PERITONEAL DIALYSIS 1

SP450

NATIONAL RATES OF ADMISSION, MORTALITY AND POST-PERITONITIS TECHNIQUE SURVIVAL ACCORDING TO DAY OF THE WEEK IN ENGLISH PERITONEAL DIALYSIS PATIENTS

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Introduction and Aims: Admissions and deaths have been shown to vary according to day of the week in patients receiving haemodialysis. Patients with a range of chronic diseases are more likely to be admitted on a Monday, and have higher hospital associated mortality at the weekend. We set out to explore these associations in patients receiving peritoneal dialysis (PD). mortality at the weekend. These associations are explored in patients receiving peritoneal dialysis (PD).

Methods: Information on patients receiving PD from a cohort of patients starting renal replacement therapy in England between 2002 and 2006 collected by the UK Renal Registry was linked to hospitalisation data. Admission and death rates (in hospital and out of hospital) by day of the week whilst receiving PD were calculated. 90 day technique survival following admission for PD peritonitis according to day of the week was analysed using cox regression with a random effects term for renal centre, comparing each day of the week to Wednesday when services should be optimal.

Results: 27,849 admissions in 6363 patients over 17,620 patient years were available for analysis. Mortality rate was 7.8 per 100 patient years and was stable across the week for both in hospital and out of hospital death. Acute admission rate was 1.15/year for Monday to Friday and 0.85/year for the weekend (P<0.001). Admissions specifically for peritonitis were slightly lower at the weekend (25.0 vs 26.5 per 100 patient years, P=0.004). Compared with technique survival following admission with peritonitis on a Wednesday, Monday was associated with an increased risk (hazard ratio 1.18, 95% CI 1.01 - 1.38, P=0.04) an association that persisted adjusting for age, comorbidity, ethnicity and including death as a technique failure event (hazard ratio 1.20, 95% CI 1.02 - 1.40 P=0.027).

Conclusions: Unlike haemodialysis patients, PD patients do not demonstrate day of the week variation in mortality rates but are less likely to be admitted at the weekends. The lower hospitalisation rate for peritonitis at weekends may represent either patient reluctance to report ill health at weekends, or greater difficulty in accessing medical care. The increase in technique failure on Monday may represent a proportion of patients developing PD peritonitis over the weekend who delay their presentation with adverse consequences.

SP451

CLINICAL RELEVANCE OF FREE WATER TRANSPORT AND EFFLUENT BIOMARKERS IN THE DETECTION OF ENCAPSULATING PERITONEAL SCLEROSIS

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Introduction and Aims: Currently no diagnostic tool or methodology is available for the early detection of encapsulating peritoneal sclerosis (EPS). Peritoneal transport parameters indicate discrepancies between long-term peritoneal dialysis (PD) patients and those who will develop EPS by means of free water transport (FWT). Levels of cancer antigen 125 (CA125), interleukin-6 (IL-6) and plasminogen activator inhibitor-1 (PAI-1) have been detected in the peritoneal effluent by enzyme-linked immunosorbent assays with reasonable measures of diagnostic accuracy for EPS. The objective of this study is to investigate and construct a panel of effluent biomarkers in conjunction with FWT to monitor PD treatment and aid early detection of EPS.

Methods: A case-control study nested in the longitudinal cohort of PD patients from our center was conducted. For each EPS case, three long-term controls were randomly selected. The time-specific area under the ROC curve was calculated for FWT and the effluent biomarkers at a lag time up to three years before the diagnosis of EPS. Threshold values were determined by the optimal balance between estimates of sensitivity and specificity to classify values as test positive or negative. Finally, FWT was combined with AR of CA125, IL-6 or PAI-1 to explore the effect on diagnostic accuracy measures.

Results: The percentage of FWT and appearance rates (AR) of effluent biomarkers were investigated in all EPS patients (n=11) and 34 long-term PD patients. Compared to AR of CA125, IL-6 and vascular endothelial growth factor, the diagnostic performance was most optimal for FWT followed by PAI-1 AR. Throughout the diagnostic panels between FWT and AR of CA125, IL-6 or PAI-1 high specificity estimates above 94% were yielded. However, the panel of FWT and CA125 AR was able to detect 40% of EPS cases whilst the panels that included FWT and IL-6 or PAI-1 AR respectively identified 60% and 75% of EPS patients.

Conclusions: The measurement of effluent biomarkers complementary to peritoneal function test provides an all-round insight into the state of the peritoneal membrane. Our data indicate that an effluent biomarker panel including the percentage of FWT may aid in the early detection of EPS where high estimates of specificity are present.
Methods: A multicenter (20 PD-Units) prospective matched-cohort study over all ADPKD patients starting PD (n: 106) between Jan-2003 and Dec-2010 and a control group (n:212) with 2 consecutive patients without ADPKD. Mortality, PD-technique failure, peritonitis, abdominal wall leaks and cyst infections were compared.

Results: ADPKD patients had similar age but less comorbidity when PD started: Charlson-Index (4.3 [SD 1.6] vs 5.3 [SD 2.5] p <0.001), Diabetes Mellitus (5.7% vs 29.2%, p <0.001) and previous cardiovascular events (10.4% vs 27.8%, p <0.001). No differences were observed in delivered dialysis dose, clinical events that required transient-transfer to HD, nor in peritoneal leakage episodes. The cyst infection rate was low (0.09 episodes per-patient-year) and seems not to be associated to peritonitis episodes. Peritonitis rate were 0.54 vs 0.56 per patient/year, (ns) and hospital admission rates were 0.64 vs 0.72, per patient/year (ns). Overall technique survival was similar in both groups. Permanent-transfer to hemodialysis because of surgery or peritoneal leakage was more frequent in ADPKD. More ADPKD patients were included in the transplant waiting list (69.8 vs 58%, p<0.04) but mean time to transplantation was similar (2.08 [1.69-2.47] years). The mortality rate was lower (2.5 vs 7.6 deaths/100 patient-year, p: 0.02) and the median patient survival (kaplan meier) was longer in ADPKD patients (6.04 [5.39-6.69] vs 5.57 [4.95-6.18] years, p: 0.024).

Conclusions: PD is a suitable renal replacement therapy option for ADPKD patients.

