Effects of CAPD on hepatosteatosis and lipid profile

Sir,

Non-infectious complications that may occur in patients on continuous peritoneal dialysis (CAPD) include hernia formation, leaks (including hydrothorax or pleuropertitoneal leaks), local oedema, back pain and gastrointestinal problems, such as gastro-oesophageal reflux and delayed gastric emptying. CAPD is associated with a number of metabolic abnormalities. These include lipid abnormalities, most commonly hypertriglyceridaemia, increased very low-density lipoprotein (VLDL) cholesterol and decreased high-density lipoprotein (HDL)-cholesterol levels; carbohydrate abnormalities, a result of the absorption of large quantities of glucose; protein losses, consisting of albumin and amino acid losses; and a propensity to obesity. In our study, we investigated whether patients on CAPD had increased tendency to fatty liver and changes of lipid profile.

We studied 22 patients with end-stage renal disease (ESRD) on chronic peritoneal dialysis: 14 females and eight males with a mean age of 38.8 ± 15.5 (16–71) years. We measured the height and dry weight of all patients. Body mass index (BMI) was calculated by dividing the weight (kg) by height squared (m²). At the time of sampling, no patients had diabetes mellitus. No patient was hepatitis B virus (HBV) and anti-hepatitis C virus (HCV) positive. The patients had no history of significant alcohol consumption. In all patients, serum fasting glucose, urea, creatinine, albumin, ALT, AST, cholesterol, triglyceride, HDL-cholesterol, low-density lipoprotein (LDL)-cholesterol and VLDL-cholesterol were measured, and liver ultrasonography was performed by the same radiologist.

Grade I fatty liver was revealed in nine patients (40.9%). Patients with hepatosteatosis detected by ultrasound were compared with patients without hepatosteatosis. No differences were observed in terms of blood glucose, total cholesterol, triglyceride, HDL, LDL, VLDL, ALT, AST and albumin levels (respectively \( P = 0.23, 0.53, 0.74, 0.86, 0.91, 0.57, 0.27, 0.20 \) and 0.85) (Table 1). Oreopoulos et al. reported alterations in the morphology of the superficial liver lobuli of dialysed rats [1]. In several studies, it was described that hepatic subcapsular steatosis was specific to diabetic CAPD patients on intraperitoneal insulin treatment [2–4]. In our study, the follow-up time is relatively shorter (mean 22.4 ± 14.3, 3–72 months). Further long-term studies are needed in larger series in order to elucidate better the relationship of hepatosteatosis and lipid profile in CAPD patients. As far as we know, there is no similar study in the literature on the effects of CAPD on hepatosteatosis.

Conflict of interest statement. None declared.


Table 1. The relationship of hepatosteatosis and demographic and laboratory parameters in CAPD patients

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Fatty liver (mg/dl)</th>
<th>No fatty liver (mg/dl)</th>
<th>( P )</th>
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</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>44.7 ± 15.9 (23–71)</td>
<td>34.5 ± 14.7 (16–62)</td>
<td>0.14</td>
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<td>Gender (F/M)</td>
<td>6/3</td>
<td>8/5</td>
<td>0.80</td>
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<tr>
<td>BMI (kg/m²)</td>
<td>24.1 ± 6.9 (18.3–41.3)</td>
<td>22.6 ± 4.3 (17.1–30.7)</td>
<td>0.57</td>
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<td>Time on dialysis (months)</td>
<td>26.1 ± 20 (10–72)</td>
<td>18.3 ± 8.9 (3–36)</td>
<td>0.30</td>
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<tr>
<td>Glucose (mg/dl)</td>
<td>98.1 ± 12 (78–120)</td>
<td>91.8 ± 11.8 (73–111)</td>
<td>0.23</td>
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<tr>
<td>Albumin (g/l)</td>
<td>3.6 ± 0.6 (2.6–4.3)</td>
<td>3.6 ± 0.3 (3.1–4.1)</td>
<td>0.85</td>
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<tr>
<td>Triglyceride (mg/dl)</td>
<td>150.8 ± 82.4 (57–320)</td>
<td>164.8 ± 103 (47–420)</td>
<td>0.74</td>
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<td>Cholesterol (mg/dl)</td>
<td>173.4 ± 48.3 (85–249)</td>
<td>183.3 ± 23.8 (146–224)</td>
<td>0.53</td>
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<tr>
<td>HDL-cholesterol (mg/dl)</td>
<td>42 ± 6.5 (33–52)</td>
<td>43 ± 15.1 (16–71)</td>
<td>0.86</td>
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<td>LDL-cholesterol (mg/dl)</td>
<td>97.7 ± 42.5 (24–156)</td>
<td>99.4 ± 31.3 (17–144)</td>
<td>0.91</td>
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<td>VLDL-cholesterol (mg/dl)</td>
<td>33.8 ± 18.8 (11–64)</td>
<td>29.4 ± 14.9 (9–56)</td>
<td>0.57</td>
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<tr>
<td>ALT (U/l)</td>
<td>24.8 ± 13.6 (6–55)</td>
<td>17.8 ± 14.3 (7–62)</td>
<td>0.27</td>
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<tr>
<td>AST (U/l)</td>
<td>20.7 ± 9.8 (10–44)</td>
<td>16.3 ± 5.4 (8–27)</td>
<td>0.20</td>
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</table>