of glucose degradation products (GDPs), combined with recent Japanese PD practice, might exert a favorable effect on peritoneum (4,5).

Here, we report the case of a 62-year-old woman whose peritoneal morphology was preserved during 10 years of PD under recent Japanese clinical practice.

CASE DESCRIPTION

A 62-year-old Japanese woman with end-stage renal disease as a result of autosomal dominant polycystic kidney disease was initiated on PD in 2001. Daily PD combined with once-weekly hemodialysis (HD) was started when she became anuric in 2006. She had been treated with Dianeal PD-4 (Baxter Healthcare Corporation, Deerfield, IL, USA) for the first 6 years. The concentrations of electrolytes and buffer in that solution were 132 mEq/L Na^+ , 2.5 mEq/L Ca^{2+} , 0.5 mEq/L Mg^{2+} , 95.0 mEq/L Cl^- , and 40.0 mEq/L lactate, with a pH between 4.5 and 5.5.

After transfer to our hospital, this patient's dialysate was changed to Midpeliq L (Terumo Medical Corporation, Tokyo, Japan), with which she was treated for the subsequent 4 years. Midpeliq L comes in a double-chambered solution bag and, compared with Dianeal PD-4, has about one fifth the concentration of GDPs (4,6). The final concentrations of electrolytes and buffer in Midpeliq L are 135 mEq/L Na^+ , 2.5 mEq/L Ca^{2+} , 0.5 mEq/L Mg^{2+} , 98.0 mEq/L Cl^- , and 40.0 mEq/L lactate, with a pH between 6.3 and 7.3. Osmolarity of the solution is 350 mOsm/L (1.35% glucose) or 414 mOsm/L (2.5% glucose).

Our patient experienced no episodes of peritonitis during PD therapy. Her peritoneal function remained stable, with constant dialysate-to-plasma creatinine values in peritoneal equilibration tests of about 0.4 – 0.5 throughout her PD therapy. Her PD regimen before transfer to HD was automated PD with 5 L 1.35% glucose dialysate and 5 L 2.5% glucose dialysate (mixed during automated PD to yield a glucose concentration of about 1.9%), with three 4-hour exchanges using Midpeliq L. No change was made in the regimen throughout the treatment period.

Our patient was transferred to HD at the time of her retirement. Her PD catheter was removed in April 2011. Microscopic examination of parietal peritoneum obtained at the time of catheter removal revealed almost normal peritoneal structure (Figure 1).

DISCUSSION AND CONCLUSIONS

It is well documented that, after several years of PD, the peritoneum is damaged in almost all PD patients

Normal Peritoneal Histology After Ten Years of Peritoneal Dialysis in a Contemporary Japanese Patient

Editor:

Recent advances in clinical practice and improved biocompatibility of dialysate might reduce the risk of peritoneal damage in peritoneal dialysis (PD) patients.

In long-term PD patients, morphology changes of peritoneum include denudation of peritoneal mesothelial cells, interstitial sclerosis, and hyalinizing vasculopathy (1). Almost all long-term PD patients show abnormal peritoneal histology (2,3). Introduction of biocompatible fluids with a neutral pH and lesser concentrations

Figure 1 — Microscopic examination revealed unremarkable changes in parietal peritoneum (hematoxylin and eosin stain).

and that the damage progresses with time on PD (1,3). Accumulating evidence suggests that several factors contribute to peritoneal damage in PD patients, including chronic uremia, peritonitis, and long-term use of bioincompatible fluids (1–3). Recent approaches to improve PD technique survival in Japan involve the introduction of combination therapy with HD, especially for anuric patients; prevention of peritonitis through patient education; and use of biocompatible dialysis solutions (lower concentrations of GDPs and neutral pH).

Recently, Tejde *et al.* reported 2 patients who developed encapsulating peritoneal sclerosis, a severe form of peritoneal damage, in spite of using neutral-pH dialysate (7). However, in both cases, the patients had experienced repeated peritonitis episodes and were rapid peritoneal transporters who required icodextrin.

Our patient was treated for the first 6 years with conventional glucose solution having a significant GDP content and low pH. She had achieved good fluid management and did not develop peritonitis, and her peritoneal function remained stable throughout PD therapy (0.4 – 0.5 by peritoneal equilibration test). Those factors might collectively exert a favorable effect on peritoneal morphology despite long-term PD.

DISCLOSURES

The authors have no financial conflicts of interest to declare.

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doi:10.3747/pdi.2012.00186