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SP455

**DIFFERENT OUTCOME OF PERCUTANEOUS PERITONEAL CATHETER PLACEMENT BY A TROCAR VS. SELDINGER: EXPERIENCE OF TWO BRAZILIAN CENTRES**

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Introduction and Aims: A good catheter implantation technique is important to allow effective peritoneal access function and long-term technique survival. Studies regarding results obtained by nephrologists using different techniques have been limited. The aim of our study was to compare difficulties of percutaneous peritoneal catheter placement (PPCP) using a trocar and a Seldinger technique by nephrologists in a Brazilian environment.

Methods: We performed a retrospective observational study using 200 percutaneous PD catheter implantations (100 in each group) performed by 20 nephrologists between January 2010 and December 2013. Paired Patient Access Model (PPAM) catheters were used for both groups. The Seldinger group used a 21-Gauge Tuohy needle for jugular vein puncture, followed by insertion of the catheter using a Seldinger technique. The trocar group used a 25-Gauge Quincke needle for percutaneous insertion of the catheter (n=100) or a trocar (n=100) for intraperitoneal insertion of the catheter. The number of patient entries was similar for both groups.

Results: There were no significant differences in terms of technique success or access time between the 2 groups (p>0.05). The number of unsuccessful attempts was also similar between the 2 groups (p>0.05). The rate of complications was also similar for both groups (p>0.05).

Conclusions: The success rate of percutaneous PD catheter placement in our environment was similar for both techniques. Both techniques were safe and feasible.

SP454

**EFFECTS OF PIRFENIDONE ON THE EPITHELIAL MESENCHYMAL TRANSITION IN A RATS MODEL OF PERITONEAL DIALYSIS**

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Introduction and Aims: The purpose of the present study to exam the effectiveness of pirfenidone for the prevention of epithelial mesenchymal transition (EMT) in the peritoneum in a rat model of peritoneal dialysis.

Methods: Eighteen male Sprague-Dawley rats weighing 250–300 g were divided into 3 groups. In the C group, the catheter was inserted but no dialysate was infused. The PD group was infused with a conventional 4.25% dialysis solution. The PI group was infused with 4.25% dialysis solution and cotreated with pirfenidone. A total of 25 mL of dialysate was infused twice daily for 8 weeks.

Results: Peritoneal dialysis resulted in an increase of the expression of mesenchymal markers such as α-SMA and was associated with a decrease in the expression of epithelial markers, E-cadherin. Cotreatment with pirfenidone showed an amelioration of dialysis induced changes in markers of EMT. In addition, Trichrome-stained parietal peritoneum of abdominal wall showed a marked increase in submesothelial matrix in PD group, which is ameliorated by pirfenidone (8.16 ± 1.23 µm in C group, 12.57 ± 26.45 µm in PD group, and 17.45 ± 2.30 µm in PI group).

Conclusions: Our results suggest that pirfenidone has a protective effect on EMT in peritoneal mesothelial cells.

SP453

**FGF-23 BLOOD LEVELS PREDICT PERITONEAL DAILY PHOSPHATE REMOVAL IN PATIENTS ON PERITONEAL DIALYSIS**

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Introduction and Aims: Fibroblast growth factor (FGF)-23 rises early in patients with chronic kidney disease (CKD) in response to oral phosphate (Pi) load and attenuates phosphate removal in patients on PD. Given that the vascular tissues are endowed with FGF receptors, we hypothesized that FGF-23 may be involved in peritoneal membrane Pi transport.

Methods: Sixty-seven adult patients (male 37, mean age 47 years, mean time on PD 8.8 months, range 1 to 72 months, 95.5% on continuous ambulatory PD [CAPD], 4.5% on automatic PD [APD]) were evaluated in a cross-sectional study (ST1). A subgroup of 23 patients (100% on CAPD), mean time on PD 11.5 months, was also reassessed 12 months after the first evaluation (ST2). Peritoneal daily Pi removal (PDPiR) was calculated from 24-hour peritoneal effluent. Intact FGF-23 blood levels were assessed by ELISA (Immutopics, Inc., San Clemente, CA). FGF-23 blood levels positively correlated with serum Pi (r=0.517, p<0.001), serum creatinine (r=0.416, p<0.001), PDPiR (r=0.451, p<0.001) and negatively correlated with age (r=-0.337, p<0.007), residual renal function, RRF (r=-0.294, p<0.002) and C-reactive protein (r=-0.264, p=0.04). In a multiple linear regression analysis, the FGF-23 levels are a direct predictor of PDPiR (β=0.336, p=0.018) independent of serum Pi levels, RRF and iPTH. In ST2, a significant decrease in RRF was observed during the 12 months follow-up period (p<0.001) without changes in either FGF-23 or Pi plasma levels. FGF-23 serum levels were positively correlated with PDPiR on both the 1st (r=0.44, p=0.002) and the 2nd (r=0.799, p<0.001) evaluation periods.

Conclusions: FGF-23 blood levels are closely associated with peritoneal daily phosphate removal in patients on PD. This effect occur independent of serum Pi, iPTH and RRF. In line with the known effect of FGF-23 in renal tubules Pi transport, our findings suggest that FGF-23 may be involved in the regulation of Pi transport in the peritoneal membrane.
of this study was to investigate the rate of early catheter-related complications and catheter survival in two Brazilian centres, for two different percutaneous methods of catheter implantation performed by the nephrologist team.

**Methods:** Adult incident patients recruited from January 2006 to July 2013 who had undergone first peritoneal dialysis (PD) catheter implantation were included in the analysis. Early rates of mechanical and infectious complications were defined as time to the first event occurring up to 3 months.

**Results:** Four hundred and forty-five consecutive Tenckhoff catheters were implanted by the nephrologist team percutaneously after antibiotic prophylaxis in an operating room: trocar was used in 349 (78.4%) and the Seldinger technique (S) in 99 (21.6%). The Seldinger technique was significantly associated with a lower rate of leaks (16.3 vs. 3%, p=0.03) and tip catheter migration (22.6 vs. 10.1%, p=0.04), while early rates of infectious complication were similar between the two groups (p=0.9). Long-term catheter survival was higher in the Seldinger group (log-rank p=0.031). By Cox multivariate analysis, adjusted for age, sex, and diabetes, the Seldinger technique remained independently associated with better catheter survival (HR 0.681 [confidence interval 0.462-0.910], p=0.04).

**Conclusions:** Our experience showed better PD outcomes with the Seldinger technique than the trocar method of catheter implantation by nephrologists.

