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Nephrology Dialysis Transplantation

*Registry Report*

# EDTA Registry Centre Survey, 1986

## Report from the European Dialysis and Transplant Association Registry

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**Abstract.** This paper summarises the information given on the 1986 EDTA Registry centre questionnaire which was returned by 82% of the 2,065 known dialysis and transplant centres in 33 European countries. Information is given on the number of patients alive on haemodialysis according to the type of dialysis facilities available where the patient was receiving dialysis and the number of patients receiving special types of dialysis. The centre questionnaire also included questions on testing for HIV infection, serological evidence or symptoms of AIDS and the diagnosis of hepatitis B in patients and staff. The data given in response to these questions are presented together with data on the involvement of dietitians and social workers in the treatment of patients with end stage renal failure. Finally, information on transplant activity in Europe and the treatment policies of transplanting centres is provided.

**Key words:** EDTA Registry; Haemodialysis; AIDS; Hepatitis; Transplant activity; Immunosuppressive regimes

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## Introduction

The Registry of the European Dialysis and Transplant Association – European Renal Association (EDTA Registry) collects data from three sources: individual patient, centre and mini questionnaires.

Each centre known to the EDTA Registry is requested annually to complete a centre questionnaire and to provide core summary data on their unit's activity during the year. By repeating each year core questions concerning the number of patients accepted for renal replacement therapy, total number of patients on treatment at the end of the year, and number of patients undergoing special forms of dialysis, the centre questionnaire provides a unique opportunity to analyse trends in many aspects of renal replacement therapy. Apart from these core questions, additional data are requested in order to investigate particular aspects. This is possible due to the flexible format of the centre questionnaire. EDTA Registry data on demography and special topics (for example AIDS and hepatitis) are used not only by those directly involved in medical care but also by national and international health care authorities. The Registry, therefore, feels obliged to present data annually. In this communication, the results of the 1986 centre questionnaire are reported.

**Table 1.** Summary of centres known to the EDTA Registry in 1986, the number per million population (pmp) and the proportion (%) returning the 1986 centre questionnaire. Population figures are taken from the World Bank Atlas [1]

| Country | Population in millions | Known centres | Known centres PMP | Replied (%) |
|---|---|---|---|---|
| Algeria | 21.865 | 21 | 1.0 | 61.9 |
| Austria | 7.545 | 34 | 4.5 | 97.1 |
| Belgium | 9.853 | 59 | 6.0 | 91.5 |
| Bulgaria | 8.980 | 50 | 5.6 | 94.0 |
| Cyprus | 0.660 | 5 | 7.6 | 100.0 |
| Czechoslovakia | 15.497 | 27 | 1.7 | 100.0 |
| Denmark | 5.101 | 12 | 2.4 | 100.0 |
| Egypt | 47.108 | 31 | 0.7 | 67.7 |
| Fed. Rep. Germany | 61.065 | 346 | 5.7 | 78.6 |
| Finland | 4.919 | 26 | 5.3 | 100.0 |
| France | 55.133 | 221 | 4.0 | 87.3 |
| German Dem. Rep. | 16.716 | 58 | 3.5 | 98.3 |
| Greece | 9.937 | 55 | 5.5 | 61.8 |
| Hungary | 10.660 | 14 | 1.3 | 100.0 |
| Iceland | 0.241 | 1 | 4.1 | 100.0 |
| Ireland | 3.560 | 5 | 1.4 | 100.0 |
| Israel | 4.296 | 29 | 6.8 | 100.0 |
| Italy | 56.945 | 396 | 7.0 | 65.7 |
| Lebanon | 2.624* | 8 | 3.0 | 0 |
| Libya | 3.600 | 3 | 0.8 | 66.7 |
| Luxembourg | 0.366 | 5 | 13.7 | 100.0 |
| Morocco | 21.924 | 9 | 0.4 | 66.7 |
| Netherlands | 14.486 | 50 | 3.5 | 92.0 |
| Norway | 4.144 | 17 | 4.1 | 100.0 |
| Poland | 37.288 | 54 | 1.4 | 96.3 |
| Portugal | 10.198 | 50 | 4.9 | 90.0 |
| Spain | 38.730 | 207 | 5.3 | 85.0 |
| Sweden | 8.330 | 36 | 4.3 | 97.2 |
| Switzerland | 6.421 | 40 | 6.2 | 97.5 |
| Tunisia | 7.143 | 11 | 1.5 | 90.9 |
| Turkey | 49.406 | 20 | 0.4 | 90.0 |
| United Kingdom | 56.539 | 68 | 1.2 | 92.6 |
| Yugoslavia | 23.100 | 97 | 4.2 | 74.2 |
| Total Registry | 624.380 | 2065 | 3.3 | 81.8 |

