The epidemiology of chronic renal failure and provision of renal services in Albania

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Abstract Tirana, the only dialysis facility in Albania (pop 4 million), has a stock of 12 patients and three haemodialysis machines. To determine the need for renal services in Albania we studied the incidence and outcome of patients with chronic renal failure (CRF) referred to the renal service in Tirana (pop 300,000) over 1 year. Case-notes of all patients with a serum creatinine concentration ≥ 300 µmol/l during the study period (1992) were examined and outcome at 2 years recorded for each patient.

In all, 84 patients (mean age 41.6 ± 17.5 years, 56% male) were referred to nephrologists of whom 35 (42%) came from Tirana, giving an annual incidence of 116 per million pop. 77% were under 40 and had no co-morbid illness. Glomerulonephritis, the most common renal diagnosis, affected 26% patients. 22% patients (mean age 38 ± 18.1) died within 2 years and only 5% received dialysis. The mean age of those who received dialysis was 29 ± 8.3 compared with those who were not dialysed (42 ± 18.0). The 59 patients (24 from Tirana i.e. 80 per million) who were alive with advanced CRF (creatinine > 500) had a mean creatinine of 623 ± 93 µmol/l and would be candidates for dialysis. Patients with progressive renal failure in Albania are regularly followed and treated with antihypertensives and dietary modification. The need for RRT, however, is not being met even for young patients with no co-morbidity.

Key words: Albania; chronic renal failure; incidence; prevalence; end-stage renal disease; dialysis

Introduction

Before the country embraced Western style democracy Albania was under the influence of the pro-Chinese communist sphere and as such was socially and politically isolated not only from the countries of Western Europe but also from the pro-Soviet Warsaw pact states. Little has previously been published about the health services in Albania [1] and even less is known about the provision of nephrology services in the country, although there has been a description of chronic renal failure in children in the French literature [2].

Geography and demography

Albania is situated to the North of Greece and the South of former Yugoslavia; to the West the Adriatic sea separates it from Italy (Figure 1). The population of 4 million is largely rural and the main cities from the north to the south of the country are Shkodra, Tirana (the capital, population 300,000) and Vlora. There are three major religious denominations in the country: Muslim, Roman-Catholic, and Christian Orthodox, and the economy is largely based on oil, nickel, and chrome mining.

Recent history of Albania

In 1928 a monarchy was established in Albania by King Zog, who relied for economic and political support on Italy. In 1939, however, Mussolini invaded the country and King Zog fled into exile. Following the capitulation of fascist Italy in 1943, German troops invaded Albania, but by the end of the following year the Germans left the country as the war drew to a close and the communists headed by Enver Hoxha

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gained power. Hoxha established a communist regime which soon nationalized industry and introduced state control over most of the means of production. Hoxha's grip on power remained until his death in 1985 when his successor Ramiz Alia embarked on a cautious plan of liberalization. The basic features of a one-party state, however, remained, and it was not until the great changes in Eastern Europe in the late 1980s, and particularly the collapse of the Romanian dictatorship under Ceausescu, that serious attempts at reform were made. Freedom of the press was introduced and elections were first held in 1991. After a year of political instability elections were held again in 1992 and the Democratic party led by Dr Sali Berisha (a cardiologist) was victorious. The new government has embarked on a programme of privatization and construction of a free market economy.

Medical training in Albania

There is one medical school in Tirana which was established in 1952 and achieved university status in 1957. Health care was free under communist rule and was organized by the Ministry of Public Health. Under the communist regime medical students had to study the history of communism in the first year and socialist economy in the second year of their course. Medical subjects were taught in the third to fifth year of training, and medical text books were written in Albanian. At present around 150 students are admitted to medical school each year, and the course, which lasts 6 years, comprises only scientific and medical subjects. Some students are now able to spend a year in a foreign institute.

Nephrology training in Albania

After graduating, doctors wishing to pursue a career in nephrology spend one year training in general medicine. Thereafter they undergo a further 3 years of training in nephrology and if successful in a diploma examination in nephrology they are recognized as accredited nephrologists.

The PECO-93 Initiative

Following the collapse of communism in Eastern Europe the commission of the European Communities (EC) saw as an important task the promotion of research collaboration between EC countries and ex-communist states, and hence established the PECO-93 initiative. As part of that initiative, nephrologists from Tirana, Albania, were invited to participate in a study with five centres from the EC entitled 'End-stage renal disease in Europe: approaching a consensus' which is being supported by the BIOMED-1 programme. Our aims were to determine the incidence and prevalence of chronic renal failure (CRF) in Albania and to establish the current state of provision of renal services in that country in the light of the recent social and political change.