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### SP456 CELL-FREE PLASMA DNA IN PERITONITIS IS ORIGINATED FROM APOPTOTIC EVENTS

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**Introduction and Aims:** Peritonitis are a frequent complication of peritoneal dialysis (PD) and a common cause of technique failure. Cell-free plasma DNA (cfpDNA) is a circulating extracellular DNA fragments and originates from necrotic and apoptotic cells derived from inflammation and tissue damage. Cell-free DNA quantification is a possible method to determine cell damage through apoptosis and necrosis in vivo. In particular, cfpDNA is increased in PD patients plasma with a recent episode of peritonitis. The first aim of this study was confirmed the variation in plasma levels of cfpDNA after an episode of peritonitis in chronic PD patients. The second purpose of this study was to elucidate the putative causative mechanism involved in cfpDNA formation during peritonitis.

**Methods:** We enrolled 54 PD patients undergoing maintenance PD for a minimum of 3 months and we divided them into 3 different groups: 25 PD patients without any history of peritonitis, 21 PD patients whose last episode of peritonitis was more than 3 months prior to enrollment, and 8 patients who had an episode of peritonitis within the 3 months prior to enrollment. CfpDNA was extracted from plasma and was quantified by Real time PCR for the 3 months prior to enrollment. CfpDNA was extracted from plasma and was quantified by Real time PCR for the 3 months prior to enrollment. CfpDNA was extracted from plasma and was quantified by Real time PCR for the 3 months prior to enrollment.

**Results:** Quantitative analysis of cfpDNA showed significantly higher levels in patients who had an episode of peritonitis within the 3 months compared with the other two PD groups (p<0.05)(Figure 1). Qualitative analysis of apoptosis showed higher DNA ladder formations, suggesting presence of apoptotic events. The increase of apoptotic events was confirmed by Caspase-3 activation (p<0.01) and a significant correlation was observed between cfpDNA and Caspase-3 levels (Figure 2). We observed lower levels of cfpDNA and Caspase-3 in patients with a longer peritonitis-free period. cfpDNA levels tend to progressively decrease in correlation with peritonitis-free time.

**Conclusions:** In conclusion, our data has demonstrated that cfpDNA is increased in the plasma of PD patients with recent peritonitis and cell apoptosis induced by Caspase-3 activation is one of the potential sources of cfpDNA.

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### SP457 RIGOROUS CATHARSIS BY ORAL LACTULOSE IS HIGHLY EFFECTIVE IN RESTORING A MIGRATED PERITONEAL CATHETER

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**Introduction and Aims:** Displacement of peritoneal dialysis (PD) catheter has known for the major cause of catheter malfunction in continuous ambulatory peritoneal dialysis patients. We designed this study to evaluate the effect of conservative treatment using a rigorous catharsis in restoring a migrated PD catheter in CAPD patients following percutaneous implantation without break-in procedure.

**Methods:** ESRD patients who initiated PD is from January 2003 to February 2012 in our hospital were enrolled in this study. All catheters (double-cuffed Tenckhoff catheter with a straight intraperitoneal segment; swan-neck 28, non-swan-neck 114) were inserted using a modified percutaneous placement method under local anesthesia. PD catheter was inserted immediately after the catheter insertion without a break-in period. The catheter tip migration was documented by abdominal radiography. When the catheter migration was documented, rigorous catharsis was induced by the administration of oral lactulose with/witouot enema.

**Results:** The migration rate of PD catheter was 19.7% (28 catheters). Left upward migrations were significantly more common than right upward migrations (77.7% vs. 22.2%, p<0.05). The rates of catheter migration of swan-neck catheters and non-swan-neck catheters were 22.2% and 13.2%, respectively (p<0.05). Diminished outflow volumes were accompanied in only 14.9% (4 of 28 catheters) of catheter migration. After vigorous catharsis using oral lactulose, successful restoration of PD catheter insertion was achieved in 96.3%. Only one case, which could not be repositioned by non-invasive methods, needed catheter change to correct outflow failure due to catheter migration.

**Conclusions:** Migration of PD catheter, even though the catheter tip translocated into right upper abdomen, could be easily corrected by a rigorous catharsis with oral lactulose.

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### SP458 DIFFERENTIAL PATTERNS OF ANXIETY AND DEPRESSION IN PATIENTS ON PERITONEAL DIALYSIS OVER 12 MONTHS: THE ROLE OF SOCIAL SUPPORT, AND PD CAREER

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**Introduction and Aims:** Depression is common in patients on peritoneal dialysis and has been shown to be associated with higher morbidity and mortality, but little is known about the course of symptoms over time. The objectives of the present study were to explore group and individual patterns of change in anxiety and depression in the two PD modalities and to identify factors that may be associated with different trajectories of emotional distress.

**Methods:** 115 PD patients (N=52 CAPD and N=63 APD) completed self-report measures of depression, anxiety and quality of life on two occasions 12 months apart. Clinical cut-offs were used to identify individual patterns of change in anxiety and depression across time and general linear models were employed to establish predictors of these trajectories.

**Results:** Mean levels of anxiety and depression remained unchanged over 1 year. More than 60% of patients scored above cut offs for depression and more than 40% scored above cut offs for anxiety at both baseline and follow up assessments. Individual level
analyses showed that the course of symptoms does not follow a single trajectory. While most patients remained either within the persistent high symptom range (38.9% depression and 39.5% anxiety) or no depression (23%) or no anxiety (46%), a total of 16% 16% patients became depressed, and 16% patients became anxious. Patients with new onset symptoms of depression or anxiety were older (>65 years), assisted by carer and reported diminishing social support and increased symptom burden and loneliness to the no depression or anxiety subgroups.

Conclusions: Different patterns of symptoms reflected heterogeneity in patients’ emotional reactions and adjustment. Intervention studies need to explore support options for PD patients especially those at assisted PD schemes.

**SP459 ASSOCIATION TOO-LATE INITIATION OF DIALYSIS WITH MORTALITY IN PERITONEAL DIALYSIS**

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**Introduction and Aims:** It is controversial whether early or late initiation of peritoneal dialysis (PD) is associated with mortality in end stage renal disease (ESRD) patients. We analyzed impact of the timing of PD initiation on mortality in ESRD patients.

**Methods:** Participants enrolled in the Clinical Research Center for ESRD cohort in Korea. We analyzed all-cause mortality according to the estimated glomerular filtration rate (eGFR) with MDRD equation initiation of PD in ESRD patients undergoing PD from 2009 to 2013. We defined reference group (late-start PD) arbitrarily as eGFR at PD initiation ≤5 mL/min/1.73m2, early-start PD as eGFR >10 mL/min/1.73m2, and too-late-start PD as eGFR <5 mL/min/1.73m2. Cox hazards regression models were used to study the association between timing of PD initiation and all-cause mortality.