*Most recent figure available

**Table 2.** Number of patients alive on haemodialysis on 31 December 1986 according to type of dialysis facilities available where the patient was receiving dialysis. Type of dialysis facilities was defined on the centre questionnaire as hospital (excluding limited/self-care), limited/self-care in own hospital, limited/self-care in other unit (e.g. satellite, free-standing unit, or other hospital) and patients' own homes

| Country | Hospital (excluding self-care) | Self-care in own hospital | Self-care in other unit | Patients' own homes | Total |
|---|---|---|---|---|---|
| Algeria | 283 | 26 | 0 | 23 | 332 |
| Austria | 1410 | 47 | 3 | 46 | 1506 |
| Belgium | 2062 | 81 | 120 | 87 | 2350 |
| Bulgaria | 1052 | 58 | 0 | 0 | 1110 |
| Cyprus | 140 | 0 | 0 | 0 | 140 |
| Czechoslovakia | 1024 | 116 | 21 | 3 | 1164 |
| Denmark | 402 | 71 | 26 | 51 | 550 |
| Egypt | 579 | 193 | 28 | 0 | 800 |
| Fed. Rep. Germany | 9234 | 2099 | 4317 | 1077 | 16 727 |
| Finland | 263 | 0 | 10 | 2 | 275 |
| France | 9296 | 224 | 877 | 2010 | 12 407 |
| German Dem. Rep. | 1723 | 104 | 56 | 0 | 1883 |
| Greece | 1142 | 109 | 0 | 0 | 1251 |
| Hungary | 434 | 7 | 44 | 28 | 513 |
| Iceland | 7 | 0 | 0 | 0 | 7 |
| Ireland | 210 | 0 | 24 | 15 | 249 |
| Israel | 808 | 45 | 35 | 41 | 929 |
| Italy | 10 590 | 326 | 1727 | 757 | 13 400 |
| Libya | 70 | 17 | 0 | 0 | 87 |
| Luxembourg | 93 | 0 | 0 | 7 | 100 |
| Morocco | 199 | 32 | 0 | 2 | 233 |
| Netherlands | 1302 | 427 | 168 | 139 | 2036 |
| Norway | 133 | 7 | 15 | 33 | 188 |
| Poland | 1083 | 3 | 8 | 0 | 1094 |
| Portugal | 1660 | 159 | 192 | 0 | 2011 |
| Spain | 6130 | 176 | 1612 | 234 | 8152 |
| Sweden | 799 | 5 | 25 | 31 | 860 |
| Switzerland | 902 | 99 | 29 | 144 | 1174 |
| Tunisia | 334 | 0 | 0 | 0 | 334 |
| Turkey | 794 | 0 | 34 | 24 | 852 |
| United Kingdom | 1752 | 230 | 154 | 1868 | 4004 |
| Yugoslavia | 2935 | 605 | 147 | 141 | 3828 |
| Total Registry | 58 845 | 5266 | 9672 | 6763 | 80 546 |

## Materials and Methods

In early 1987, the centre questionnaire was sent to 2065 centres in 33 countries. After a reminder to return this questionnaire, a response rate of 82% was achieved. However, it should be borne in mind that those centres returning this form did not always complete all the appropriate questions. National keymen and national registries contributed, supplemented and/or corrected data. Data handling was carried out in the offices of the EDTA Registry in London.

## Demography, 1986

### *(a) Regular Dialysis and Transplantation*

Table 1 summarises by country the number of centres known to the EDTA Registry. It does not include satellite units whose data are forwarded through the parent centre. In 22 of the 33 countries reporting to the Registry, there was a response rate of 90% or above.

### *(b) Special Forms of Haemodialysis*

The Registry has obtained information concerning the use of limited/self-care or satellite units in the treatment of patients on haemodialysis for the first time in 1986. Centres were asked to record separately the numbers of patients alive on 31 December on hospital haemodialysis (excluding limited/self-care), on haemodialysis with limited/self-care in the unit's own hospital, or on haemodialysis with limited/self-care in another unit (e.g., satellite, free-standing unit or other hospital). The numbers provided in response to this question are shown according to country in Table 2. The same data shown as

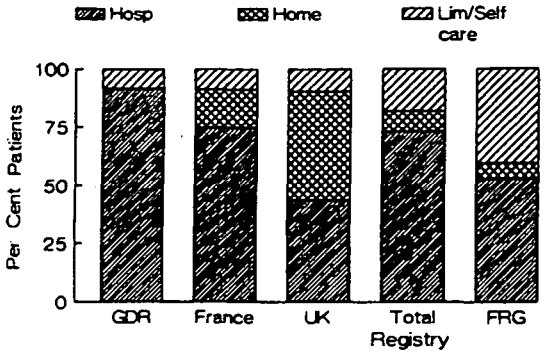


Fig. 1. Proportion of patients on 31 December 1986 alive on hospital, home, or limited/self-care haemodialysis in selected countries and for the total Registry.

proportions are depicted for selected countries in Fig. 1. This demonstrates widely differing national policies. However, it should be borne in mind that definitions for self-care and limited care are not clearly set and may vary between countries.

