



Assessment of Peritoneal Membrane Permeability by Tc-99m-Excretion in Patients Undergoing CAPD

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Aim: Among various conservative treatment modalities for end stage renal disease (ESRD), continuous ambulatory peritoneal dialysis (CAPD) is increasingly being used in many centres. The success of CAPD depends largely on the permeable characteristics of the peritoneal membrane. Peritoneal Equilibration Test (PET), first described by Twardowski in 1987, is the most commonly used method for determination of peritoneal membrane characteristics. However, this test has several limitations. In order to find an alternative method for assessing peritoneal membrane characteristics we undertook this prospective study involving 20 patients. The main objective was to determine whether peritoneal excretion of intravenously applied Tc-99m-DTPA can be used for this purpose.

Method: 20 patients undergoing regular CAPD were included in this study. 370 MBq (10 mCi) of Tc-99m-DTPA was injected intravenously in the same standard preconditions as for the PET evaluation. A standard dose of 370 MBq (10 mCi) DTPA was kept and used later for calculations. At the end of 4 hours, a dialysate fluid sample was collected and the total dialysis effluent volume was measured. Excretion of Tc-99m-DTPA into the dialysate fluid as percentage of injected dose was calculated. Simultaneously standard PET values were determined.

Results: The peritoneal excretion of Tc-99m-DTPA ranged from 8 to 16 % of the injected dose depending upon the peritoneal membrane permeability. The patients were divided into following four groups depending upon DTPA excretion.

High transporters	(15% and above)
High average	(12 -15%)
Low average	(10 - 12%)
Low transporters	(10% and less)

When the results were compared with standard PET values, a good correlation could be established.

Conclusion: We conclude that the radioisotope method using Tc-99m-DTPA can a good alternative technique to assess peritoneal membrane permeability.