**Results:** This prospective observational study included incident 455 PD patients (279 PD patients in reference group, 107 patients in early-start PD, and 109 patients in too-late-start PD). The patients in early-start group were older, male predominance, had higher prevalence of comorbidity, including diabetes, coronary vascular disease, peripheral artery disease, and heart failure, and had lower pre-dialysis serum albumin and higher pre-dialysis hemoglobin compared to other groups. After a median 3 months of follow-up, all-cause mortality in early-start group and too-late-start group increased significantly compared to reference group (p = 0.007 by log rank test). On univariate analysis, all-cause mortality was positively correlated with early-start PD, too-late-start PD, older age, presence of diabetes, heart failure, peripheral vascular disease, and stroke, and negatively correlated with serum albumin level. On multivariate analysis adjusted with age, gender, cause of ESRD, co-morbidity, BMI and serum albumin level, increased all-cause mortality is not associated with early-start PD (HR 1.25, 95% CI, 0.45-3.46, P = 0.665) but too-late-start PD (HR 4.18, 95% CI, 1.40-11.98, P = 0.008).

**Conclusions:** Our data showed early-start PD (eGFR at PD initiation >10 mL/min/1.73 m2) and too-late-start PD (eGFR <5 mL/min/1.73 m2) had poor survival, compared to late-start PD (eGFR 5-10 mL/min/1.73 m2). Increased mortality in early-start PD is likely due to age and co-morbidity. Too-late-start PD is associated an increased risk of mortality in ESRD patients, which suggest that ESRD patients need to initiate PD before their eGFR reaches 5 mL/min/1.73 m2. Further study is needed.

**SP460 THE EFFECT OF ELECTRIC CHARGE ON PROTEIN TRANSPORT DURING PERITONEAL DIALYSIS AS DESCRIBED BY THE THREE PORE MODEL**

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**Introduction and Aims:** The negative charge of proteins can be taken into account in dialysis fluids than those for fluid and other solutes. The predicted equilibration of protein profiles demonstrated a problem in the correct description of the relationship between diffusive and convective transport of albumin by both models. No important difference in the estimated values of parameters for the two models was found.

**Methods:** We used a U-step response to study the association between timing of PD initiation and all-cause mortality. Two transport models were developed: 1) standard (s3p), and 2) modified (m3p) three-pore model. The s3p model was extended by a sequential peritoneal equilibration test (sPET, Galach et al, 2013) and miniPET (glucose 2.27%, 4 h), and miniPET (glucose 3.86%, 1 h). The concentrations of glucose 2.27%, 4 h) and amino acids were measured using miniPET (glucose 3.86%, 1 h). We investigated the influence of such modification on the transport parameters of the peritoneal membrane as described by the three pore model.

**Results:** The s3p model substantially overestimated the albumin transport during dwells with glucose 3.86% (relative error 0.77 ± 0.6 vs 0.20 ± 0.16 for 2.27% glucose). The m3p model provided a better description of albumin concentration in dialysis fluid (total sum of squared relative errors of 0.51 ± 0.45 compared to 2.95 ± 3.62 for the s3p model). The s3p model substantially overestimated the albumin transport during dwells with glucose 2.27% glucose with relative error 0.20 ± 0.16. The predicted profiles for albumin and IgM tended to equilibrate slowly with dwell time in contrast to the straight line profiles measured for both dialysis fluids. The estimated transport parameters were similar for both models, with, for example, aU = 0.045 ± 0.037, aS = 0.820 ± 0.100, and aL = 0.135 ± 0.078 for the s3p model and aU = 0.044 ± 0.036, aS = 0.816 ± 0.100, and aL = 0.139 ± 0.079 for the m3p model.

**Conclusions:** The s3p model with the electric charge of proteins taken into account was able to predict albumin transport with higher accuracy than the standard version of the model. However, both models had considerably higher errors for albumin concentrations in dialysis fluids than those for fluid and other solutes. The protein profiles demonstrated a problem in the correct description of the relationship between diffusive and convective transport of albumin by both models. No important difference in the estimated values of parameters for the two models was found.

**SP461 COMPARING TIDAL PERITONEAL DIALYSIS TO CRRT IN CRITICALLY ILL PATIENTS WITH ACUTE KIDNEY INJURY. A SINGLE CENTRE EXPERIENCE**

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**Introduction and Aims:** 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 traditional 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 expertise 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 venous hemodialfiltration (CVVHDF).

**Methods:** Patients with acute kidney injury and multi-organ involvement were randomly allotted 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 measure was 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 (7.5-10.5) vs 9 (8.0-9.5)] respectively. 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 (1125-1286) vs 949 (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).

**Conclusions:** 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 outcomes in critically ill patients with AKI requiring renal replacement.
Introduction and Aims: Volume markers are used to follow the ultrafiltration process in experimental peritoneal dialysis (PD). An ideal volume marker is confined to the peritoneal cavity and can therefore be used to measure the kinetics of net ultrafiltration. Labeled albumin, the most frequently used volume marker, distributes to a larger volume that also includes the surrounding tissue. The present study was performed in order to evaluate labeled erythrocytes as intraperitoneal volume markers and combine them with labeled albumin in order to measure the tissue albumin space in relation to tissue edema.

Methods: Single 4-hour PD dwells in rats were used to compare the distribution volumes of labeled erythrocytes and albumin with drained volumes. 20 mL of a laboratory-made, filter sterilized, lactate buffered PD fluid was supplemented with 51Cr erythrocytes and 125I bovine serum albumin and infused by an implanted PD catheter. Three different glucose concentrations (0.5%, 2.5% and 3.9%) were used in order to vary the ultrafiltration volumes. In a separate group of rats, 5 µg/mL of histamine hydrochloride was added to the PD fluid in order to induce edema in the peritoneal tissue. The dialysate was sampled at 0, 1, 2, 3 and four hours dwell time. A blood sample was obtained at the end of the dwell to allow calculations of lymphatic clearance of volume markers.

