Renal replacement therapy in Bosnia and Herzegovina: report of the Society of Nephrology, Dialysis and Transplantation of Bosnia and Herzegovina

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Keywords: Balkan endemic nephropathy; epidemiology; incidence of dialysis treatment; political and economic climate; prevalence of dialysis treatment

Introduction

Renal replacement therapy (RRT) had been established in Bosnia and Herzegovina before the war in 1992–1995. During the war, the activity of the dialysis centres could only continue because of donations of supply provided by Medicine Du Monde and the European Union [1]. Since 1997, the expenses of dialysis treatment are again met by the government of Bosnia and Herzegovina.

In 1997, the Society of Nephrology, Dialysis and Transplantation of Bosnia Herzegovina was founded and continues to receive organizational and financial help from Medicine Du Monde. In 1999, the society founded the renal registry of Bosnia and Herzegovina. Complete data reporting was achieved in 2001, covering all 20 dialysis centres in Bosnia Hercegovina, with a return rate of 100%. In the following, we report some of the data concerning this part of Europe, which continues to struggle with political and economical difficulties.

The data were obtained using a questionnaire and covering the years 2000 and 2001. We asked for details concerning the centre (premises, equipment, number of staff, type of water treatment), the number and characteristics of patients (age, gender, primary renal disease, type of renal replacement therapy, mortality, transplantation). We respected the 'rule of 90 days', i.e. we included only patients who had been on dialysis treatment for more than 3 months [2].

Incidence and prevalence

Bosnia and Herzegovina currently has an estimated 3 000 000 inhabitants. The figures from the last census in 1991 are unreliable because of the dramatic changes due to war conditions. The prevalence of patients on renal replacement therapy is 450 p.m.p. These figures compare with a prevalence of 438 p.m.p. in Croatia, 266 in Lithuania, 231 in Slovenia and 680 in Austria. There are notable differences between Herzegovina in the south with a prevalence of about 203 p.m.p. and North Eastern Bosnia, a region with 300 000 inhabitants, a high frequency of Balkan endemic nephropathy, and a prevalence of RRT of ~1030 p.m.p. The incidence of new patients on RRT is 70 p.m.p., compared with 102 in Croatia, 70 in Lithuania, 110 in Slovenia and 130 in Austria.

Dialysis treatment is available today for every patient with end-stage renal disease regardless of age, gender or primary renal disease. Of the registered 1265 chronic dialysis patients in December 2001, 587 were women and 678 men; 52% of the patients were over 55 years of age and 21% above age 65 years. Only three children less than 15 years of age were reported and two of these were on CAPD. Sixteen per cent of the prevalent patients have been on chronic dialysis for <1 year. Only 10 patients (0.8%) had been on dialysis for >20 years. The majority of patients are on treatment for 1–5 years (47%), 5–10 years (20%) and 10–20 years (12%). Only 1.6% of patients overall are on CAPD. The breakdown according to primary renal disease is given in Table 1.

Centres

There are 20 dialysis centres including three University hospitals and one private dialysis centre. They employ 280 nurses and 52 physicians. One nurse is responsible...
Dedicated machines for anti-HCV-positive patients. Separated in haemodialysis centres. Only two centres provide hepatitis B vaccine since 1997. Hepatitis B-positive patients were HCV positive. Thirty-two per cent of the patients had received Thirteen per cent of the patients were HBs-Ag positive and 40% anti-Unknown causes 226 19.5

Other 45 3.9

Renal vascular disease 30 2.6

Diabetes mellitus 107 9.2

Obstructive uropathy 14 1.2

Renal tuberculosis 10 0.9

Chronic pyelonephritis 181 15.6

Balkan endemic nephropathy 195 16.8

Chronic glomerulonephritis 216 18.7

Table 1. Distribution of patients on chronic dialysis treatments in Bosnia and Herzegovina according to primary renal disease

<table>
<thead>
<tr>
<th>Primary renal disease</th>
<th>Patients (n)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic glomerulonephritis</td>
<td>216</td>
<td>18.7</td>
</tr>
<tr>
<td>Balkan endemic nephropathy</td>
<td>195</td>
<td>16.8</td>
</tr>
<tr>
<td>Chronic pyelonephritis</td>
<td>181</td>
<td>15.6</td>
</tr>
<tr>
<td>Renal tuberculosis</td>
<td>10</td>
<td>0.9</td>
</tr>
<tr>
<td>Nephrolithiasis</td>
<td>28</td>
<td>2.4</td>
</tr>
<tr>
<td>Reflux nephropathy</td>
<td>17</td>
<td>1.5</td>
</tr>
<tr>
<td>Adult polycystic kidney disease</td>
<td>89</td>
<td>7.7</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>107</td>
<td>9.2</td>
</tr>
<tr>
<td>Obstructive uropathy</td>
<td>14</td>
<td>1.2</td>
</tr>
<tr>
<td>Renal vascular disease</td>
<td>30</td>
<td>2.6</td>
</tr>
<tr>
<td>Other</td>
<td>45</td>
<td>3.9</td>
</tr>
<tr>
<td>Unknown causes</td>
<td>226</td>
<td>19.5</td>
</tr>
</tbody>
</table>

