD patients. The mechanisms that underpin the clinical severity of peritonitis episodes and their link to outcomes remain poorly defined. Our work aims to define the diagnostic, prognostic and therapeutic value of local immune responses in PD patients.

Methods

Clinical outcomes were analysed using the ANZDATA registry. PD effluent from patients with acute peritonitis was analysed using multicolour flow cytometry and multiplex ELISA. For functional studies, PD effluent cells and omentum-derived fibroblasts or mesothelial cells were cultured with bacterial extracts or defined inflammatory stimuli.

Results

Our analyses of 3,692 ANZDATA patients with first-time peritonitis reveal that infections caused by bacteria that activate $\gamma\delta$ T-cells and/or MAIT cells are associated with worse outcomes. These data are supported by the observation that both $\gamma\delta$ T-cells and MAIT cells accumulate locally in infections caused by microbes producing the corresponding ligands (HMB-PP, vitamin B2 metabolites), compared to stable patients and to blood. Peritoneal $\gamma\delta$ T-cell levels not only predict the presence of Gram-negative bacteria on the day of presentation with peritonitis but also subsequent treatment failure. In cell culture, $\gamma\delta$ T-cells and/or MAIT cells are dominant producers of TNF- α and IFN- γ in response to clinically relevant bacteria, with the notable exception of streptococci/enterococci that do not stimulate either cell type and that are associated with relatively benign outcomes. Finally, we demonstrate that peritoneal fibroblasts and mesothelial cells release inflammatory mediators (IL-6, CXCL8, CCL2) under the influence of activated $\gamma\delta$ T-cells or MAIT cells, thereby driving further recruitment of immune cells.

Conclusions

Our studies provide a molecular basis for the existence of pathogen-specific immune fingerprints that have diagnostic and prognostic value, identify key pathways by which unconventional T-cells amplify early inflammatory responses, and highlight potential therapeutic targets that may be exploited to improve outcomes.

P-140**THE IMPACT OF PERITONEAL DIALYSIS ON THE RESPONSE TO TREATMENT OF HEPATITIS B AND C**

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The incidence and prevalence of hepatitis C (HCV) and hepatitis B (HBV) are significantly lower in patients on peritoneal dialysis (PD) compared to those on hemodialysis. The impact of two dialysis modalities on the Profile progressive under treatment of this viral infection is not well known. The objective of our study is to determine the evolution of the viral load of HBV and HCV under antiviral therapy in patients on peritoneal dialysis.

Methods

It's a retrospective observational cohort study of patients followed in our peritoneal dialysis unit between 2007 and 2014 and who were positive for HBV or HCV during peritoneal dialysis.

Results

Seven patients were positive for HBV or HCV, the mean age was 43, 4±10, 69 years (4 men and 3 women). Initial nephropathy was diabetic in 3 cases and chronic interstitial in 4 cases. 5 patients were HCV positive and two patients were HBV positive. No disruption of hepatic function was noted and serum aspartate and alanine aminotransferase levels were normal in all cases. The abdominal ultrasound showed a hepatic cirrhosis in one case.

Four patients were treated with alpha interferon, pegylated interferon and one patient with baraclud. All of them have negativated their viral load. Two non-active hepatitis have not been processed. One patient discontinued the treatment because of a bad tolerance and thus kept active hepatitis.

Conclusions

Dialysis patients who are HCV or HBV viraemic have aminotransferase levels greater than those without is not always valid. In fact, all our patients had normal aminotransferase levels. In addition, our study joins those which showed that the viral response to antiviral therapy in maintenance dialysis patients is higher than that observed in subjects with intact kidney function. Several mechanisms account for the relatively higher response in patients undergoing maintenance dialysis. Dialysis patients with hepatitis usually have a lower viral load and clearance of antiviral therapy is lower in dialysis patients than in non-CKD patients. Moreover, a marked and prolonged release of hepatocyte growth factor (or other cytokines) caused by dialysis could play an additional role. The main limitation of our study is the reduced number of patients.

P-141**RECURRENT PERITONITIS TREATED SUCCESSFULLY**

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Introduction

Peritonitis (P) is the darker element in programs Peritoneal Dialysis (PD) leading cause of technique failure and mortality.

Relapsing Peritonitis (rP): P. appearing within 4 weeks after completion of treatment an episode and same germ or culture is negative. Is forced catheter dependence and/or biofilm.

Material and Methods

We present a case of rP expressly try to eradicate biofilm or catheter dependence.

We retrospectively reviewed our series of rP on 30 years experience using descriptive statistical methods

Clinical case. 61 year old woman CKD of unknown origin profound mental retardation, hypertension.

January 2014 HD starts, rapidly consuming its vascular heritage so that October begins DP. In training phase presents infection outlet and developed Staphylococcus aureus peritonitis which is solved by ip vancomycin for 21 days and oral Cloxacilin In January 2015 presents a recurrence At day 10 with below 200 cellularity, simultaneous catheter replacement at 3 days postimplant cell count is around 200 cells. We consider treating persistent infection by ip Linzolid 600 mg /12 h, Rifampicin 300 mg /24 h oral keeping treatment for 30 days, Cellularity is maintained below 80 cel from the 10th day and today is maintained below 50 cel

Our series comprises 30 years; 269 patients 157 patients suffering from P. (P. 0.77 / year) P. 394 episodes, 216 intestinal origin, 163(12Stp.Au)-gampositives skin, 6Pseudomona, fungal 9, 86 negative.

61 episodes had recurrences; 23 intestinal origin, 14 Gram-positive skin - 2 S.Au- one Pseudomonas, 14 negative culture.

25 (40%) healed without removing the catheter, 36 (60%) the catheter was retired of 6 program output and 4 death.

Conclusions

This isolated case allows us to think in a regime of active anti-biofilm but obviously it has a long way to maintain a hope founded.

P-142**SPONTANEOUS LISTERIA MONOCYTOGENES PERITONITIS ACCOMPANIED WITH SEPTIC SHOCK IN CIRRHOTIC PATIENT ON PERITONEAL DIALYSIS- CASE REPORT AND REVIEW OF LITERATURE**

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We present a case of 56-year-old patient with renal failure due to chronic glomerulonephritis and previous history of ethylic cirrhosis and portal hypertension, treated with continuous ambulatory peritoneal dialysis (PD) for 67 months, without previous peritonitis episode. Patient was admitted to ICU with neurological symptomatology: tonic-clonic seizures and sopor. Cranial CT-scan identified no acute lesions. Physical examination showed hypotension, lower abdomen tenderness and absence of peristalsis. He had elevated leukocyte counts 1940/ μ L and CRP level 225mg/L, with evidence of possible intravascular coagulation- thrombocytopenia 124000/ μ L and high D-dimer 4240 μ g/L. Peritoneal effluent (PE) was cloudy, with elevated leukocyte count 6250/ μ L and neutrophil predominance. Gram-staining of PE showed the presence of Gram-positive bacilli. After blood and PE culture were sampled, systemic empiric therapy (Vancomycin, Ciprofloxacin, Metronidazole and Fluconazole) with volume resuscitation, was initiated. Despite all measures, patient died 24h after admitting. Post-mortem analysis of PE and blood culture showed growth of *Listeria monocytogenes* resistant to given antibiotics.

