amongst the dialysed patients, and low age of patients on dialysis, in spite of well-developed dialysis treatment. The data on RRT in Croatia were at that time based on the compilation of group reports from dialysis centres. The Croatian Registry for RRT, based on individual patient data, was completed in the year 2001. All dialysis (40) and transplant (two) centres contributed individual data for all treated patients.

According to the 2001 Report of the Croatian Registry for RRT, prevalence of RRT was 657 p.m.p., with an annual increase of 5.7%. Distribution among haemodialysis, CAPD and transplantation treatment modalities was 79, 6 and 15%, respectively. The median age of dialysis patients was 59 years, while 38% of them were ≥65 years old. There were 18% of diabetics among the prevalent dialysis patients.

The incidence of RRT in 2001, from the first day of treatment, was 112 p.m.p. Median age of new patients was 62 years, and 43% were ≥65 years old. Diabetic nephropathy was the leading cause of renal failure in incident patients, accounting for 29%. In the additional 3% of incident patients diabetes was present as a co-morbid condition.

Participation of patients with diabetes in the dialysis program in Croatia is significant (32% of incident patients and 18% of prevalent patients). Improved quality of the Croatian Registry, achieved by collecting individual patient data, enabled correction of erroneous conclusions derived from group reports. Prevalence of diabetes in dialysis patients had been underestimated by almost half (9.5 instead of 18%), and percentage of dialysis patients aged 65 years or more by a third (25 instead of 38%).

Croatia is affected by general epidemiological trends, exemplified by increasing patients’ age and a growing participation of diabetics in dialysis, in accordance with the attained rate of RRT. Endemic nephropathy (4% of prevalent patients) does not modify substantially the epidemiological situation in Croatia. A positive correlation between dialysis prevalence and the percentage of diabetics among dialysed patients is invariably present, in the registry data from various European regions [2], and in longitudinal epidemiological data from the USA [3] and Australia [4].

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Adult polycystic kidney disease in patients on haemodialysis in the south of Brazil

Sir,

About 5–10% of chronic dialysis patients have adult dominant polycystic kidney disease (ADPKD). Few epidemiological data on this disease are available in Brazil. The purpose of our investigation was to study the prevalence of ADPKD in Porto Alegre, a city in the south of Brazil.

Case. We studied patients in 15 haemodialysis centers, searching in particular for patients who had a family history and imaging findings compatible with the diagnosis of ADPKD. The control group was composed of patients who were also on dialysis but did not have evidence of this hereditary disease.

Of the 975 adult patients that composed the study population, 74 had ADPKD as the primary cause of chronic renal failure, corresponding to 7.6% of the total dialysis patient population in Porto Alegre (Table 1).

Comment. In Brazil, epidemiological data about ADPKD have only been collected for the state of São Paulo, showing a prevalence rate of 3% in dialysis patients [1]. This prevalence is well below that found in our study and also those in American and European studies. This may be a consequence of either incomplete assessment or a different ethnic composition of the population in São Paulo.

Similar findings to ours have been published in other countries. In the USA, 8–10% of dialysis patients have this diagnosis [2]. In European studies, the prevalence of this pathology is about 10% [3]. As the majority of the Porto Alegre population is of European descent, we can state our data are compatible with data from other white populations. A lower prevalence is found in Asia, where only 2.5–3.2% of dialysis patients have ADPKD [4].

ADPKD affects both sexes similarly [4]. In our sample, there were more men (53%) than women (47%). This difference, though not significant, may be partially explained by the higher number of men than women in chronic dialysis programmes.

Table 1. General sample characteristics

<table>
<thead>
<tr>
<th></th>
<th>ADPKD patients (n = 74)</th>
<th>Controls (n = 901)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>53.8 ± 11.0</td>
<td>53.2 ± 16.1</td>
<td>0.77</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male (%)</td>
<td>39 (53)</td>
<td>517 (57.8)</td>
<td>0.44</td>
</tr>
<tr>
<td>Female (%)</td>
<td>35 (47)</td>
<td>384 (42.2)</td>
<td>0.44</td>
</tr>
<tr>
<td>Ethnic background</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White (%)</td>
<td>51 (85.7)</td>
<td>578 (74.3)</td>
<td>0.44</td>
</tr>
<tr>
<td>Black (%)</td>
<td>23 (14.3)</td>
<td>320 (25.4)</td>
<td>0.44</td>
</tr>
</tbody>
</table>

Conflict of interest statement. None declared.

