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DIALYSIS. PERITONEAL DIALYSIS - 1

FP552 A SIMPLE MODEL TO PREDICT ENCAPSULATING PERITONEAL SCLEROSIS IN PATIENTS UNDERGOING PERITONEAL DIALYSIS: A 20 YEARS PROSPECTIVE CONTROLLED LONGITUDINAL COHORT STUDY OF PERITONEAL MEMBRANE FUNCTION

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Introduction and Aims: Encapsulating peritoneal sclerosis (EPS) is an uncommon but severe complication of peritoneal dialysis (PD). Incidence of EPS increases with time on PD and mortality rate without therapy is about 50%. EPS has a good prognosis, if treated early, with both surgical and medical therapy. For these reasons, it is increasingly important to identify patients at risk of developing EPS. No screening tool is already reliable.The reduction in dialysate sodium concentration, at 60 minutes (ΔNa_{60}), during a peritoneal equilibration test with 3.86% glucose concentration (3.86%-PET), is expression of free-water transport. Some studies demonstrated that the decrease of ΔNa_{60} reflects both structural and functional damage of the membrane. The aim of this study was to evaluated whether the ΔNa_{60}, alone or in association with other parameters, is able to early detect patients who develop EPS.
Methods: We studied all incident patients starting PD at our Department from January 1994 to December 2014. In all these patients, a 3.86%-PET was performed during the first 12 months from the start of PD and then once a year. During 3.86%-PET we also evaluated peritoneal ultrafiltration (UF), the absorption of glucose (D/D_0) and transport of small solutes (D/P_{Creat}). To avoid reduced exposure to the risk associated with peritoneal dialysis were excluded patients with less than 12 months duration of peritoneal dialysis and patients who had a follow-up of less than 12 months after completion of the last 3.86%-PET.
We selected only patients with definite EPS (surgically or radiologically confirmed peritoneal membrane thickening and cocooning, in conjunction with weight loss and features of bowel obstruction).
Results: During follow-up, we studied 161 patients (male/female: 80/81, CAPD/APD: 107/54), median age 59.0 (50.5- 69.5) years at start of PD, median duration of PD 37.8 (24.7-58.3) months and 64.1 (34.5-108.3) months of follow-up. 13 patients (8%) developed EPS (male/female: 3/10, CAPD/APD: 7/6), median age 49 (43-61) years at start of PD, median duration of PD 72.7 (56.6-109.4) months and 105.0 (76.4-143.2) months of follow-up.
Table shows the areas under the receiver operating curve (AUC) about 1, 2 and 3 years before censoring time.
At the multifactorial analysis, the best AUC, predictive of EPS, about 1, 2 and 3 years (from left to right in Figure), before censoring time, were obtained considering age at start of PD, duration of PD, D/P_{Creat} and ΔDNa_{60}, while the prediction was not improved by adding to the model sex, serum albumin, the number of peritonitis, the UF, D/D_0 and PD modality (CAPD or APD).
Conclusions: In conclusion, it is possible to predict the onset of EPS, about 1 year, 2 years and 3 years before, using simple parameters such as age at start of PD, duration of PD, D/P_{Creat} and ΔDNa_{60}.

FP552 Table 1: The areas under the receiver operating curve (AUC) about 1, 2 and 3 years before censoring time.

Time before censor (months)	Time on PD	UF	D/D_0	D/P_{Creat}	ΔDNa_{60}
-13.1 (7.7-17.4)	0.89	0.84	0.78	0.81	0.90
-24.2 (18.9-28.7)	0.85	0.78	0.76	0.81	0.83
-36.1 (31.5-40.3)	0.78	0.72	0.67	0.83	0.85