L.monocytogenes is Gram-positive rod, that causes infections via oral route by contaminated dairy products, with predilection for the immunocompromised, especially patients with cirrhosis, renal failure and previous malignancies. Listerial infections mostly present as sepsis and encephalopathy. Spontaneous bacterial peritonitis (SBP) is uncommon manifestation, but well described in cirrhotic patients. *L.monocytogenes* PD peritonitis is a rarely described occurrence, in just 13 cases in literature. In those, it presented as typical peritonitis episode with or without systemic and neurological involvement, which was associated with poor outcome. The treatment of choice was Ampicillin. No study showed advantage of antibiotic prophylaxis of SBP in cirrhotic PD patients.

Conclusion

L. monocytogenes is rare cause of peritonitis in PD patients, but must be considered in patients with liver cirrhosis and peritonitis associated with encephalopathy, that poorly respond to given empiric antibiotic therapy, as it mostly doesn't provide adequate coverage for it.

P-143**CATHETER EXIT - SITE INFECTION IN PERITONEAL DIALYSIS PATIENTS – ONE CENTER EXPERIENCE**

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Introduction

Exit site infection was defined by the presence of purulent secretions, with or without surrounding erythema. The presence of erythema around the peritoneal catheter without secretion may be an early sign of infection, but also a skin reaction to a foreign body.

Aim

The aim was to examine the incidence of exit site infections, clinical presentation, response to therapy and the success of the same, as well as the occurrence of any complications.

Methods

Prospective, single center study for 87 patients during 6 months, comparing the appearance of erythema with or without secretion, tunnel infections, causative agents, response to therapy and the occurrence of complications such as recurrence, the appearance of peritonitis, catheter evacuations, death and days of hospitalization.

Results

There were 17 patients younger than 50 years in the study and 70 patients older than 50 years. Among them, 58 (66.7%) were nondiabetics and 29 (33.3%) diabetic patients. The infection was confirmed in 15 patients (17.2%), while 72 of them (82.8%) had not clinical or microbiological confirmation of infection. We registered 13 men and 2 women with infection. More frequent were patients older than 50 years (10: 5). In patients with infection 9 (60%) had secretion and 6 (40%) had no secretion. One patient was registered with cuff migration. Causes of infection were: *Staphylococcus aureus* (60%), MRSA (7%), *Klebsiella pneumoniae* (13%) and *Pseudomonas aeruginosa* (20%). In diabetics, the 6 (21%) had an infection, in non-diabetics and 9 (16%). Patients were treated according to the antibiogram, with local application and orally / parenterally. In Day hospital were treated 12 patients, and 3 patients in hospital. The nasal and throat swabs were sterile, and 2 recidives were registered. There was no evacuation of the catheter and no death event.

Conclusion

Adequate performance of peritoneal dialysis, personal hygiene and constant education is the basic precondition for the success of the method of renal replacement, and quality of life of patients.

P-144**PERITONITIS DUE TO YERSINIA ENTEROCOLITICA IN A PATIENT WITH IRON OVERLOAD ON PERITONEAL DIALYSIS – CASE REPORT**

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Yersinia enterocolitica is a gram-negative bacterium - genus *Yersinia*, familia Enterobacteriaceae associated with a range of gastrointestinal symptoms and serious systemic diseases with a high mortality rate. Rarely, it has been associated with spontaneous bacterial peritonitis, usually in patients with iron overload or immunocompromised states.

We report the case of a 23 year-old african man, HCV positive, with chronic kidney disease of unknown cause on automated peritoneal dialysis for the past four years due to vascular access exhaustion, submitted to four blood transfusions five years ago. He was admitted in our hospital with a one-week history of dizziness and prostration and one day of abdominal pain. He presented low blood pressure values, tachycardia and abdominal tenderness with peritoneal reaction. Blood analysis revealed 7640 leucocytes, PCR 26,6mg/dl, ALT 154mg/dl, AST 158mg/dl, G-GT 793mg/dl, ferritin 4050mg/dl. Peritoneal fluid was cloudy with 400 white cells. The abdominal CT showed moderate hepatosplenomegaly of heterogeneous structure, with multiple small hypodense nodules suggestive of microabscesses. The patient was put on vancomycin and ceftazidime intraperitoneally, with progressive worsening – in the first 48h with fever, PCR 40 mg/dl, 1200 white cells on PD fluid, so meropenem was started. On the third day *Yersinia enterocolitica* was identified on blood and PD fluid cultures. Antibiotherapy was switched to gentamycine and cotrimoxazol, with favorable response, but the patient developed a rash presumptively to cotrimoxazol, which was suspended and ciprofloxacin was started. After 21 days of double antibiotherapy, gentamycine was suspended, he was discharged and maintained ciprofloxacin for several weeks until the CT images resolved. Because of the favorable clinical response we decided not to remove de peritoneal catheter.

This case reflects the rare condition of acute peritonitis due to *Y. enterocolitica* with serious organ involvement – our patient had a slow but favorable evolution, not only surviving but also maintaining PD catheter.

P-145**EXIT-SITE FUNGAL INFECTION – EXPERIENCE OF A PERITONEAL DIALYSIS UNIT**

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Background

Peritoneal dialysis (PD) related infections remain an important cause of PD technical failure and mortality on PD patients. Exit-site fungal infections (ESFI) are rarely reported and little is known about its clinical relevance.

Objective

To retrospectively evaluate the factors associated with the presence and evolution of ESFI.

Methods

The study included all ESFI cases diagnosed in patients followed in a PD Unit between 2011 and 2014, and analysed for demographic, clinic and laboratorial variables.