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Sir,

Peptic ulcer and its complications may easily develop after renal transplantation in the setting of already damaged gastrointestinal mucosa and/or in the presence of Helicobacter pylori infection [1,2]. We report upper gastrointestinal endoscopy (UGE) findings and the incidence of H. pylori infection in children on intermittent haemodialysis (HD) treatment.

Twenty-five children with end-stage renal disease (ESRD) aged 4–18 years (12.3 ± 3.9) and on intermittent HD for 0.3–8 years (2.7 ± 2.1) were investigated. None of the patients received antibiotics, steroids, antacids, proton-pump inhibitors, H2 receptor antagonists or non-steroidal anti-inflammatory agents prior to the study. UGE was performed in all patients by a single endoscopist, a paediatric gastroenterologist. Antral mucosal biopsy for detection of H. pylori by urease test was performed in 22/25 patients. We analysed gastrointestinal (GI) symptoms (obtained by interviewing patients and their parents), endoscopic findings, urease test results and blood type.

One or more GI symptoms (nausea, vomiting, epigastric pain, anorexia, melena) were present in 56% (14/25) of all patients. We found abnormal UGE findings in 56% (14/25) of all patients. Gastritis and duodenitis were defined as the presence of erythema, oedema, friability, exudates, erosions, atrophy, vascular pattern, nodularity and/or subepithelial haemorrhage on endoscopic examination, and the severity of features was graded as mild, moderate or severe [3,4]. Gastritis and/or duodenitis, with or without erosive lesions, were most frequently seen. This is in agreement with previously reported data both in children and adults [5–7]. In contrast with a previous claim that peptic ulcers are more frequent in children on dialysis (84% of investigated children were on HD and 16% were on peritoneal dialysis) [5], we did not find peptic ulcers in our patients, which is in agreement with reports in adult patients [7,8]. Helicobacter pylori was positive in only 2/22 patients (9%), comprising the 15% (2/13) of those who had lesions on UGE. These results are in disagreement with other data reported in children on dialysis, showing that 62.5% of patients with lesions on UGE were also positive for H. pylori [5]. Results in adults are controversial, showing both a positive [9] and a negative [10] association of H. pylori with GI lesions in ESRD patients. Mostly negative H. pylori results suggest that other factors may be more important in causing upper GI lesions in this population, such as elevated gastrin level, increased production of gastric acid, delayed gastric emptying, complex disorder of GI motility and uraemic toxicity [11,12]. Positive UGE findings were found both in patients with and without GI symptoms. Ten out of 14 (71%) patients who had GI symptoms also had abnormal endoscopic findings. As many as 4/11 (36%) patients who did not have GI symptoms, had GI lesions on UGE. Sixty-four percent of our patients with GI lesions had a blood type ‘O’. A significant positive correlation was found between GI symptoms and abnormal UGE findings (r = 0.440, P < 0.05) and length of HD and GI symptoms (r = 0.390, P = 0.05). There was no correlation between H. pylori and GI symptoms, H. pylori and endoscopic findings, or between endoscopic findings and length of HD treatment.

Our study did not include a control group, since this would entail subjecting healthy children to a relatively invasive procedure of UGE and antral mucosal biopsy for H. pylori detection. Studies on otherwise healthy children with upper GI symptoms and abdominal pain showed an incidence of H. pylori infection from 14.1 to 33.7% [13–15], with association of H. pylori infection with peptic ulcer disease and gastritis ranging from low [13] to very high [14,15]. In our study, none of the patients had peptic ulcer, while of 14/25 patients with GI symptoms, only 1/14 (7%) was positive for H. pylori and had abnormal UGE findings, showing that the prevalence of peptic ulcer disease and H. pylori infection is markedly lower in children on HD than in the non-renal disease paediatric population, which is contrary to a previous report on children on dialysis [5], but in agreement with reports on adults [7,8,10].

Mucosal biopsies were not taken for histological evaluation of the mucosa in our study since inflammatory disorders and ulcers of the GI mucosa are readily identifiable endoscopically and histological evaluation is not necessary unless a distinctive type of GI inflammation is suspected [4]. Further studies that would include histological evaluation of mucosal biopsies are needed to better explain the specific type and aetiology of mucosal lesions seen by UGE in children on chronic HD.

In conclusion, there is a high prevalence of upper GI lesions in children on chronic HD. Factors other than H. pylori cause most of the upper GI lesions in this population. Positive UGE findings are frequently found in patients without GI symptoms. We suggest that UGE be included in all protocols for preparing children on HD for renal transplantation.

Conflicts of interest statement. None declared.

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6. H.pylori infection is markedly lower in children on HD than in the non-renal disease paediatric population, which is contrary to a previous report on children on dialysis [5], but in agreement with reports on adults [7,8,10].

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