Centres were also asked to record the number of haemodialysis patients alive at the end of 1986 on bicarbonate haemodialysis, haemofiltration, haemodiafiltration, and haemodialysis combined with haemoperfusion, and the number of patients who were on continuous cycling peritoneal dialysis or on peritoneal dialysis combined with haemodialysis. The numbers given are shown by country in Table 3. As can be seen in Fig. 2, the proportion of patients treated by haemofiltration and haemodiafiltration at the end of the years 1982–1986 changed little, whilst the percentage treated by bicarbonate haemodialysis continued to rise rapidly.

### *(c) AIDS and Hepatitis*

In 1985 the Registry added a question to the centre questionnaire regarding the testing of patients for HIV antibodies. Centres were asked if 'no testing' was carried out on their patients with end-stage renal failure, if tests

**Table 3.** Number of patients alive on special forms of haemodialysis/haemofiltration and peritoneal dialysis on 31 December 1986

| Country | Haemodialysis/haemofiltration | | | | Peritoneal dialysis | |
|---|---|---|---|---|---|---|
| | Bicarbonate HD | Haemo-filtration | Haemodia-filtration | HD + Haemo-perfusion | CCPD | PD + HD |
| Algeria | 1 | 0 | 16 | 0 | 0 | 4 |
| Austria | 306 | 50 | 60 | 36 | 1 | 0 |
| Belgium | 994 | 72 | 31 | 0 | 7 | 0 |
| Bulgaria | 0 | 16 | 14 | 10 | 0 | 0 |
| Cyprus | 0 | 0 | 0 | 18 | 0 | 0 |
| Czechoslovakia | 33 | 19 | 0 | 24 | 0 | 1 |
| Denmark | 70 | 33 | 48 | 0 | 15 | 1 |
| Egypt | 0 | 0 | 0 | 0 | 5 | 43 |
| Fed. Rep. Germany | 4290 | 861 | 441 | 285 | 29 | 4 |
| Finland | 137 | 1 | 0 | 0 | 5 | 1 |
| France | 3157 | 203 | 210 | 50 | 93 | 5 |
| German Dem. Rep. | 557 | 6 | 28 | 83 | 0 | 3 |
| Greece | 14 | 4 | 3 | 2 | 0 | 1 |
| Hungary | 6 | 7 | 2 | 15 | 0 | 7 |
| Iceland | 3 | 0 | 0 | 0 | 0 | 0 |
| Ireland | 2 | 0 | 0 | 0 | 4 | 0 |
| Israel | 26 | 8 | 21 | 37 | 0 | 7 |
| Italy | 3632 | 535 | 609 | 47 | 52 | 5 |
| Libya | 0 | 0 | 0 | 0 | 0 | 0 |
| Luxembourg | 30 | 0 | 0 | 0 | 0 | 0 |
| Morocco | 11 | 0 | 0 | 0 | 0 | 4 |
| Netherlands | 426 | 32 | 52 | 0 | 11 | 8 |
| Norway | 15 | 8 | 17 | 0 | 1 | 0 |
| Poland | 36 | 6 | 57 | 0 | 3 | 5 |
| Portugal | 13 | 0 | 20 | 49 | 3 | 3 |
| Spain | 904 | 215 | 291 | 46 | 14 | 1 |
| Sweden | 65 | 44 | 25 | 11 | 11 | 0 |
| Switzerland | 205 | 29 | 16 | 20 | 3 | 0 |
| Tunisia | 0 | 0 | 0 | 60 | 0 | 0 |
| Turkey | 2 | 66 | 20 | 54 | 0 | 28 |
| United Kingdom | 281 | 4 | 7 | 0 | 67 | 6 |
| Yugoslavia | 158 | 118 | 58 | 88 | 13 | 41 |
| Total Registry | 15374 | 2337 | 2046 | 935 | 337 | 178 |

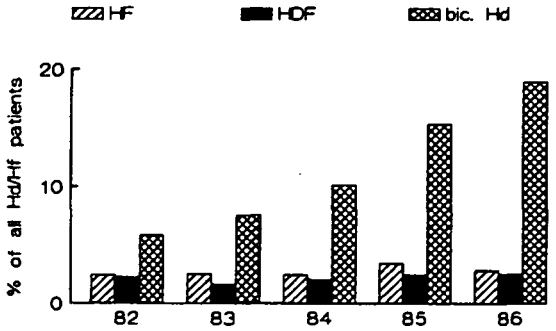


Fig. 2. Proportion of patients treated by haemofiltration, haemodiafiltration, and bicarbonate haemodialysis at the end of the years 1982–1986.