Results

The study group consisted of 26 patients, 70% female with a mean age of 54 years; the mean PD duration was 3 years. The majority of patients (70%) were on CAPD and had a total Kt/V urea > 1.7 (90%). A total of 30 episodes of ESFI were diagnosed, corresponding to 0.29 events/patient/year rate. About 23% of the patients had diabetes and 27% other immunosuppressive diseases; 13% had been on immunosuppressive therapy in the prior 6 months. Two-thirds of patients (20) had been treated with antibiotics in the prior 3 months. Antibiotics were used mostly (65%) for the treatment of a PD related infection and 46% of these had been given prophylactic fluconazole simultaneously. Infections were predominantly caused by *Candida parapsilosis* (67%). A bacterial agent was isolated prior to the yeast isolation in 17% of episodes, on average 47 days before. All of the cases were treated with fluconazole and in 10% was used a second antifungal, in all cases itraconazole. Overall, 80% of patients (24) were successfully treated with medical therapy, with 6 patients requiring catheter replacement (3) or removal (3), with resolution of the infection.

Conclusions

ESFI probably constitute a relevant complication of PD. In this study, the most frequent factor associated with the presence of ESFI was prior antibiotic therapy and the majority of the patients evolved favourably under medical treatment.

P-146**ACTINOMYCES PERITONITIS IN A PATIENT ON PERITONEAL DIALYSIS, A RARE AGENT – CASE REPORT**

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Peritonitis is still a frequent and serious complication in peritoneal dialysis (PD) patients. Although the majority of agents are gram positive or Enterobacteriaceae, rarer agents might be responsible. Actinomyces is an extremely rare agent, normally presenting with chronic abdominal infection and granulomas. We present a case of acute Actinomyces peritonitis in a PD patient.

Our patient is a 40 years-old caucasian female with chronic kidney disease of unknown cause on Automated PD for the last three years. She was admitted with a two-day history of abdominal discomfort and cloudy peritoneal fluid. She presented normotense, afebrile, but with abdominal tenderness. There was neither rigidity nor any palpable mass. Blood analysis evidenced 18650 leucocytes, PCR 5 mg/dl. The PD fluid had 1810 white cells with countless pyocytes. The patient was started on vancomycin and ceftazidime both intraperitoneally according to our Unit's protocol. Because there was no hemodynamical instability she was treated as an outpatient in our Unit and presented a rapid favorable evolution. At day 5, PD fluid cytological examination showed 84 white cells. The final culture grew Actinomyces spp. so antibiotic was switched to cefazoline at day seven. Due to the frequent association of this agent with abdominal abscesses and granulomas an abdominal CT was performed which was normal. We decided not to remove the PD catheter. On microbiological cultures PD fluid remained sterile.

Although Actinomyces infection usually requires long course antibiotherapy, our case evolved favorably without need to prolong antibiotherapy. Inclusive, it was possible to treat the patient's peritonitis without removing the PD catheter.

P-147**CELL-FREE DNA TREND IN 23 PD PATIENTS WITH PERITONITIS**

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Objectives

Peritonitis is still the major complication associated with peritoneal dialysis (PD). Peritonitis treatment should aim for rapid resolution of inflammation. Cell free DNA (cfDNA) is present in the peritoneal effluent of PD patients (pts). There is no data on cfDNA in PD pts with peritonitis. We present a case series of 23 PD pts with peritonitis.

Methods

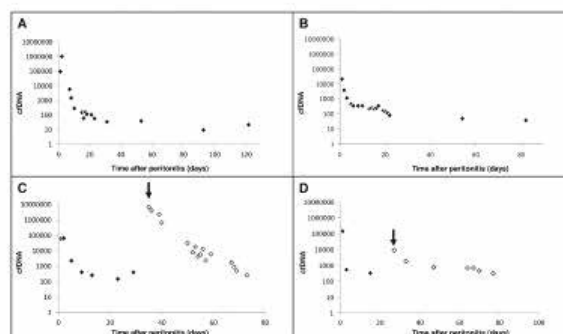
23 PD pts (14M; mean age 63.1±16.3) were enrolled. We collected peritoneal effluents from the first day of peritonitis until the 120th day. WBC counts were routinely measured. CfDNA was extracted from peritoneal effluents and quantified by Real time PCR for the β -globin gene (genome equivalents (GE)/ml).

Results

17 pts were treated with CAPD and 6 with APD. The average length of PD treatment was 21 months (minimum: 3.6–maximum: 132.9). All pts were treated and clinically recovered from peritonitis after 13.5 days±5.4. 18 pts had a first episode of peritonitis and responded to first-line antibiotics. 5 had a relapsing episode of peritonitis; subsequently, responded to another course of intra-peritoneal antibiotics. We observed a similar cfDNA trend in all patients. The cfDNA concentration in the peritoneal effluent at the first day of peritonitis was very high, concordantly with WBC. Then, cfDNA level tended to progressively decrease during follow up for each patient. CfDNA level diminished slower than WBC count. In 5 relapsing peritonitis, at the first day, we observed a new rapid increased of cfDNA level (consistent with WBC). We reported 4 pts' trends.

Conclusions

We hypothesized that cfDNA in peritoneal effluent could be a specific indicator of peritonitis. However, the exact characteristics of cfDNA kinetics remained uncertain. Further studies are warranted to clarify the precise mechanism and clinical significance of elevated cfDNA in this population.



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A SYNTHETIC POLYMER MEMBRANE FUNCTIONALISED WITH CRYPTIC BASEMENT MEMBRANE INFORMATION RESCUES THE INTEGRITY OF THE MESOTHELIAL LAYER IN A TGF β 1-TREATED MOUSE PERITONEAL MEMBRANE EXPLANT

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The epithelial-to-mesenchymal transition (EMT) is now known to significantly contribute to the development of peritoneal fibrosis by facilitating the degradation of the mesothelial basement membrane (BM) through the up-regulation of matrix metalloproteinases (MMPs) accompanied by a phenotypic transition of mesothelial cells, ultimately resulting in a complete loss of mesothelial layer integrity and the deposition of excess extracellular matrix. How to efficiently prevent EMT on a pathway level is still widely unknown. The degradation of the BM results in the release of various specific collagen and laminin fragments. However, the regulatory effect of these cryptic fragments provides an as of yet untouched potential in the field of EMT targeting. We have recently reported a cryptic laminin-111 fragment that modulates the expression and activity of MMP2 via interaction with $\alpha 3 \beta 1$ -integrin. $\alpha 3 \beta 1$ -integrins are also highly expressed by mesothelial cells, can associate with E-cadherin and integrate with TGF β -signaling. Interaction of the fragment with $\alpha 3 \beta 1$ -integrin leads to a significant decrease of active MMP2 and thereby prevents the degradation of the BM. Here, we describe an electrospun synthetic membrane, functionalised with the recombinant laminin fragment, that can be interfaced with fibrotic tissue thereby specifically decreasing the actual expression and release of active MMP2. We show how the decoration of the material with cryptic regulatory BM information permits a localized, specific and effective method to counteract pathological EMT in a mouse peritoneal membrane explant by rescuing the integrity of the mesothelial layer.

