Update on biocompatible peritoneal dialysis solutions

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Abstract

The composition of conventional dialysis solutions is different from that of the extracellular fluid in a number of aspects: it is acidic, lactate buffered, and contains glucose to induce fluid removal by crystalloid osmosis. The glucose concentrations are excessive and up to 215 mmol/L, because glucose is absorbed during a dialysis exchange. As a consequence of the required heat sterilization, glucose degradation products are formed, that have marked toxicity to cells. The so-called biocompatible solutions still have glucose, but are not acidic and contain less glucose degradation products. They may be buffered with bicarbonate, lactate or combinations of the two.

A review will be given on short and long-term effects of biocompatible dialysis solutions on inflow pain, peritoneal fluid transport and solute transport, advanced glycosylation end products formation, residual renal function, peritonitis incidence, long-term effects on peritoneal morphology, biomarkers, and transport, and on patient survival.

Over-all biocompatible dialysis solutions are not the final answer to the prevention of long-term peritoneal alterations, but definitely better than the conventional ones.

Biography:

Raymond (Ray) Krediet graduated in 1973 at the University of Amsterdam. In 1978 he completed his training as an internist-nephrologist and became Head of Nephrology at the Binnengasthuis in 1979 where he introduced treatment with continuous ambulatory dialysis (CAPD) in The Netherlands. In 1986 he was promoted on a PhD thesis, entitled "Peritoneal permeability in continuous ambulatory peritoneal dialysis patients". In 1999 he became Professor and Head of the Department of Nephrology at the Academic Medical Centre, University of Amsterdam. Professor Krediet supervised the research of 29 PhD students and is author of 542 publications in scientific journals. His h-index is 60 (WoS).

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