LONGITUDINAL DATA OF PERITONEAL MEMBRANE FUNCTION BASED ON TWO-IN-ONE MODIFIED PET

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OBJECTIVES

Modified PET (use of 3.86% glucose dialysate instead of 2.27%) and temporal drainage after 60 min and final drainage after 240min (called two-in-one protocol of modified PET) gives information about sodium sieving, free water transport (FWT) and ultrafiltration failure(UFF).
Longitudinal data using this specific PET are sporadic. Aim of our study was a) longitudinal follow-up of the membrane function using this PET b) possible associations between membrane characteristics and clinical data c) evaluation of UFF and association with clinical characteristics.

METHODS

•We analyzed all two-in-one protocol of modified PET tests performed in our unit during the last 5 years. The patients should have performed at least two PETs to be included. We estimated classic peritoneal transport parameters like D/P creatinine and ultrafiltration (UF) at 4 hours. Moreover we calculated dipping of sodium [expressed as Dip D/P Na= (Dialysate sodium time 0 /plasma sodium)-(Dialysate sodium at 1 hour /plasma sodium)] and FWT. We collected clinical and lab data of the patients too.
•Means and standard deviations were used to describe the data collected for all the outcome measurements. After controlling for outliers and data skewness a mixed models approach was adopted to examine the effect of gender, age, duration, weight and albumin on D/PCre, DIP D/PNa, FWT and UFF measurements across time but also at each time point separately. The Tukey's HSD criterion was used to determine the observed significance level for within and between differences. Effects with a p-value <0,05 were considered statistically significant.

RESULTS

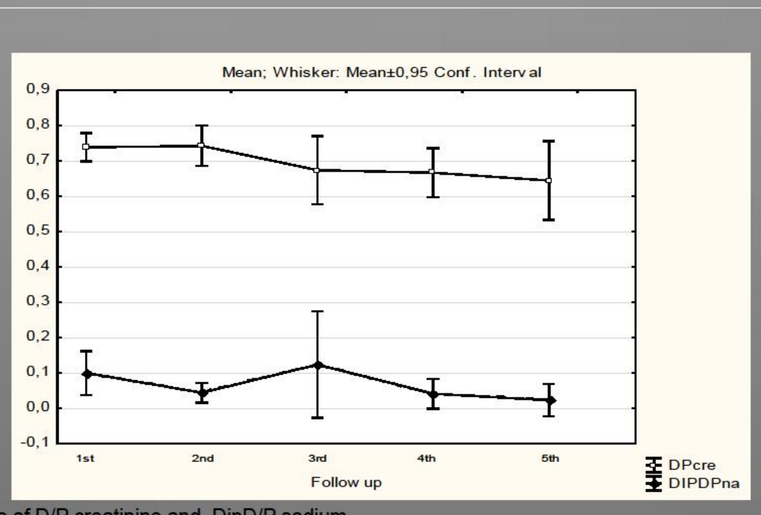

Fig 1. Time course of D/P creatinine and DipD/P sodium

	1st PET (n=47)	2nd (n=21)	3rd (n=12)	4th (n=7)	5th (n=5)	p value
D/P Cre (mean)	0.74	0.74	0.67	0.67	0.64	0,215
Dip D/PNa (mean)	0.10	0.04	0.12	0.04	0.02	0.527
FWT(ml)-median	205.7	134.9	356.5	109.5	83	0.468
UF(ml)-median	480.1	457.5	629.2	563.5	736	0.19

Table 1. Mean and median values of peritoneal transport determinants across time

•We included 92 PET of 47 patients. For the repeated measurements, the analysis showed that the observed values of D/PCre, Dip D/PNa, FWT and UF remain rather stable across the different time measurements (Fig 1) . Table 1 shows the mean values observed and the p values for the change across time for each measurement. Statistically significant correlations to weight, age, albumin, gender or duration on PD were not observed at any time point.
•In general, 18 (38%) patients presented UFF. Factors that were assumed to affect presence of UFF at any time were examined for statistical significance. Among these (age, gender, duration, albumin, D/PCre, Dip D/PNa) only D/PCre proved to be statistically significant (p=0,019) with higher values for UFF presence. (0,77±0,030 vs 0,72±0,027).

CONCLUSIONS

Surprisingly, our patients present a stable membrane function over time. Possible explanations could be the low peritonitis rate (0.14 infections per patientyears) and infrequent use of hypertonic glucose dialysates. Ultrafiltration failure –as expected-is correlated with higher baseline D/P creatinine values.

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