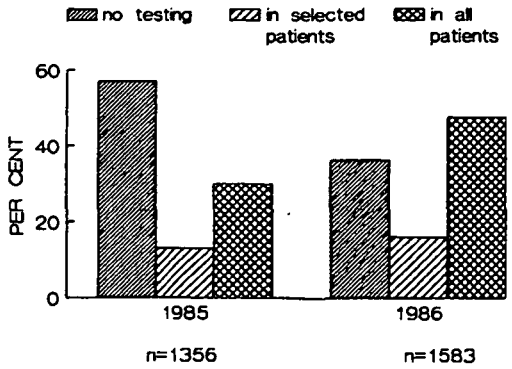


Fig. 3. Centre policy regarding testing for HIV antibodies in patients with end-stage renal failure as reported on the 1985 and 1986 centre questionnaire.

Table 4. Summary of information concerning the practice of centres in testing for HIV antibodies by country. The proportion of centres which responded to the section on AIDS is also given

| Country | Testing for AIDS (% centres) | | | % centres replied |
|---|---|---|---|---|
| | No testing | In selected patients | In most or all patients | |
| Algeria | 83 | 17 | 0 | 57.1 |
| Austria | 6 | 9 | 84 | 94.1 |
| Belgium | 30 | 6 | 65 | 91.4 |
| Bulgaria | 91 | 0 | 9 | 90.0 |
| Cyprus | 0 | 0 | 100 | 100.0 |
| Czechoslovakia | 92 | 0 | 8 | 96.3 |
| Denmark | 25 | 8 | 67 | 100.0 |
| Egypt | 65 | 24 | 12 | 54.8 |
| Fed. Rep. Germany | 17 | 27 | 56 | 76.9 |
| Finland | 46 | 15 | 38 | 100.0 |
| France | 13 | 15 | 72 | 86.1 |
| German Dem. Rep. | 77 | 9 | 14 | 96.6 |
| Greece | 7 | 10 | 83 | 52.7 |
| Hungary | 50 | 0 | 50 | 85.7 |
| Iceland | 100 | 0 | 0 | 100.0 |
| Ireland | 20 | 40 | 40 | 100.0 |
| Israel | 54 | 36 | 11 | 96.6 |
| Italy | 38 | 10 | 52 | 63.1 |
| Libya | 100 | 0 | 0 | 33.3 |
| Luxembourg | 0 | 60 | 40 | 100.0 |
| Morocco | 83 | 17 | 0 | 66.7 |
| Netherlands | 74 | 10 | 17 | 84.0 |
| Norway | 6 | 18 | 76 | 100.0 |
| Poland | 83 | 6 | 12 | 96.3 |
| Portugal | 9 | 7 | 84 | 86.0 |
| Spain | 41 | 21 | 38 | 78.7 |
| Sweden | 0 | 12 | 88 | 94.4 |
| Switzerland | 26 | 24 | 50 | 95.0 |
| Tunisia | 22 | 44 | 33 | 81.8 |
| Turkey | 69 | 19 | 13 | 80.0 |
| United Kingdom | 37 | 37 | 27 | 92.6 |
| Yugoslavia | 67 | 6 | 27 | 64.9 |
| Total Registry | 37 | 16 | 47 | 78.4 |

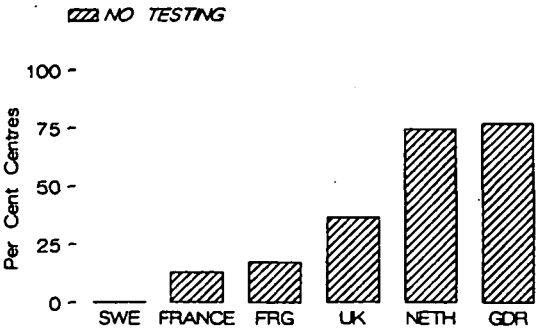


Fig. 4. The percentage of centres in selected countries which reported no testing for HIV antibodies in 1986.

were done 'in selected patients' or 'in most, or all, of their patients'. This question was asked again for 1986 and the replies given are shown by country in Table 4. Although the practice of testing varied widely between countries, the proportion of centres which reported that no testing was performed decreased between 1985 and 1986 from 57% to 37% (Fig. 3). Similarly, the proportion of centres who reported HIV testing in most or all of their patients increased from 30% to 47%. Over 60% of centres in Europe were carrying out tests for HIV antibodies in at least some of their patients. The data were examined for those centres who reported no testing for HIV antibodies in their unit. This information is shown for selected countries in Fig. 4.