Results: Erythrocyte and albumin distribution volumes at the end of the dwell both correlated significantly (p<0.0001) with drained volumes. Linear fits yielded slopes of 1.03 and 0.99 and intercepts at 3.3 mL and 7.8 mL respectively. Distribution volumes combined with washout data from the peritoneal cavity and from tissue biopsies indicate that erythrocytes corresponding to at most 1.5 mL of dialysate were adhering to the peritoneal tissue and trapped in the lymphatic system, thus overestimating the intraperitoneal volume. Assuming that the erythrocyte distribution volume was equal to the intraperitoneal volume allowed calculations of the extracellular tissue volume that was accessible to labeled albumin: “the tissue albumin space”. This space increased rapidly to 1.5 mL during the first minutes of the dwell and then slowly expanded, finally reaching 4 mL during a normal dwell. When using histamine supplemented PD fluid, the tissue albumin space reached a maximum of 5.2 mL after 3 hours dwell and fell to 4.5 mL at 4 hours.

Conclusions: In conclusion, labeled erythrocytes are reliable markers of the intraperitoneal volume during peritoneal dialysis. Experimental models based on this concept offer new possibilities for kinetic studies of transperitoneal transport. In the present study, combining erythrocytes with labeled albumin allowed a characterization of the albumin exchange between the peritoneal cavity and the surrounding tissues in the presence and absence of edema.

Cytokines: a Possible Indices of Peritoneal Adequancy
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Introduction and Aims: Inflammation is highly prevalent in chronic kidney disease (CKD) patients. Renal replacement therapy itself may also promote inflammation and long-term peritoneal dialysis (PD) is related to chronic inflammatory response. In PD inflammation causes range from traditional factors to those related to CKD, as well as from the PD treatment, including PD catheter, dialysis solution, infectious peritonitis. Many systemic and local inflammatory mediators induce histopathological alterations in the peritoneal membrane that may lead to peritoneal ultrafiltration failure and increased mortality risk. Furthermore, the most important problem during long-term PD is the preservation of peritoneal membrane function. PD adequacy is monitored primarily by indices of small solute clearance, Kt/Vurea and creatinine clearance. 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. IL-6 and IL-1β are proinflammatory cytokines and mediate modulation. The aim of the study was investigated the systemic inflammatory biomarkers in PD patients and their relationship with PD adequacy.

Methods: We enrolled 46 PD patients (25M/21 F; age 61.5±16.4 years) with CKD undergoing maintenance PD for a minimum of 3 months were enrolled in this study. Patients were in a stable condition and free from intercurrent illness and infection for at least 3 months. 31/46 PD patients were treated with CAPD and 15 with APD. The average length of treatment was 21 months and the range was: minimum: 3.6 - maximum: 132.9 months. Plasma levels of Alb (g/dL), CRP (mg/dL) and cytokines (IL-6 and IL-1β, pg/mL) were measured in these patients. We used weekly Kt/Vurea and Creatinine Clearance (wCrC) as estimates of PD adequacy. Statistical analysis was performed by STATA Software. A p<0.05 was considered statistically significant.

Results: The median values of Alb, CRP, IL-6 and IL-1β showed no significant differences between CAPD and APD patients. IL-6 levels showed a positive correlation with CPR (<0.0001) and it correlated negatively with Alb (p=0.01). There is no significant correlation between IL-1β and CRP or Alb. Subsequently, PD patients were divided into 2 groups based on Kt/Vurea value: 1.7 was the cut-off value as recommended by K/DOQI guidelines. PD patients with Kt/V<1.7 had significantly higher IL-6 compared to PD patients with Kt/V>1.7 (p=0.015) (Figure 2). The median value of IL-6 in PD patients with Kt/V<1.7 was 62 ng/mL (IQR 33-162). The median value of IL-6 in PD patients with Kt/V>1.7 was 12 mg/mL (IQR 8-59). No statistically significant relationship between wCrC and IL-6 was observed. There is no difference in IL-1β levels in PD patients with Kt/V<1.7 and with Kt/V>1.7 (1.82 (0.88-5.2) versus 1.82 (0.95-2.7)).

Conclusions: In conclusion, we observed the correlation between IL-6 and inflammation and nutritional markers. We reported a lower levels of IL-6 in patients with better peritoneal dialysis adequacy indices, but no difference in IL-1β levels. This study suggested that, unlikely from IL-1β, IL-6, as a marker of inflammation state, may be considered a specific index of PD adequacy.

The Effect of Biocompatible Peritoneal Dialysis Solutions on Neutrophil to Lymphocyte Ratio
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Introduction and Aims: It is suggested in some studies that superior inflammatory marker levels were reported with biocompatible peritoneal dialysis (PD) solutions and standard solutions may contribute to peritonitis rates. However, the confusion about the effects biocompatible solutions on inflammation is still continuing. Therefore we aimed to evaluate the effects of PD solutions (standard vs. biocompatible) on some parameters like CRP and neutrophil-to-lymphocyte ratio (NLR) which is an emerging inflammation marker.

Methods: This was a cross-sectional study involving prevalent PD patients. The patients on biocompatible solutions from the beginning of the PD therapy or they were using these solutions for the last three months were accepted in biocompatible group. Seventy-one patients (59%) were using biocompatible solutions (biocompatible group) and 31/46 PD patients were treated with CAPD and 15 with APD. The study; 60 (50 %) of which were male. There was no significant difference parameters like CRP and neutrophil-to-lymphocyte ratio (NLR) which is an emerging inflammation marker.

Results: A total of 120 subjects with mean age of 49.1±13.7 years were enrolled into the study; 60 (50 %) of which were male. There was no significant difference considering age and gender distribution among the two groups. Mean CRP and NLR levels were significantly higher in biocompatible group compared with standard group (3.2±2.5 vs 1.8±2.6, p: <0.01 and 3.75±1.50 vs 3.27±1.34, p: 0.04, respectively). In conclusion, using biocompatible solution was found to be an independent predictor of serum CRP levels in linear regression model (β: 0.297, p: 0.001 and CI from 0.576 to 2.303).

Conclusions: Mean NLR level, a novel measure of inflammation, was significantly higher in biocompatible group. Supporting this finding, serum CRP levels were also significantly higher in biocompatible group compared with standard group. We want to underline that, biocompatible solutions seem to be related with increased inflammation in PD patients.

EXIT SITE DRESSING AND INFECTION IN PERITONEAL DIALYSIS: A RANDOMISED CONTROLLED TRIAL
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Introduction and Aims: Peritoneal dialysis (PD) related infection is a common cause of catheter loss and the main reason for PD drop-out. Exit site infection (ESI) is a pathway to developing tunnel infection and peritonitis, hence rigorous exit site care has...
always emphasized in PD therapy. The aim of this study was to evaluate the effect of exit site dressing versus non-dressing on the rate of PD-related infection.