Here, we describe an electrospun poly(ϵ -caprolactone) (PCL) membrane, functionalised with a recombinant 60kDa cryptic laminin-111 fragment, that can be directly interfaced with fibrotic tissue thereby specifically decreasing the actual expression and release of active MMP2. We show how the decoration of the material with cryptic regulatory BM information permits a localized, specific and effective method to counteract pathological EMT.

P-149

BLOCKING TRPV-1 NOCICEPTORS REDUCES THE ACCUMULATION OF TGF-beta1 IN THE DIALYSATE DURING EXPERIMENTAL PD IN RATS

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Objectives

Reactive fibrosis may directly affect the transperitoneal transport characteristics and hence contribute to the development of ultrafiltration failure during peritoneal dialysis (PD). Fibrosis in some experimental PD models depends on the action of TGF-beta1, but the mechanisms behind TGF-beta1 signaling are not fully understood. There is evidence that a PD dwell activates peritoneal TRPV-1 receptors leading to the release of neuropeptides, characteristic of neurogenic inflammation. The present study evaluated the effect of TRPV-1 blockade on TGF-beta1 secretion in an experimental PD dwell.

Methods

Single 4-hour 20 ml PD dwells of filter-sterilized, lactate-buffered, 2.5% glucose PD fluid were performed in rats with previously implanted PD catheters. PD with and without pre-treatment with the specific TRPV-1 blocker BCTC was compared with negative control groups of normal animals and animals with implanted PD catheter but no PD treatment. TGF-beta1 concentrations were measured (ELISA) in dialysate and in extracts from diaphragmal tissue.

Results

Implanted catheters significantly increased the tissue concentration of TGF-beta1 from 188 \pm 37 to 456 \pm 31 (mean \pm SEM) pg TGF-beta1 / mg extracted protein. PD further increased the tissue concentration of TGF-beta to 751 \pm 295 pg/mg. TRPV-1 blockade did not significantly affect TGF-beta levels after PD (587 \pm 155 pg/mg). The accumulation of TGF-beta in the dialysate over a 4-hour dwell was significantly reduced by pretreatment with the TRPV-1 blocker BCTC from 16.94 \pm 2.71 ng to 9.91 \pm 1.20 ng. Plasma concentrations of TGF-beta (16.44 \pm 2.30 and 24.04 \pm 4.84 ng/ml) were not significantly affected by BCTC treatment.

Conclusions

The present results show that TRPV-1 blockade significantly reduces the accumulation of TGF-beta in dialysate and support the theory that this effect is due to a reduced TGF-beta secretion in peritoneal tissue. Consequently, the activation of TRPV-1 receptors may be a mechanism behind peritoneal fibrosis in PD.

P-150

THE CD90/THY-1+ SUBSET OF HUMAN PERITONEAL FIBROBLASTS DISPLAYS A MYOFIBROBLASTIC PHENOTYPE

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Objectives

Myofibroblasts share properties of fibroblasts and smooth muscle cells and play a key role in wound healing and fibrosis. They are believed to originate at least in part from normal resident tissue fibroblasts and are typically identified by the expression of alpha-smooth muscle actin (α -SMA). We have recently identified two subsets of human peritoneal fibroblasts (HPFB) that differ by the presence of the cell surface protein Thy-1 (CD90). Here, we have examined whether these HPFB subsets differ in their expression of myofibroblast phenotype markers.

Methods

HPFB were isolated from omentum by enzymatic digestion and magnetic activated cell sorting with antibodies against fibroblast specific protein-1 (FSP-1). FSP-1+ HPFB were further separated into subpopulations characterized by the presence or absence of Thy-1. Cells were cultured in parallel and analyzed for proliferation capacity (EdU-incorporation assay), contractile properties (gel contraction assay) and the expression of α -SMA, collagen 1, fibronectin and TGF- β (qPCR, immunofluorescence and enzymatic immunoassays).

Results

Thy-1+ HPFB exhibited significantly higher expression of α -SMA, collagen-1, and TGF- β with 2.5-, 1.6- and 1.8-fold increases, respectively (n=13). Immunofluorescence staining revealed that Thy-1+ rather than Thy-1- HPFB organized their actin into stress fibers. EdU incorporation was seen in 10.3 \pm 2.2 % Thy-1+ HPFB compared to 4.7 \pm 1.7% Thy-1- cells (n=3). Moreover, the reduction of a gel size in the presence of Thy-1+ HPFB was 1.2-fold greater than with Thy-1- cells (n=3).

Conclusions

CD90/Thy-1+ subset of HPFB displays an increased potential to acquire a myofibroblastic phenotype. Therefore, these cells are likely to contribute to fibrotic alterations seen in the peritoneal membrane of patients undergoing PD.

P-151

ANGIOTENSIN INDEPENDENT ROLE OF (PRO)RENIN RECEPTOR IN HUMAN PERITONEAL MESOTHELIAL CELLS

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Angiotensin independent role of (pro)renin receptor in human peritoneal mesothelial cells

Previous studies have demonstrated the pivotal role of renin angiotensin system (RAS) in the peritoneal injury of peritoneal dialysis (PD). Recent studies have demonstrated the role of (pro)renin receptor ((P)RR) to the cellular injury independent of angiotensin II pathway. Thus, the present study determined the expression of (P)RR in PD effluent (PDE) and human peritoneal mesothelial cells (HPMCs), and determined the functional role of (P)RR in HPMC.

Human soluble form of (P)RR was analyzed by ELISA from PDE during peritoneal equivalent test with 2.5% glucose PD solution. The expression of (P)RR in HPMC and cultured medium was determined by Western blot analysis and/or flow cytometry. Phosphorylation of ERK was determined after stimulation of the HPMC with renin and prorenin in the presence of angiotensin receptor blockers (both AT1 and AT2) and/or (P)RR siRNA.

Soluble (P)RR was detected in both plasma and PDE of PD patients. Expression of (P)RR was observed in cytokeratin18 positive mesothelial cells. Full length (P)RR was detected in HPMC while soluble form of (P)RR was detected in concentrated cultured medium indicating that the soluble form of (P)RR is originated from HPMC. Stimulation of HPMC with either renin and prorenin resulted in phosphorylation of ERK in the presence of ARB at dose dependent manner, which was inhibited by (P)RR siRNA.

