

Clinical Benefits of a Low Glucose Degradation Products Solution in Patients Starting Peritoneal Dialysis : Preliminary Report

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Objectives : In vitro studies of peritoneal dialysis (PD) solutions demonstrated that a lactate-buffered fluid with their pH-neutral and low glucose degradation products (LF) has better biocompatibility than a conventional acidic lactate-buffered fluid (CF). However, few clinical trials showed the benefits of the former on clinical parameters. We performed a prospective, randomized study with patients starting PD, in order to compare LF with CF.

Methods : Forty seven patients who commenced PD in four major centers in Korea were randomized to either six months of treatment with LF (n=18) or CF (n=29). In patients on LF, four patients discontinued treatment [death (1), switch to hemodialysis (1), transfer to another hospital (2)]. During treatment with CF, six patients discontinued [death (2), switch to hemodialysis (2), transfer to another hospital (2)]. Complete clinical data were available for thirty seven patients. Peritoneal function tests and adequacy measurements were undertaken at each study center on two occasions during the study : after four-week run-in period and after 6 months of treatment with each fluid.

Results : No differences between the two groups in the patient survival and technique survival rate were observed. In patients using LF, there were no significant changes in renal creatinine clearance, urine volume and peritoneal ultrafiltration over the treatment period. Conversely, in patients on CF, renal creatinine clearance and urine volume were significantly decreased, but peritoneal ultrafiltration was significantly increased over the six-month treatment period (29.3 (17.8-52.7) vs 12.6 (2.06-39.5) L/1.73m²/week, 600 (325-800) vs 420 (90-800) mL/day, and 950 (125-1,280) vs 1250 (950-2,000) mL/day, respectively). Total fluid removal (combined urine and ultrafiltration) was not changed in patients on each fluid. In LF-treated patients, body weight was significantly increased over the treatment period (63.0 (49.9-70.0) vs 65.0 (53.2-73.0) kg). No differences within groups and between groups were observed for dialysate-plasma creatinine ratio (D/Pcr), and KT/Vurea. The rate of peritonitis with LF was 3 episodes per 92 patient-months, while using CF there were 1 episode per 153 patient-months.

Conclusion : Over the 6-month treatment period, LF better preserved residual renal function and urine volume than CF. No differences in peritoneal solute transport rate (PSTR) were observed between LF and CF.