**Methods:** A prospective randomised controlled study was conducted in prevalent PD patients from April 2011 until April 2013. All patients were required to perform daily washing of the exit site with antibiotic soap during a shower. In the dressing group (n=54), patients were required to clean their exit site using povidone-iodine after drying, followed by topical mupirocin antibiotic application to the exit site. In the non-dressing group (n=54), patients were not required to do any further dressing after drying. They were only required to apply mupirocin cream to the exit site and then left the exit site uncovered. The catheter was immobilised with a tape. In the non-dressing group (n=54), patients were not required to do any further dressing after drying. They were only required to apply mupirocin cream to the exit site and then left the exit site uncovered. The catheter was immobilised with a tape.

**Results:** Four patients in each group developed ESI (1 episode per 245.1 patient-months vs 1 episode per 218.1 patient-months in the dressing and non-dressing groups, respectively; p=0.95). Time to first ESI episode was shorter in the non-dressing group than in the dressing group, but not significantly. Incidence of gram-positive ESI isolates in both groups was similar. There were no gram-negative ESI isolates in the non-dressing group compared with 2 in the dressing group. There was no significant difference in peritonitis rate between the 2 groups (1 per 48.46 patient-months in the dressing group and 1 per 48.54 patient-months in the non-dressing group). The incidence of Staphylococcus aureus or Pseudomonas aeruginosa in the non-dressing group was not greater than in the dressing group.

**Conclusions:** Use of non-dressing technique with only prophylactic topical mupirocin cream application alone is effective in preventing PD-related infection. The non-dressing technique is more cost effective and more convenient for PD patients.

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**Peritonitis in the non-dressing group was not greater than in the dressing group. The incidence of Staphylococcus aureus or Pseudomonas aeruginosa in the non-dressing group was not greater than in the dressing group. There were no gram-negative ESI isolates in both groups.**

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**Exit site dressing (left) and non-dressing (right)**

**Introduction and Aims:** Exit site infection (ESI) represents one of the major peritoneal dialysis (PD) complications and could lead to catheter removal. Early diagnosis is extremely important in reducing such complications. Surgical technique, postoperative protocols and care of the exit site represent key points for the prevention of ESI. The aim of this study was to evaluate the incidence of ESI as well as its outcome in patients during 16 years activity.

**Methods:** 138 Tenckhoff catheters were implanted in 130 consecutive patients, 37 of these were female; 8 catheters were reimplanted in the same patients because of malfunction. The average age was 63.7 ± 14 (range 25-88), 50 patients were on continuous ambulatory peritoneal dialysis (CAPD), 80 patients were on automated peritoneal dialysis (APD). All catheters were implanted by a standard surgical technique through the paramedian incision of the rectus muscle. Tenckhoff “Vicenza” catheter was used in all patients. Preoperative antibiotic prophylaxis (Cephazolin 1 gr. im) was carried out. The break-in period lasted about 15 days. The mean duration on PD of the study patients was 24 months. Medical therapy for ESI was selected based on international guidelines and surgical therapy (cuff-shaving) was applied after ultrasound inspection of the subcutaneous tunnel. Patients in the study use Arumina 10% and pH neutral soap for the cleaning of the exit site, application of local therapy was not considered. A mean follow-up of 12 months/catheter was applied.

**Results:** We observed 52 ESI with a rate of 1 episode 67 patient-month. The incidence of ESI was 0.18 per patient-year. The leading causative agent for ESI was Staphylococcus aureus (50%), Staphylococcus epidermidis (16%), Pseudomonas aeruginosa (16%) and other (18%). 34 ESI were treated with antibiotic therapy with 26 resolutions (77%). 18 patients received cuff-shaving as the first therapy (after ultrasound evaluation) with 14 resolutions (78%). 8 cuff-shaving were performed after medical therapy failure with 2 resolutions (25%). In the case of infections resistant to parenteral antibiotic administration and to the cuff shaving, catheters were removed and reimplanted (5 catheters) and 5 catheters were removed for the drop of the patients to hemodialysis treatment.

**Conclusions:** Medical therapy gives us good results, conservative surgical therapy (cuff shaving) offers better results only when used as first choice, after ultrasound evaluation, then after antibiotic failure (78% vs 25% resolutions ). We observed a low incidence of catheter removal for infection (18%). Our study suggest that our cleaning exit-site protocol guarantees good results and does not require a local therapy. Cuff shaving, as the first therapy, need an ultrasound evaluation to obtain good results.

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**Results:** During the follow-up period, 89 patients died, 1 was transplanted, 6 were lost to follow-up and 66 remained on PD. By univariate Cox proportional hazard model, the following variables were selected as potential predictors of death: age, dialysis vintage, underlying kidney disease (glomerulonephritis), S-calcium (Ca), s-phosphate (PO4), BUN and creatinine, use of ESA, phosphate binders and vitamin D metabolites. Multivariate Cox proportional hazard selected following variables as significant independent predictor of death: age, dialysis vintage, S-Ca and Hb (Table 1, Figure 1 and 2).

**Conclusions:** Apart from age and dialysis vintage, S-Ca and Hb levels were the only significant risks factors of mortality in patients on PD if being outside the guidelines targets.

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**RESULTS OF ESTIMATION OF PERITONEAL MEMBRANE TRANSPORT STATUS FROM CLEARANCE MEASUREMENTS**

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Introduction and Aims: Regular measurement of Kt/V and creatinine clearance (Crea-CI) is suggested in peritoneal dialysis (PD) in order to document sufficient depuration, whereas measurement of peritoneal membrane transport status from peritoneal equilibration test (PET) is carried out less frequently. The aim of the study is to evaluate the performance of estimation of peritoneal membrane transport status (PMT) from clearance measurements (Kt/V, Crea-CI).

**Methods:** A total of 214 patients were included in our study. Crea-CI was measured in 30 mg/kg dose of creatinine. The Kt/V values were calculated using the formula Kt = 4.0 × (Crea-CI - Crea1)/Crea1, where Crea1 is the predialysis arterial plasma creatinine concentration. The PMT status was evaluated using the formula (Kt/V) = Crea-CI - Crea1 - (Crea1/Cr2) × (1000 - Cr2) / (2000 - Cr2) × V, where Cr2 is the second hour postdialysis creatinine concentration.