Centres reported that a total of 225 patients with end-stage renal failure and on renal replacement therapy in 1986 had serological evidence of infection with HIV (Table 5).

As in previous years, the Registry asked centres to report the number of new cases in 1986 of hepatitis B both in patients and staff. Although the number of cases reported was approximately the same as those reported for 1985 [2], the ratio of cases per thousand patients on hospital haemodialysis was reduced from 21/1000 to 18/1000 for patients and from 3.6/1000 to 3.2/1000 for staff (Table 6). This decrease was not observed in all countries, and in a few there was actually an increase.

**Table 5.** Summary of information on patients with serological evidence or symptoms of AIDS. The Table shows the number of patients with serological evidence of infection with HIV in 1986, and of those, the number whose positive serology was first detected in 1986. The number of patients who developed symptoms of AIDS during the year is also given

| Country | Cases of AIDS (*n*) | | |
|---|---|---|---|
| | Serological evidence | Positive serology 1st detected in 1986 | Developed symptoms in 1986 |
| Algeria | 2 | 0 | 0 |
| Austria | 4 | 2 | 0 |
| Belgium | 11 | 3 | 0 |
| Bulgaria | 0 | 0 | 0 |
| Cyprus | 0 | 0 | 0 |
| Czechoslovakia | 0 | 0 | 0 |
| Denmark | 1 | 1 | 0 |
| Egypt | 0 | 0 | 0 |
| Fed. Rep. Germany | 29 | 15 | 5 |
| Finland | 0 | 0 | 0 |
| France | 89 | 51 | 10 |
| German Dem. Rep. | 0 | 0 | 0 |
| Greece | 2 | 2 | 1 |
| Hungary | 0 | 0 | 0 |
| Iceland | 0 | 0 | 0 |
| Ireland | 0 | 0 | 0 |
| Israel | 2 | 2 | 1 |
| Italy | 19 | 18 | 6 |
| Libya | 0 | 0 | 0 |
| Luxembourg | 0 | 0 | 0 |
| Morocco | 0 | 0 | 0 |
| Netherlands | 2 | 1 | 0 |
| Norway | 1 | 0 | 0 |
| Poland | 0 | 0 | 0 |
| Portugal | 3 | 1 | 0 |
| Spain | 28 | 21 | 0 |
| Sweden | 4 | 4 | 0 |
| Switzerland | 3 | 1 | 0 |
| Tunisia | 3 | 3 | 0 |
| Turkey | 0 | 0 | 0 |
| United Kingdom | 3 | 3 | 2 |
| Yugoslavia | 19 | 11 | 0 |
| Total Registry | 225 | 139 | 25 |

**Table 6.** Hepatitis B diagnosed in patients and staff in 1986. The numbers of cases are shown in absolute numbers and also expressed per thousand patients on hospital haemodialysis at the end of the year

| Country | Patients | | Staff | |
|---|---|---|---|---|
| | Hep B *n* | Cases/1000 pats on Hosp. HD | Hep B *n* | Cases/1000 pats on Hosp. HD |
| Algeria | 36 | 116.5 | 8 | 25.9 |
| Austria | 26 | 17.8 | 2 | 1.4 |
| Belgium | 27 | 11.9 | 3 | 1.3 |
| Bulgaria | 18 | 16.2 | 8 | 7.2 |
| Cyprus | 1 | 7.1 | 0 | 0 |
| Czechoslovakia | 154 | 132.6 | 11 | 9.5 |
| Denmark | 0 | 0 | 0 | 0 |
| Egypt | 32 | 40.0 | 2 | 2.5 |
| Fed. Rep. Germany | 51 | 3.3 | 5 | 0.3 |
| Finland | 0 | 0 | 0 | 0 |
| France | 83 | 8.0 | 3 | 0.3 |
| German Dem. Rep. | 225 | 119.5 | 38 | 20.2 |
| Greece | 15 | 12.0 | 2 | 1.6 |
| Hungary | 28 | 57.7 | 2 | 4.1 |
| Iceland | 0 | 0 | 0 | 0 |
| Ireland | 0 | 0 | 0 | 0 |
| Israel | 4 | 4.5 | 0 | 0 |
| Italy | 100 | 7.9 | 20 | 1.6 |
| Libya | 0 | 0 | 1 | 11.5 |
| Luxembourg | 1 | 10.8 | 0 | 0 |
| Morocco | 8 | 34.6 | 4 | 17.3 |
| Netherlands | 3 | 1.6 | 0 | 0 |
| Norway | 0 | 0 | 0 | 0 |
| Poland | 137 | 125.2 | 61 | 55.8 |
| Portugal | 85 | 42.3 | 8 | 4.0 |
| Spain | 62 | 7.8 | 9 | 1.1 |
| Sweden | 1 | 1.2 | 0 | 0 |
| Switzerland | 9 | 8.7 | 0 | 0 |
| Tunisia | 30 | 89.8 | 2 | 6.0 |
| Turkey | 56 | 67.6 | 5 | 6.0 |
| United Kingdom | 6 | 2.8 | 0 | 0 |
| Yugoslavia | 140 | 38.0 | 41 | 11.1 |
| Total Registry | 1338 | 18.1 | 235 | 3.2 |