Thirteen per cent of the patients were HBs-Ag positive and 40% anti-HCV positive. Thirty-two per cent of the patients had received hepatitis B vaccine since 1997. Hepatitis B-positive patients were separated in haemodialysis centres. Only two centres provide dedicated machines for anti-HCV-positive patients.

for an average of 14 haemodialysis treatments per week and one doctor for 73 haemodialysis treatments per week. Two dialysis centres work in four shifts and the others in two or three shifts. Eighty-seven per cent of the patients receive 12 h of haemodialysis treatment per week (3 x 4 h).

All centres operate with reverse osmosis water treatment; dialysers are not reprocessed. Bicarbonate haemodialysis treatment is provided for ~70% of the patients, and one centre provides high-flux haemodialysis (7.5% of all patients in Bosnia Herzegovina). Thirty-five per cent of the patients receive erythropoietin, but the frequency varies between centres. Ninety-two per cent of the patients have native arteriovenous fistulae and the rest have subclavian catheters or PTFE grafts.

Mortality

During 2000, 125 patients died (15%) at an average age of 57 years. The most frequent causes of death were ischaemic heart disease and congestive heart failure (40%), cerebrovascular accidents (23%), septicemia (7%), liver failure (7%), malignancy (7%) and vascular access problems (5%).

Transplantation

After the war, 37 kidney transplantations from living-related donors were performed in the University Hospital of Tuzla and State Hospital Sarajevo. Eleven patients received a cadaveric graft. A further 50 patients were transplanted in foreign centres, 20 of them receiving kidneys from living unrelated donors in India. Currently, 107 patients (8.5%) are alive with functioning kidney grafts.

Look into the past and look into the future

Dialysed patients had to live under the most adverse conditions during the war and mortality was frightening, although accurate data are not available. By way of example, we report on the dialysis centre in Tuzla, the largest in Bosnia Herzegovina. The mortality of chronic dialysis patients had been 10–15% per year before 1992. In 1992 it had risen to 30% and in 1993 Tuzla was isolated and devoid of any supplies. Patients could be dialysed only for 8 h per week and mortality had risen to 41%. Subsequently, owing to the efforts of Medicine Du Monde, mortality has decreased to 16% in 1996 and to 14.5% in 2001.

Another development is that many dialysed patients who had gone abroad have now returned to the dialysis centres in their home communities. This has created additional problems, financial and otherwise. There is still significant migration within Bosnia, and accurate data are not currently available. Nevertheless, comparison of our incidence and prevalence data with those reported by the ERA/EDTA indicates that figures are substantially lower in Bosnia Herzegovina than in most European countries. They are higher than in some underdeveloped countries, for instance Iran [3,4]. Comparison with other countries in Eastern Europe also shows that the figures on prevalence are lower than in Croatia or the Czech Republic, but significantly higher than in Romania, Poland or Bulgaria [5]. Our best estimate on the incidence of patients entering renal replacement programmes in Bosnia Herzegovina is 79 p.m.p., similar to that reported for Estonia [5]. It is of note that in the region where Balkan endemic nephropathy is prevalent, it reaches more than 200 p.m.p.

It is also striking that, as in other countries of Eastern Europe, the use of CAPD is low. During the war, CAPD had been completely abandoned, but in the past 3 years the numbers of patients on CAPD has risen slowly. Nevertheless, the percentage of patients maintained on CAPD in Bosnia and Herzegovina (1.6%) is substantially lower than in other Eastern European countries, except in Macedonia [5].

Before 1992 a transplantation programme existed in Sarajevo which mainly used living-related kidney donors. These activities ceased entirely when the war started. It was only in 1998 that a kidney transplantation programme was restarted. Because of local difficulties, the numbers are still low. One of the challenges to nephrologists in Bosnia Herzegovina is to re-establish an active renal transplantation programme.

What tasks do we envisage for the Society of Nephrology, Dialysis Transplantation of Bosnia and Herzegovina? There is a lot to do: education of nephrologists and nurses in renal units, implementation of acceptable standards in all dialysis centres, continuation of the renal registry, increasing the number of patients on peritoneal dialysis and improvement in the quality of patient care, e.g. provision of erythropoietin therapy and measures to decrease the incidence of HCV-positive patients, etc.
References