These results indicate that full length (P)RR is expressed in HPMC and excrete soluble (P)RR in drained PDE. Renin and prorenin could stimulate (P)RR and play a role in the peritoneal injury independent of angiotensin II pathway.

P-152

MicroRNAs -21 AND -31 INDICATE PERITONEAL MEMBRANE CHARACTERISTICS DURING PERITONEAL DIALYSIS THERAPY

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Objectives

To understand changes in microRNA (miRNA) expression associated with differentiation of human peritoneal mesothelial cells (HPMCs) to myofibroblasts via mesothelial-to-mesenchymal transition (MMT) in peritoneal fibrosis.

Methods

miRNA expression was analyzed in an in vitro model of MMT. Omentum-derived HPMC were treated with TGF- μ 1 and miRNA expression was analyzed by hybridization array and validated by RT-qPCR. PD effluent (PDE)-derived HPMC cultured ex vivo, peritoneal membrane samples from PD patients and PDE from a cohort of 230 stable PD patients from the Global Fluid Study (GFS) were used to determine association of miR-21 and miR-31 expression with peritoneal fibrosis. miRNA targets predicted using Targetscan, miRanda, miRDB and Diana-microT algorithms were cross-referenced with mRNA array data comparing omentum and PDE-derived HPMC with epithelial (E)- or non-epithelial (NE)-phenotype.

Results

Hybridization arrays identified 95 of 699 miRNAs as differentially regulated during MMT. The up-regulation of miR-21 and miR-31 were validated by RT-qPCR. PDE-derived HPMC exhibited phenotypic changes consistent with progressive peritoneal membrane deterioration that correlated with up-regulated miR-21 and miR-31 expression. PD patient peritoneal membranes showed increased miR-21 and miR-31 expression at the mesothelial and submesothelial compact zone when compared with uremic and healthy controls. Expression of miR-21 and miR-31 in PDE from stable PD patients correlated positively with clinically important parameters including icodextrin usage, dialysate cytokine levels, PD duration, dialysate glucose load, peritonitis count preceding sample collection, BMI and D/P Cr ratio, while negative correlation was detected with urine volume. Down-regulation of 13 common mRNA targets was identified in silico (5 targets: E, early-MMT; 10 targets: NE, late-MMT) for which functional analysis is ongoing.

Conclusions

Our data show that miR-21 and miR-31 trigger changes associated with MMT in HPMC during PD therapy and underline the potential of miRNAs as a new class of PD biomarker.

P-153

ASSOCIATION OF O-GlcNAcylation PATTERNS AND HYALURONAN PRODUCTION BY YOUNG AND SENESCENT HUMAN PERITONEAL MESOTHELIAL CELLS

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Objectives

Post-translational protein modification by the O-linked addition of N-acetylglucosamine (O-GlcNAcylation) is an important regulatory mechanism in multiple cellular processes. It has been shown to be critically involved in mesothelial cell stress response associated with exposure to PD fluids. Mesothelial cells are a major source of peritoneal hyaluronan (HA), synthesis of which also requires N-acetylglucosamine. Therefore, we sought to examine whether the level of O-GlcNAcylation in human peritoneal mesothelial cells (HPMC) impacts on HA production and changes in the course of cell senescence.

Methods

HPMC were isolated from normal omentum and rendered senescent by serial passages. Senescent cells were identified by growth arrest, altered morphology and the expression of senescence-associated μ -galactosidase. Cell exposure to 6-diazo-5-oxo-L-norleucine (DON) or O-(2-Acetamido-2-deoxy-D-glucopyranosylidene) amino N-phenyl carbamate (PUGNac) was used to decrease or increase the level of protein O-GlcNAcylation, respectively. The abundance of GlcNAc was assessed by Western blotting and concentrations of hyaluronan were measured with an immunoassay.

Results

Results were obtained from 3 cell lines isolated from separate donors and presented as means \pm SEM.

	Young		Senescent	
	O-GlcNAcylation (AU/ μ g protein)	HA (pg/ μ g protein)	O-GlcNAcylation (AU/ μ g protein)	HA (pg/ μ g protein)
Control	48.3 \pm 2.5	252 \pm 55	40.9 \pm 3.8	1598 \pm 541
DON	29.8 \pm 1.8	51 \pm 5	20.7 \pm 1.8	175 \pm 25
PUGNac	78.4 \pm 5.1	837 \pm 243	50.0 \pm 2.4	1397 \pm 487

Conclusions

The amount of HA released by young HPMC changes in parallel with the level of O-GlcNAcylation. Senescent cells show unchanged global level of O-GlcNAcylation of cellular proteins compared to young cells, but increased HA release. Interestingly, senescent cells fail to effectively increase O-GlcNAcylation and HA release upon challenge with PUGNac. It may point to a reduced range of O-GlcNAcylation dynamics in senescent HPMC with maximal activation of this post-translational mechanism even under control conditions.

P-154**PERITONEAL CELL-FREE DNA: AN INNOVATIVE METHOD FOR DETERMINING ACUTE CELL DAMAGE IN PERITONEAL MEMBRANE AND FOR MONITORING THE RECOVERY PROCESS AFTER PERITONITIS**

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Objectives

Cell-free DNA (cfDNA) is present in the peritoneal effluent of stable PD patients, but there is no data on cfDNA during peritonitis. We investigated the variation of peritoneal cfDNA levels subsequent to PD-related peritonitis.

Methods

We enrolled 53 PD patients: 30 without any history of systemic inflammation and peritonitis in the last 3 months (group A) and 23 with peritonitis (group B). CfDNA were quantified in peritoneal effluent by Real-Time PCR. Peritoneal samples on day 1-3-10-30 and until the 120th from the start of peritonitis were collected for WBC counts and cfDNA evaluation.

Results

Quantitative analysis of cfDNA showed significantly higher levels in PD patients with peritonitis compared with patients without ($p < 0.01$), similarly as WBC. Quantitative analysis of cfDNA showed significantly higher levels in group B on day 1-3-10 and 30 compared with group A ($p < 0.05$). Peritoneal cfDNA level on day 30 is still significantly elevated when compared with group A. A significant positive correlation was observed between cfDNA and WBC on day 1 ($\rho = 0.89$) and day 3 ($\rho = 0.5$) (both, $p < 0.05$). However, no statistically significant correlation was observed between cfDNA and WBC on day 10 and 30. In group B, peritoneal cfDNA level tends to progressively decrease during follow up of peritonitis. From this decreasing curve, we estimated that 49 days are necessary to reach the value of 51 GE/ml (75 percentile in controls) and 63 days to reach 31 GE/ml (median). We observed a new rapid increase of cfDNA level in 5 relapsing patients, at the first day of relapsing peritonitis. We reported 2 patients trends to explain these observations.