### *(d) Dietitians and Social Workers*

Centres were asked if 75% or more of their new patients had been seen by a dietitian and/or social worker during the year. Only the 1178 centres which reported having accepted four or more new patients with end-stage renal failure in 1986 were included in the analysis. Of these centres, 1072 provided information concerning dietitians and 1083 concerning social workers. It can be seen from Table 7 that, overall, a greater proportion of centres involved dietitians with new patients (51%) than social workers (36%), though this was not the case in all countries reporting to the Registry. This is illustrated for selected countries, or groups of countries, in Fig. 5 concerning dietitians and in Fig. 6 concerning social workers. The proportion of centres which involved dietitians and social workers is much more impressive in the United Kingdom and Benelux and Nordic countries than in other European countries.

### *(e) Transplantation Activity*

By the end of 1986 approximately 65 000 transplants had been performed in Europe, of which 9216 were performed in 1986 (Table 8). The number of transplants performed annually continued to rise and this increase is illustrated in Fig. 7 which shows the number of transplants performed per million population in selected countries for each of the years 1976, 1981 and 1986. Figure 8 shows the proportion of transplants performed in 1986 according to centre activity. Centre activity has been defined by the number of transplants

**Table 7.** Numbers of centres who reported that they had accepted four or more new patients for the treatment of end-stage renal failure in 1986 and the number (and percentage) of these centres which reported that 75% or more of their new patients were seen by a dietitian/social worker in 1986. The number of centres which responded to this section on the centre questionnaire is also given

| Country | Eligible centres* | Dietitians | | | Social workers | | |
|---|---|---|---|---|---|---|---|
| | *n* | Centres replying | 'Yes' | | Centres replying | 'Yes' | |
| | | *n* | *n* | % | *n* | *n* | % |
| Algeria | 12 | 8 | 0 | 0 | 11 | 5 | 45 |
| Austria | 25 | 23 | 11 | 48 | 24 | 3 | 13 |
| Belgium | 42 | 40 | 32 | 80 | 42 | 36 | 86 |
| Bulgaria | 25 | 23 | 2 | 9 | 24 | 2 | 8 |
| Cyprus | 3 | 3 | 3 | 100 | 3 | 0 | 0 |
| Czechoslovakia | 24 | 23 | 8 | 35 | 22 | 4 | 18 |
| Denmark | 9 | 8 | 7 | 88 | 7 | 6 | 86 |
| Egypt | 15 | 11 | 2 | 18 | 11 | 1 | 9 |
| Fed. Rep. Germany | 194 | 179 | 85 | 47 | 176 | 36 | 20 |
| Finland | 13 | 12 | 10 | 83 | 13 | 12 | 92 |
| France | 141 | 131 | 87 | 66 | 131 | 40 | 31 |
| German Dem. Rep. | 44 | 40 | 23 | 58 | 42 | 12 | 29 |
| Greece | 21 | 16 | 7 | 44 | 19 | 4 | 21 |
| Hungary | 10 | 8 | 5 | 63 | 7 | 1 | 14 |
| Iceland | 1 | 1 | 1 | 100 | 1 | 0 | 0 |
| Ireland | 4 | 4 | 4 | 100 | 4 | 2 | 50 |
| Israel | 20 | 20 | 15 | 75 | 20 | 17 | 85 |
| Italy | 183 | 162 | 69 | 43 | 164 | 56 | 34 |
| Libya | 2 | 1 | 0 | 0 | 1 | 0 | 0 |
| Luxembourg | 3 | 2 | 1 | 50 | 2 | 1 | 50 |
| Morocco | 6 | 6 | 0 | 0 | 6 | 0 | 0 |
| Netherlands | 35 | 30 | 30 | 100 | 30 | 29 | 97 |
| Norway | 14 | 14 | 10 | 71 | 14 | 8 | 57 |
| Poland | 43 | 39 | 12 | 31 | 40 | 4 | 10 |
| Portugal | 23 | 22 | 10 | 45 | 22 | 14 | 64 |
| Spain | 110 | 99 | 8 | 8 | 104 | 20 | 19 |
| Sweden | 21 | 21 | 16 | 76 | 21 | 12 | 57 |
| Switzerland | 25 | 23 | 18 | 78 | 22 | 8 | 36 |
| Tunisia | 5 | 4 | 2 | 50 | 4 | 2 | 50 |
| Turkey | 8 | 8 | 4 | 50 | 6 | 0 | 0 |
| United Kingdom | 57 | 56 | 53 | 95 | 56 | 45 | 80 |
| Yugoslavia | 40 | 35 | 11 | 31 | 34 | 8 | 24 |
| Total Registry | 1178 | 1072 | 546 | 51 | 1083 | 388 | 36 |