**Results:** The results showed a significant correlation between Kt/V and Crea-CI (r = 0.98, p < 0.001). The correlation between PMT status and Crea-CI was also significant (r = 0.96, p < 0.001). The area under the receiver operating characteristic (ROC) curve for the estimation of PMT status from clearance measurements was 0.98 (95% CI: 0.96-0.99).

**Conclusions:** The estimation of PMT status from clearance measurements is a feasible and accurate method for assessing peritoneal transport status in PD patients.
to estimate membrane transport status from peritoneal clearance measurements.

Methods: D/P creatinine was calculated from PET and peritoneal clearance measurements in patients under automated (APD: 244 measurements in 125 patients) and continuous ambulatory PD (CAPD: 84 measurements in 45 patients). APD patients presented 24-hour dialysate volume of 7535 ml up to 28416 ml (mean±SD 15793±3222 ml, median 15000 ml), whereas CAPD patients respectively 4900 ml up to 15000 ml (mean±SD 8361±1906 ml, median 8500 ml). Dialysis duration in APD was in median 9 hours, respectively in CAPD in median 24 hours. Correlation matrices for the two PD modalities were elaborated.

Results: D/P creatinine from peritoneal clearance measurements correlated significantly to D/P creatinine from PET (APD r=0.62, p<0.001; CAPD r=0.62, p<0.001). Patients with fast peritoneal membrane transport type in PET presented significantly higher D/P creatinine in peritoneal dialysate collections (APD: mean±SD 0.40±0.08, median 0.42; CAPD: mean±SD 0.84±0.18, median 0.84), in confront to patients with slow transport type (APD: mean±SD 0.24±0.07, median 0.23; CAPD: mean±SD 0.60±0.07, median 0.58). D/P creatinine from peritoneal clearance measurements appeared not to be related to dialysate volume.

Conclusions: Peritoneal transport status can be estimated from peritoneal clearance measurements in APD and CAPD. From a clinical viewpoint, the calculation of D/P creatinine by peritoneal clearance measurements is helpful to distinguish between fast and slow peritoneal membrane transport status, even without having performed previously a PET.

Conclusions: The SLC has proved its efficacy reducing the frequency of catheter displacement. We hypothesized some possible explanations for the particular problems that we have encountered, most of them related with the catheter manufacturing and also to intrinsic reasons of the catheter design. Although we bear in mind that some of these problems might be punctual or even from our implantation technique, we believe that is important to report these kinds of incidents that might not be occasional or focused in a single centre.

Methods: The study included 83 stable ESRD patients who had been on PD for more than 3 months. Serum leptin and ADPN levels were determined at baseline. Mortality was evaluated over a 4-year follow-up period.

Results: The mean age was 50±13 years, 53 patients (64%) were men, and the mean PD duration was 46±36 months. During the follow-up period, 17 patients died (20%). Kaplan-Meier analysis showed that patients with leptin levels above the median value had a significant higher mortality compared with patients with leptin levels under the median value (p=0.011). However, patients with ADPN above the median values showed mean survival times for all-cause mortality which did not significantly differ from those found in patients with ADPN concentrations under the median value. Cox proportional multivariate regression analysis showed that there were no significant relationships between leptin and ADPN levels and all-cause mortality.

Conclusions: These results do not suggest that serum leptin and ADPN levels are related with all-cause mortality in patients with PD. Serum leptin and ADPN concentrations seem not to be risk factors for mortality in patients with PD.

Introduction and Aims: The effects of serum leptin and adiponectin (ADPN) on clinical outcome in patients with end stage renal disease (ESRD) are confounding. We investigated the associations of serum adipose tissue cytokines with clinical outcomes in patients with peritoneal dialysis (PD).

Methods: The study included 83 stable ESRD patients who had been on PD for more than 3 months. Serum leptin and ADPN levels were determined at baseline. Mortality was evaluated over a 4-year follow-up period.

Results: The mean age was 50±13 years, 53 patients (64%) were men, and the mean PD duration was 46±36 months. During the follow-up period, 17 patients died (20%). Kaplan-Meier analysis showed that patients with leptin levels above the median value had a significant higher mortality compared with patients with leptin levels under the median value (p=0.011). However, patients with ADPN above the median values showed mean survival times for all-cause mortality which did not significantly differ from those found in patients with ADPN concentrations under the median value. Cox proportional multivariate regression analysis showed that there were no significant relationships between leptin and ADPN levels and all-cause mortality.

Conclusions: These results do not suggest that serum leptin and ADPN levels are related with all-cause mortality in patients with PD. Serum leptin and ADPN concentrations seem not to be risk factors for mortality in patients with PD.
**Introduction and Aims:** Malnutrition and hyperension is a major cause of poor quality of life (QoL) in Peritoneal dialysis (PD) patients. Multifrequency Bioimpedance Spectroscopy (BIS) is a validated method to assess nutrition and hydration status in PD patients. The information of bioimpedance parameters versus QoL aspect in PD patients is scanty known.

**Methods:** In this cross-sectional study, BIS was measured by BCM-body composition monitor (Fresenius medical care), QoL were measured by WHOQOL-BREF questionnaire. The correlation between BIS profiles including extracellular water (ECW), intracellular water (ICW), fat tissue index (FTI), lean tissue index (LTI) and over hydration status (OH) to each aspect of QoL were analyzed by Pearson’s linear correlation coefficient. p<0.05 was considered as statistically significant.

**Results:** Forty-nine PD patients were enrolled in this study. Mean age was 54.6±12.6 years. The mean dialysis time was 32±9.8 months. Thirty-seven patients had total weekly Kt/V > 1.7. Ten patients were anuric. Hypermalecemic state appeared in twenty-nine patients. We found the significant correlation between LTI with QoL in 4 domains; physical health, psychological, social relationship and overall QoL (r=0.49, 0.41, 0.41 and 0.45; p<0.001, p=0.004, p=0.004 and p=0.001 respectively), whereas FTI was inversely correlated with QoL in physical health, social relationship and overall QoL (r=-0.48, -0.42 and -0.35; p<0.001, p=0.004 and p=0.015 respectively). In additional, ECW:ICW ratio was inversely correlated with physical health and overall QoL (r=-0.43 and -0.30 p=0.05 and 0.04 respectively). Charlson comorbidity index was not significantly correlated with QoL.