Conclusions

Our results demonstrated that cfDNA increased in peritoneal effluent of PD patients with peritonitis and tended to progressively decrease in relation with membrane repair process. Peritoneal cfDNA quantification could be an innovative method to determine acute damage and an inverse index of repair process.

P-155**PERITONEAL FLUID TRANSPORT DURING 16 HOURS LONG PERITONEAL DWELLS WITH ICODEXTRIN**

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Objectives

The aim of the study was to evaluate peritoneal fluid transport during a very long dialysis exchange of 16 hours performed with icodextrin as osmotic agent.

Methods

A 16 hour dwell study with icodextrin solution was performed in 20 clinically stable patients (8 women, 12 men) with mean age 54.3 ± 16 (range 19-85) years and preceding time on CAPD 25.7 ± 19.4 (range 6 - 74) months. There were 6 fast transporters, 7 fast-average transporters, and 7 slow-average transporters. None of the patients had peritonitis during the 3 months preceding the study. Intraperitoneal dialysate volume, VD, was estimated from the dilution of volume marker 125I-human serum albumin (125I-HSA) with correction applied for the elimination of 125I-HSA from the peritoneal cavity (coefficient of volume marker elimination rate, KE) and sample volumes.

Results

Average VD increased almost linearly with no difference between transport types. Cumulative net ultrafiltration at 16 h was positive, 729 ± 337 (range 247 to 1295) mL, in all except one patient with slightly negative value of -18 mL at 16 h. Average trans-capillary ultrafiltration rate was 1.40 ± 0.36 mL/min, and peritoneal fluid absorption rate (KE) was 0.68 ± 0.38 mL/min. Icodextrin mass in dialysis fluid decreased linearly, from 154.6 ± 16.6 to 91.6 ± 22.4 g at 16 h, i.e., by 40.8 %. We did not observe any clinical complications associated with use of icodextrin solution in the course of the study during eight weeks of the follow-up.

Conclusions

In this study, in which a precise method of intraperitoneal dialysate volume determination was used, dialysis fluid with icodextrin was shown to provide effective ultrafiltration during a 16 hours dialysis exchange. The finding that dialysate volume continues to increase even at 16 hours confirms the value of icodextrin as a suitable osmotic agent for the long dwell in PD.

P-156**DIPEPTIDE ALANYL-GLUTAMINE PROTECTS FROM PERITONEAL FIBROSIS AND ATTENUATES IL-17 DEPENDENT PATHWAYS DURING PERITONEAL DIALYSIS**

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Objectives

Alanyl-Glutamine (Ala-Gln) is a dipeptide commonly used in parental nutrition to improve clinical outcome in critically ill patients. The dipeptide also plays a role in immunomodulation and its capacity to improve resistance of mesothelial cells to Peritoneal Dialysis Fluid (PDF) exposure by restoring a cytoprotective stress proteome has been shown. IL-17 is involved in autoimmune responses in renal diseases. IL-17 also promotes structural and functional peritoneal changes that compromise Peritoneal Dialysis (PD) outcomes.

Methods

In this study we investigated if Ala-Gln supplementation plays a protective role against peritoneal fibrosis by modulating Th17 response in a uremic rat PD model. Rats underwent 5/6 nephrectomy and were daily instilled with PD fluid enriched or not with Ala-Gln. Histological analysis was carried out in parietal peritoneum. Fibrosis was examined by Masson's Trichrome staining. Vasculature and myofibroblasts were quantified by immunofluorescence. IL-17, IL-6, TGF β , ROR(γ)t and fibronectin expression in the parietal peritoneum biopsies was evaluated by real-time quantitative PCR. IL-17, TGF β and Hyaluronic acid protein levels were determined by ELISA in peritoneal effluents.

Results

Addition of pharmacological doses of Ala-Gln to a conventional PDF prevents peritoneal fibrosis, α SMA expression and angiogenesis. Treatment with Ala-Gln re-established the normal peritoneal levels of IL-17 which was significantly elevated in the PDF exposed group. The protective effect of Ala-Gln was confirmed by a substantial reduction of TGF β , IL-6 and ROR(γ)t, all known mediators implicated in the IL-17 expression.

Conclusions

These results suggest that Ala-Gln administration ameliorate peritoneal deterioration related to PD treatment by modulating IL-17 expression.

P-157**LOSS OF MESOTHELIAL NEUTROPHIL-GELATINASE-ASSOCIATED-LIPOCALIN (NGAL) REFLECTS EPITHELIAL TO MESENCHYMAL TRANSITION IN EXPERIMENTAL PERITONEAL DIALYSIS**

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Objectives

Daily exposure to peritoneal dialysis fluid (PDF) induces mesothelial cells (MC) to the epithelial to mesenchymal transition (EMT) process. Neutrophil-Gelatinase-Associated-Lipocalin (NGAL) can be produced by neutrophils and MC during the PDF exposure. Different biocompatible solutions have been developed to improve peritoneal performance and reduce the EMT consequences; those dissimilarities can bring about different NGAL levels.

Methods

Rats were daily instilled with conventional or bicarbonate/lactate-buffered PDF (Dianeal or Physioneal) and untreated rats served as a control. RNA was isolated from the parietal peritoneum for Microarray analysis. NGAL amount from the effluent was detected by ELISA and immunohistochemistry for NGAL, Vimentin and Cytokeratin was performed in liver imprints. Rat mesothelial cells and neutrophils were cultured and analyzed for NGAL expression. Omentum-derived human mesothelial cells were stimulated with (TGF)- β and PDF for gene expression quantification of EMT markers and NGAL.

Results

Single gene analysis revealed NGAL to be differentially expressed between the two PDF. Mesothelial cells on liver imprints stained positive for NGAL, however rat MC that underwent EMT lost NGAL expression. No differences were found for NGAL production in rat dialysates.

NGAL production in rat MC was significantly impaired upon Dianeal but not after Physioneal exposure. This event was not shown in the neutrophils. Mesenchymal markers genes were enhanced after (TGF)- β induction and PDF exposure in human MC whereas NGAL was less expressed.

Conclusions

Our data shows the loss of NGAL expression when MC undergoing EMT in vivo and in vitro. The detrimental effects from the PDF to the NGAL expression are more evident for the Dianeal fluid treatment because of the EMT. NGAL is a possible marker for mesothelial cells health.