Subjects and methods

Case-notes of all patients with a serum creatinine concentration \( \geq 300 \text{\mu mol/l} \) at any time during a 12-month period (01.01.1992 to 31.12.1992) who had been referred to or were seen in the Tirana renal unit were examined in 1994. CRF was defined as a persistently elevated serum creatinine concentration which had not returned to normal at last follow-up after the index assay or at the time of death, whichever occurred first. The following information was extracted from case-notes: biographical details, first serum creatinine concentration \( \geq 300 \text{\mu mol/l} \), coexisting non-renal diseases, referral to a nephrologist, radiological, biopsy, and autopsy examination, patient outcome and serum creatinine concentration at the end of 2 years or at time of death, and cause of death where appropriate. Each patient was assigned a risk group: high, medium or low according to age and coexisting disease at the time when the first serum creatinine was equal to or greater than 300 \text{\mu mol/l} using a previously described protocol (Table 1) [3,4]. A renal diagnosis based on the European Renal Association codes for renal diseases was assigned to each patient on the basis of the history and investigations. The incidence of referred CRF was calculated using the population of Tirana, which was estimated to be 300 000 at the time of this study. The number of patients receiving dialysis at 31.12.1995 was noted along with their age, sex, primary renal diagnosis, and date of starting dialysis. Any associated co-morbid illness was also noted for each patient.

Statistics

Chi-square test with Yates correction and Fisher's exact test were used to compare discrete variables. Mann–Whitney U test were used to compare continuous data. Significance level was set at 5% for all comparisons.

Results

Chronic renal failure

Eighty-four patients with a serum creatinine of \( \geq 300 \text{\mu mol/l} \) were seen during the study period. The average age of patients at presentation was 41.6 ± 17.5 years.

| Low risk | Age < 70 years and no co-morbid illness |
| Medium risk | Age 70–80 or age < 80 years with any one of the following: angina, previous myocardial infarction, cardiac failure, chronic obstructive airways disease, pulmonary fibrosis, or liver disease (cirrhosis, chronic hepatitis), (peripheral vascular and cerebrovascular disease) or <70 with DM | |
| High risk | Age > 80 or any age with two or more organ dysfunctions in addition to end-stage renal disease, or any age with diabetes and cardiopulmonary disease, or any age with visceral malignancy |
years and 56% were males; 58.3% were from outside Tirana and had travelled to the city for medical care; 75% belonged to the low-risk group whereas only 7% were in the high-risk group (Table 2). The mean ages of patients were 38.0 ± 15.8, 52.2 ± 19.2 and 53.1 ± 17.8 in the low-, medium- and high-risk groups respectively. Glomerulonephritis was the most frequently diagnosed primary renal disease (Figure 2).

At the end of 2 years 19 (22.6%) patients had died and a total of seven patients (8.4%) all belonging to the low-risk group had commenced dialysis. Those who died had a significantly higher last recorded serum creatinine concentration (median 720 μmol/1) compared with the survivors (median 566 μmol/1), P<0.001. The mean age of patients who received dialysis was 29.8±8.3 compared with 42.8±17.8 in those not dialysed (P<0.001).

Because the population base for patients from Tirana was known, the annual incidence per million population of referred patients and those accepted for RRT could be estimated (Table 2). The incidence of referred CRF in Tirana was 116 per million per year for patients with a creatinine concentration greater than 300 μmol/l. Nephrologists in Albania use dietary protein restriction in patients with CRF, with the exception of those with polycystic kidney disease (0.8 g/kg if the estimated GFR is 60–30 ml/min and 0.6 g/kg if the GFR is less than 30 ml/min). Angiotensin-converting enzyme inhibitors are prescribed to patients with proteinuria who have a serum creatinine concentration less than 400 μmol/l and calcium-channel antagonists in those with higher creatinine concentrations. Until recently anabolic steroids were used to treat anaemia of renal failure along with iron and vitamin supplements. Erythropoietin is now available for five patients on haemodialysis and 10 predialysis patients. Phosphate binders and 1.25.dihydrocholecalciferol are available for treatment and prevention of renal bone disease.