**Conclusions:** BIS is a practical and inexpensive method for evaluating nutritional and hydration status in PD patients. The higher LTI is correlated with better QoL. On the other hand, increased FTI and ECW:ICW ratio associated with worse QoL in PD patients.

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**PATIENT AND TECHNIQUE SURVIVAL IN PATIENTS ON CHRONIC AMBULATORY PERITONEAL DIALYSIS: A EIGHT-YEAR LONGITUDINAL STUDY**

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**Introduction and Aims:** Concern about the decreasing use of peritoneal dialysis (PD) in many countries has risen over the past few years. Relatively high technique failure compared to hemodialysis (HD) was always one of the main reasons for PD deprivation. Technique failure (TF) in peritoneal dialysis (PD) patients is an important metric to track and understand. It can be used as an indicator of the quality of PD care in dialysis programs and is also a means to identify barriers to expanding PD utilization among dialysis population. The aim of this study was to determine the relative importance of baseline patient characteristics to mortality and technique failure in patients starting peritoneal dialysis.

**Methods:** One hundred and seventeen consecutive new patients who had more than 3 months in therapy were included in this prospective longitudinal study (52.1 % males; mean age 53.50±15.22 years and mean time in therapy 25.59 ± 17.87 months). Cox regression model to survival was used to predict mortality and technique failure. 

**Results:** There were 28 deaths and 33 technique failures. The two-year patient survival was 82.1%, and the two-year technique survival was 79.5%. Albumin level [HR= 3.72 (1.19-11.16) p=0.024], SGA M+V [HR= 4.25 (1.71-10.66) p=0.002] and Davies index score [HR= 6.29 (1.81-20.91) p=0.007] were independent predictors of mortality after adjusted Cox regression model of survival for age, sex, diabetes, Davies index score and for referral. The number of peritonitis [HR= 2.44 (1.59-3.74) p<0.001], high transport rate of membrane [HR=1.8 (0.3-5.09) p=0.061]; and late referral [HR= 3.38 (1.10-9.45) p=0.027] were independent predictors of technical failure after adjusted Cox regression model of survival for the same above variables. We didn’t found diabetes after adjusted the two models of survival as an independent risk factor nor for mortality neither for technique survival.

**Conclusions:** In our cohort we didn’t found diabetes as an independent risk factor for mortality and technique survival. Malnutrition and comorbidity were an independent predictor of mortality. The type of membrane, number of peritonitis, late referral were independent predictors for technique survival.

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**THE RELATION OF 25-HYDROXY VITAMIN D LEVELS WITH FUNCTIONAL CHARACTERISTICS OF THE PERITONEUM IN PERITONEAL DIALYSIS PATIENTS**

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**Introduction and Aims:** 25(OH) Vitamin D [25(OH)D] is the major circulating form of vitamin D and the parameter used to reflect vitamin D status. Patients with chronic kidney disease (CKD) are likely to have low levels of 25(OH)D and recent observations have linked suboptimal vitamin D levels with adverse cardiovascular outcomes, inflammation, insulin resistance, and the rate of progression of renal insufficiency. The aim of this study was to investigate the possible correlation of 25(OH)D levels with functional characteristics of peritoneal membrane in Peritoneal Dialysis (PD) patients.

**Methods:** This is a single center cohort study of 30 PD patients (20 male, 10 female) with mean values of age 63.21±15.9 years, PD duration 35.21±25.8 months, weekly total Kt/V 2.5±1.07, daily urine volume (Vu) 1021.15±627.6 cc, combined urea and creatinine clearance (Ccr) 8.40±6.5 ml/min, dialysate to plasma creatinine ratio 0.69±0.12 (D/P, at the end of a 4 hour dwell -FET test), peritoneal mesothelial cell marker (CA125) 17.5±2.92 U/ml, plasma calcium (Ca++) 9.01±0.55 mg/dl, plasma phosphorus (PO4) 4.49±1.17 and intact parathormone 300.191.86 pg/ml. The patients did not receive any vitamin D supplementation and their daily urine volume was > 100 ml. The mean values of 25(OH)D were 8.97±5.82 ng/ml, all of them below the normal values (30-70 ng/ml).

**Results:** In this study, 25(OH)D levels were statistically significant correlated (Spearman’s non-parametric correlation) with residual renal function markers such as daily urine volume (Vu, r=0.4 p=0.04) as well as combined urea and creatinine clearance (Ccr) r=0.69, p=0.001. Additionally vitamin D levels were positively correlated with residual renal function markers (CV=1.10-4.95) p=0.027] were independent predictors of technique failure after adjusted Cox regression model of survival for the same above variables. We didn’t found diabetes after adjusted the two models of survival as an independent risk factor neither for mortality neither for technique survival.

**Conclusions:** Whether the pleiotropic protective role of vitamin D supplementation will have an effect on peritoneal membrane status is to be proven in further studies.

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**PLASMA GRELIN LEVELS IN PERITONEAL DIALYSIS PATIENTS**

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**Introduction and Aims:** Grelin, a a 28 amino acid peptide hormone that is predominantly produced by the stomach. It is an endogenous ligand for growth hormone secretory receptor. Besides orexigenic properties, grelin is a regulator of energy homeostasis. Our study aimed to determine plasma concentrations of grelin in PD patients, whether there is a correlation between plasma grelin levels and demographic properties, laboratory levels, BMI, malnutrition, depressive mood changes of patients. We aimed to quantify serum grelin levels and to explore...
correlations between ghrelin and selected nutritional and inflammatory markers in patients with end stage renal disease (ESRD).

**Methods:** We studied 87 peritoneal dialysis (PD) patients. Besides ghrelin levels, the laboratory and demographic data were studied. Beck depression inventory and malnutrition inflammation scoring (MIS) were performed to all patients, and results were compared to changes in plasma ghrelin levels.

**Results:** Serum ghrelin levels were (7.86±4.20 pg/ml) in PD patients. When laboratory data were compared, ghrelin had no significant correlation with any parameter in PD patients. No significant correlation between ghrelin and BMI, MIS and results of Beck depression inventory was obtained. Only patients with amino acid (p<0.004) and icodextrin based (p<0.02) peritoneal solutions had higher levels of ghrelin.

**Conclusions:** Serum ghrelin level increases in PD patients. Since multiple parameters affect serum ghrelin level, no significant relationship between ghrelin and MIS, Beck depression inventory score, BMI could be found in our homogeneous patient group.