P-158**VITAMIN D IN PERITONEAL DIALYSIS PATIENTS; EFFECTS ON PERITONEAL REMODELLING, PERITONEAL TRANSPORT AND METABOLIC PARAMETERS**

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Objectives

Vitamin D3 has anti-inflammatory, anti-angiogenic and anti-fibrotic properties. Little is known about the relation between the peritoneal membrane and the pleiotropic effects attributed to vitamin D3. It is unclear which is the most appropriate vitamin D sterol to administer. We investigated the effects of paricalcitol versus calcitriol on markers of peritoneal remodeling and peritoneal transport in PD patients. Methods: A 6 months multicenter open-label RCT enrolled 27 PD patients using neutral pH fluids (Balance/ Physioneal) since the beginning of their PD career. 14 patients were allocated to treatment with paricalcitol 1 ug, 13 to calcitriol 0.5 ug. Blood, urine samples and 24-hour dialysate, effluents were collected and PETs were performed.

Results

After 6 month of either paricalcitol or calcitriol, there was no difference in the pre-specified primary outcome local markers of inflammation (CA-125, IL-6, IL-8, HA, VEGF, HA, TGF β) at the end of the study. M2 macrophages in both groups show a significant increase upon treatment with either VDRA after 24 weeks compared to baseline ($p=0.038$). The increase in M2 is most pronounced between week 12 and 24 ($p=0.03$). There is no significant difference in the M1/M2 ratio, composition of peritoneal leucocytes or in secondary outcome peritoneal transport parameters (Kt/V, UF, RRF, 24h urine volume) between the groups. Conclusion: Our study adds evidence to the limited proof for recommending a specific vitamin D sterol in PD patients. We see the same effect on macrophages phenotype between the two VDRA and no difference on markers of peritoneal remodeling, peritoneal transport.

Conclusion

In conclusion, our study adds evidence to the still limited proof for recommending a specific vitamin D sterol in PD patients. We see the same effect on macrophages phenotype between the two VDRA and no difference on markers of peritoneal remodelling, peritoneal transport.

P-159**ASSOCIATION BETWEEN VASCULAR ENDOTHELIAL AND PERITONEAL MICROVASCULAR DYSFUNCTION IN CONTINUOUS AMBULATORY PERITONEAL DIALYSIS PATIENTS**

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Objectives

Continuous Ambulatory Peritoneal Dialysis (CAPD) is one of the most favorable renal replacement therapy options in end stage renal disease. Semi-permeability of the peritoneal membrane has the pivotal role, transport status of the peritoneal membrane determines the treatment modality and also long term prognosis. Another important component of the prognosis is vascular endothelial function.

Aim of the study is to determine whether presence of any association between vascular endothelial and peritoneal microvascular dysfunction in CAPD patients.

Methods

Sixty-four patients receiving CAPD longer than 3 months have been included in our study. Vascular endothelial functions have been evaluated by using flow mediated dilatation and peritoneal microvascular dysfunctions have been evaluated by using standard peritoneal equilibration test (PET).

Results

Mean age of the study population was 44.36 \pm 14.26 years and CAPD duration was 33.09 \pm 26.28 months. Mean value of weekly Kt/v of the entire group has been calculated as 2.35 \pm 0.89. Fourth hour dialysate creatinin/plasma creatinin ratio (DP4) has been calculated as 0.82 \pm 0.13. Mean FMD has been measured as 6.87 \pm 0.59. Correlation analysis revealed that DP4 and FMD are negatively correlated. ($r=-0.644$)

Conclusions

Transport character of the peritoneal membrane is based on peritoneal microvascular endothelial function. Our results show that peritoneal microvascular functions and vascular endothelial dysfunction are closely related.

P-160

IL6 AND PERITONEAL ADEQUANCY

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Objectives

Inflammation is a predictor of all-cause mortality in the general population and in CKD patients. In these patients several factors can contribute to inflammation. Furthermore, in peritoneal dialysis (PD) patients, many systemic and local inflammatory mediators have been associated with membrane failure and increased mortality risk. Inflammation often coexists with malnutrition and there is a relationship between nutritional indices, as serum Albumin (Alb), and mortality. C-Reactive Protein (CRP) is an index of inflammatory activity. IL6 is a proinflammatory cytokine and modulates inflammation. The aim of the study was to investigate the systemic inflammatory biomarkers and assess their relationship with PD adequacy.

Methods

Serum levels of Alb, CRP and IL6 were measured in 46 PD patients (31CAPD/15APD). We evaluated IL6 concentration by ELISA. We used weekly Kt/Vurea and Creatinine Clearance (wCc) as estimates of PD adequacy. PD patients were divided into 2 groups based on Kt/Vurea value: 1.7 was the cut-off value as recommended by K/DOKI guidelines. Statistical analysis was performed by STATA Software. A $p < 0.01$ was considered statistically significant.

Results

The median values of Alb, CRP and IL6 showed no significant differences between CAPD and APD. IL6 levels showed a positive correlation with CRP ($p < 0.001$). IL6 correlated negatively with Alb ($p = 0.01$). PD patients with Kt/V < 1.7 had significantly higher IL6 compared to PD patients with Kt/V > 1.7 (median 62; IQR 33-162 vs 12; IQR 8-59) (Figure 1). No statistically significant relationship between IL6 and the wCc was observed, but a positive trend was evident.

Conclusion

In conclusion, this study suggested that a low grade of IL6, as a marker of inflammation state, may be considered an index of PD adequacy. It is necessary to increase the sample size of PD subjects enrolled to validate our hypothesis.

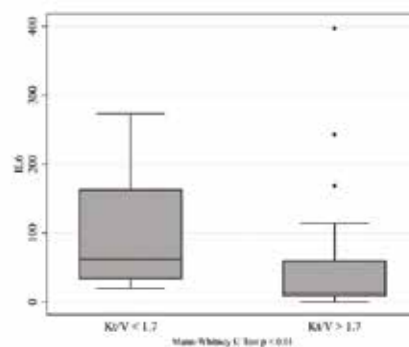


Figure 1: PD patients with Kt/V < 1.7 had significantly higher IL6 compared to PD patients with Kt/V > 1.7 (median 62pg/ml; IQR 33-162 vs 12; IQR 8-59 pg/ml)

P-161

SERUM FOLATE AND VITAMIN B12 LEVELS IN HEMODIALYSIS PATIENTS: IS THERE ANY CORRELATION WITH PLASMA HOMOCYSTEINE LEVELS?