*Eligibility for inclusion in this table; four or more new patients in 1986 reported on the centre questionnaire

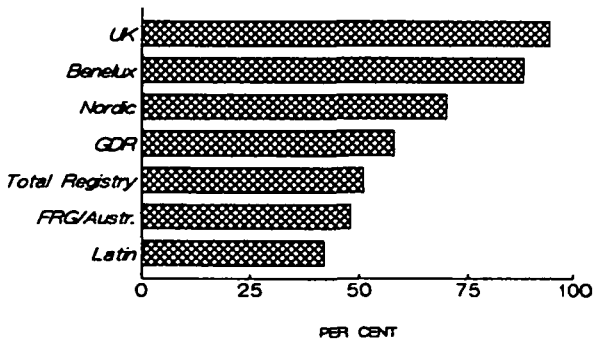


**Fig. 5.** Proportion of centres, in selected countries or groups of countries, reporting that 75% or more of their new patients in 1986 were seen by a dietitian. (UK = United Kingdom; Benelux = Belgium, Luxembourg, Netherlands; Nordic = Denmark, Finland, Iceland, Norway, Sweden; GDR = German Democratic Republic; FRG/Austr. = Federal Republic of Germany/Austria; Latin = France, Italy, Portugal, Spain).

performed in 1986. More than 40% of all grafts were performed in the 49 centres which carried out 51–100 grafts during 1986.

### *(f) Waiting List for Transplantation*

Of all the patients on dialysis at the end of 1986, 26% were on a waiting list for cadaver transplant (Table 8), with marked variation between countries. A 'projected waiting time' was calculated by dividing the number of patients on the waiting list at the end of 1986 by the number of transplants performed during 1986. Figure 9 shows the 'projected waiting time' in selected countries, which range from approximately 6 months in Norway to nearly 8 years in Portugal. Generally the shortest 'projected waiting

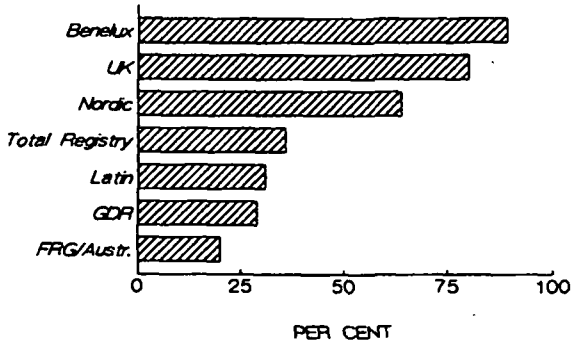


Fig. 6. Proportion of centres, in selected countries or groups of countries, reporting that 75% or more of their new patients in 1986 were seen by a social worker. (Countries and regions as defined in Fig. 5.)

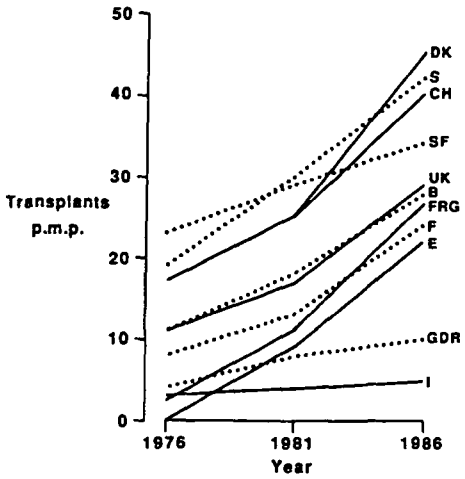


Fig. 7. Number of transplants performed per million population (p.m.p.) in selected countries for each of the years 1976, 1981 and 1986. (DK = Denmark; S = Sweden; CH = Switzerland; SF = Finland; UK = United Kingdom; B = Belgium; FRG = Federal Republic of Germany; F = France; E = Spain; GDR = German Democratic Republic; and I = Italy.)