### Renal replacement therapy

The only dialysis unit is in Tirana, where the first haemodialysis treatment in Albania was given in 1968 to a patient with acute renal failure. The chronic dialysis programme began there in 1985 using three dialysis machines. At present a total of 12 patients (4 per million population, Table 3) receive haemodialysis for 4 h three times a week. All patients live in Tirana; if the patients lived in another part of the country, they, and often their family, have to move to the capital city. All 12 patients receiving chronic dialysis treatment were less than 50 years in age, none had any significant co-morbid illness, and hence all patients were in the low-risk group. Patients over the age of 40 years, diabetics, and those with co-morbid illness are not accepted for dialysis, and most patients with chronic renal failure are managed conservatively. Peritoneal dialysis is only available for acute renal failure in the form of intermittent peritoneal dialysis. There are no facilities for continuous ambulatory peritoneal dialysis in Albania, although some patients receive this treatment supervised from Greece. New patients can only be admitted to the dialysis programme if one of the 12 patients dies or receives a transplant. There is no transplantation programme in Albania, but around 15 transplants have been performed on Albanian patients in Greece, Italy, and France. Usually the patients then have to live in these countries as cyclosporin A is not available in Albania.

### Discussion

Albania has one of the least developed health services in Europe and it is only recently that Western Europeans have become aware of it. There are no previous studies which have compared referral rates of patients with CRF between countries in the West and former Eastern block countries. The present study provided us with the opportunity to set the referral rates for patients with CRF in Albania in the context of those with a similar degree of CRF in the Grampian region in Scotland [4]. In the Grampian study the incidence of CRF was found to be 450 per million per year, the referral rate was 218 per million per year and the acceptance rate for RRT in Grampian was 80 p.m.p./year. Thus although the referral rate of patients with CRF in Tirana was half that in Grampian, the facilities for dialysis only permitted one-sixth of the patients to be treated for ESRD. In
Table 3. Patients receiving dialysis in Tirana (1995)

<table>
<thead>
<tr>
<th>Patient</th>
<th>Sex</th>
<th>Age</th>
<th>Renal diagnosis</th>
<th>Year RRT started</th>
<th>Co-morbid illness</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>F</td>
<td>34</td>
<td>GN</td>
<td>1986</td>
<td>None</td>
</tr>
<tr>
<td>2</td>
<td>F</td>
<td>41</td>
<td>Calculi</td>
<td>1989</td>
<td>None</td>
</tr>
<tr>
<td>3</td>
<td>F</td>
<td>40</td>
<td>Reflux nephropathy</td>
<td>1995</td>
<td>None</td>
</tr>
<tr>
<td>4</td>
<td>F</td>
<td>32</td>
<td>Interstitial nephritis</td>
<td>1991</td>
<td>CCF</td>
</tr>
<tr>
<td>5</td>
<td>M</td>
<td>41</td>
<td>GN</td>
<td>1985</td>
<td>None</td>
</tr>
<tr>
<td>6</td>
<td>M</td>
<td>45</td>
<td>GN</td>
<td>1987</td>
<td>None</td>
</tr>
<tr>
<td>7</td>
<td>M</td>
<td>36</td>
<td>GN</td>
<td>1989</td>
<td>None</td>
</tr>
<tr>
<td>8</td>
<td>M</td>
<td>42</td>
<td>APKD</td>
<td>1990</td>
<td>None</td>
</tr>
<tr>
<td>9</td>
<td>M</td>
<td>44</td>
<td>GN</td>
<td>1992</td>
<td>None</td>
</tr>
<tr>
<td>10</td>
<td>M</td>
<td>45</td>
<td>Obstructive nephropathy</td>
<td>1994</td>
<td>None</td>
</tr>
<tr>
<td>11</td>
<td>M</td>
<td>49</td>
<td>GN</td>
<td>1990</td>
<td>None</td>
</tr>
<tr>
<td>12</td>
<td>M</td>
<td>41</td>
<td>APKD</td>
<td>1993</td>
<td>None</td>
</tr>
</tbody>
</table>

the presence of a poorly resourced renal service it is to be expected that the priority for treatment is given to patients who are young and have no co-morbid illness. Dialysis facilities are very limited and only very young and relatively fit patients can be offered treatment, and then only if a space becomes available in Tirana. The present study was based on data on patients who were referred to nephrologists in Tirana and therefore the actual incidence of CRF is likely to have been underestimated.

For the immediate short-term planning it might be useful to concentrate on measures for the prevention of progression of renal failure such as adequate blood pressure control and avoidance of nephrotoxic agents. In the long-term planning of management of renal failure the development of a transplantation programme might be a more cost-effective way of dealing with CRF in Albania. However, back up facilities for dialysis would be needed for a successful transplant programme. Another approach to the problem would be the use of ambulatory peritoneal dialysis, which does not require as much capital cost and is less dependent on availability of trained technical and nursing staff. The development of a peritoneal dialysis programme may also be of help to patients living at a distance from the dialysis unit in Tirana.

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References