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Objectives

This study was conducted to determine serum folate and vitamin B12 status in hemodialysis patients and find any correlation between plasma homocysteine and serum levels of these vitamins.

Methods

19 hemodialysis subjects enrolled the study. All patients were supplemented by folate 0.125-0.5 mg/day and 15 cases were received oral Vitamin B12, 3-6 µg/day as nephrotablets. Serum folate levels < 1.5 ng/ml and > 17 defined as low (deficiency) and high respectively. For vitamin B12 levels < 120 pg/ml, 120-160 pg/ml, 160-970 pg/ml and > 970 pg/ml were defined as deficient, borderline, normal and high levels respectively. Plasma homocysteine levels ≥ 15 µmol/L were defined as hyperhomocysteinemia. Correlation between the vitamins' levels and plasma Homocysteine levels were checked by Pearson correlation test and P-values < 0.05 and $r > 0.7$ were defined as a good (significant) correlation.

Results

13 patients (68.4%) had hyperhomocysteinemia. No cases had folate or vitamin B12 deficiency. There was no significant differences in mean Serum folate and vitamin B12 levels between those with normal and high plasma homocysteine levels ($P = 0.278$ and 0.607 respectively).

Conclusions

Supplementary folate and vitamin B12 doses that we used result in high serum levels in majority of patients. In addition hyperhomocysteinemia may be accompanied by normal and even high serum levels of these vitamins. We concluded that there is no correlation between serum levels of these vitamins and plasma Homocysteine levels.

Key words: Hemodialysis, hyperhomocysteinemia, Folate, Vitamin B12

P-162**ANALYSIS OF PERITONITIS RATES OF CHILDREN ON PERITONEAL DIALYSIS OVER A TEN-YEAR PERIOD IN A SINGLE-CENTRE**

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Objectives

Peritonitis is a major cause of morbidity and peritoneal membrane failure in children on Peritoneal Dialysis (PD) and is the most significant complication of PD in children. Its prevention is essential for the preservation of peritoneal membrane function.

Methods

A retrospective chart review of all children treated with PD over a 10 year period 2004 – 2014 was undertaken and episodes of peritonitis recorded. Microbiological laboratory data was reviewed. The number of Peritonitis Episodes per Patient Months of PD was recorded for each of the 10 years. A diagnosis of peritonitis was made using a combination of history, clinical examination and laboratory findings, including >100 WBC $\times 10^6$ /litre with $>50\%$ polymorphs \pm organisms visualised on Gram stain.

Results

We have analyzed patient demographics including age, diagnosis and length of time on peritoneal dialysis.

A total of 31 patients (11 girls) were included in the study.

The audit examines mean time on peritoneal dialysis; use of intravenous antibiotics at time of insertion of the PD catheter; relationship between onset of peritoneal dialysis and catheter insertion; the types of organisms identified; treatment strategies; and whether the peritoneal dialysis catheter needed removal.

The audit compares peritonitis rates both with international best practice standards and a previous audit in our unit.

Conclusions

We attribute the low rate of peritonitis in our study population in particular to hygiene practices, the intense training of parents and to our prophylactic antibiotic protocol. Surgical technique including placement of catheter, type of catheter and having a suture less exit site, the type of catheter, as well as cyclor PD also contribute.

P-163**PERITONEAL DIALYSIS ACCESS REVISION IN CHILDREN: FINDINGS FROM THE INTERNATIONAL PEDIATRIC PERITONEAL DIALYSIS NETWORK (IPPN)**

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Background

The objectives of this study were to evaluate the incidence, specific causes, risk factors, and outcome of peritoneal dialysis (PD) access revision.

Material and Methods

The study population included 824 incident and 1629 prevalent patients from 61 centers in 29 countries, followed prospectively in the IPPN registry between 2007 and 2015.

Results

452 access revisions were reported in 133 (15%) prevalent and 188 (11%) incident patients, i.e. at a prevalence of 1 per 83 patient months and an incidence of 1 per 68 patient months. 83% of access revisions were reported within the first year of PD treatment.

Reasons for access revision included mechanical obstruction (60%), peritonitis (16%), exit site infection (12%), and leakage (6%). Access revision was more likely in patients of younger age (OR 0.93, $p<0.001$), with co-existing ostomies (OR 1.63, $p<0.001$) and swan neck tunnel configuration (OR 1.54, $p<0.001$). Neither catheter type nor exit site orientation influenced the risk of undergoing access revision. PD technique survival rate was 91, 86 and 76% at one, two and three years in patients with early access revision (<3 mo), as compared to 100, 97 and 97% respectively in late revisions (>3 mo) ($p<0.05$). The need for access revision increased the risk of PD technique failure by 36% ($p<0.005$). The increased technique failure risk primarily associated with access revision was mainly related to patients with mechanical dysfunction, who had twice the risk of technique failure than patients undergoing revisions for infectious complications (HR=1.95, $p<0.05$).

Conclusions

13% of pediatric PD pts require access revision, with the highest frequency within the first year of treatment. Mechanical obstruction is the most common cause of access dysfunction. Risk factors include young age, coexisting ostomies and swan neck catheter configuration. Access revision within the first 3 months from PD start and access revision for mechanical obstruction are associated with poor technique survival.

P-164**CATHETER-RELATED COMPLICATIONS IN PEDIATRIC PERITONEAL DIALYSIS IN**

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Objectives

To analyze catheter-related complications in 28 children on PD between January 1995 and Mart 2015.

Methods

During the study period 39 catheters were placed in 28 patients (11 girls and 17 boys). All catheters were surgically implanted and omentectomy was performed in 80 % of cases. The catheters used were Tenckhoff double cuff, and the entry site was in the midline.

Results

During a total 1126 PD months, 62 catheter-related complications were reported with an incidence of 1 episode every 18 PD months: 46 catheter infections (exit site and/or tunnel infections), 3 leakages, 2 dislocations, 7 obstructions, 4 cuff extrusions. 8 catheters were removed due to catheter related causes: exit-site and/or tunnel infections were the main cause for removal (75.4%), followed by obstruction, dislocation, and leakage. No correlation was observed between early or delayed catheter use and infection, dialysate leak, or subcutaneous leak.

Cumulative catheter survival using the method of life-time analysis during the 1st, 3rd and 5 years was 72%, 61%, and 22% respectively.

Significantly lower catheter survival occurred in children with peritonitis compared to children without peritonitis.

In conclusion PD is a treatment of choice for children, but more effort is necessary to reduce catheter complications and improve peritoneal catheter survival.

Prevention and appropriate therapy of infection complications could prolong the survival of catheters.

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