Table 8. Transplant activity in 1986. Total number of grafts and number per million population, the proportion of dialysis patients on a waiting list for cadaver transplant at end of 1986 as reported by dialysis centres, and the proportion of highly sensitised patients on the waiting list

| Country | Grafts in 1986 | | Patients on waiting list | |
|---|---|---|---|---|
| | *n* | p.m.p. | % | % highly sensitised* |
| Algeria | 2 | 0.1 | 23.3 | 35.1 |
| Austria | 271 | 35.9 | 35.7 | 12.9 |
| Belgium | 296 | 30.1 | 14.4 | 14.2 |
| Bulgaria | 2 | 0.2 | 34.5 | 6.9 |
| Cyprus | 0 | 0.0 | 30.7 | — |
| Czechoslovakia | 151 | 9.8 | 41.4 | 13.5 |
| Denmark | 227 | 44.5 | 23.1 | 10.2 |
| Egypt | 80 | 1.7 | 0.6 | — |
| Fed. Rep. Germany | 1627 | 26.7 | 19.9 | 6.4 |
| Finland | 143 | 29.1 | 32.4 | 9.0 |
| France | 1319 | 23.9 | 16.4 | 16.0 |
| German Dem. Rep. | 167 | 10.0 | 27.5 | 7.5 |
| Greece | 62 | 6.2 | 17.8 | 11.3 |
| Hungary | 52 | 4.9 | 58.0 | 9.1 |
| Iceland | 0 | 0.0 | 78.9 | — |
| Ireland | 100 | 28.1 | 54.8 | 19.8 |
| Israel | 90 | 21.0 | 22.4 | 20.2 |
| Italy | 250 | 4.4 | 18.6 | 8.8 |
| Lebanon | 0 | 0.0 | 0.0 | — |
| Libya | 0 | 0.0 | 0.0 | — |
| Luxembourg | 5 | 13.7 | 21.8 | 7.1 |
| Morocco | 1 | 0.1 | 9.3 | 0.0 |
| Netherlands | 430 | 29.7 | 25.6 | 18.4 |
| Norway | 171 | 41.3 | 38.5 | 25.9 |
| Poland | 279 | 7.5 | 51.4 | 6.0 |
| Portugal | 92 | 9.0 | 28.2 | 8.5 |
| Spain | 877 | 22.7 | 39.9 | 10.6 |
| Sweden | 347 | 41.7 | 28.9 | 13.3 |
| Switzerland | 259 | 40.3 | 20.5 | 15.4 |
| Tunisia | 9 | 1.3 | 20.6 | — |
| Turkey | 145 | 2.9 | 46.1 | 1.2 |
| United Kingdom | 1625 | 28.8 | 44.9 | 11.2 |
| Yugoslavia | 137 | 5.9 | 29.0 | 9.4 |
| Total Registry | 9216 | 14.8 | 25.6 | 10.6 |

*Most recent serum reacting with more than 80% of random donor panel

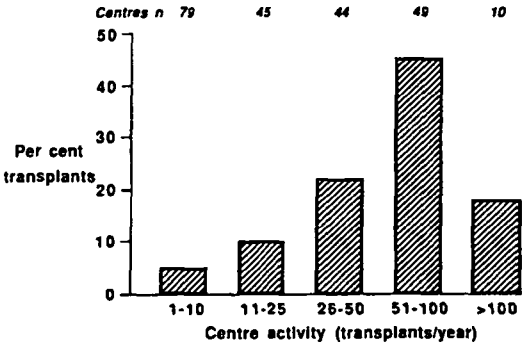


Fig. 8. Percent transplants performed in 1986 according to centre activity, which is defined by number of transplants performed in 1986.

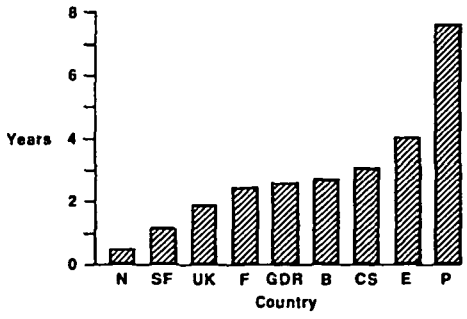


Fig. 9. 'Projected waiting time' (in years) in December 1986 for a renal transplant in selected countries. (N = Norway; SF = Finland; UK = United Kingdom; F = France; GDR = German Democratic Republic; B = Belgium; CS = Czechoslovakia; E = Spain; and P = Portugal.)

times' were calculated for the Nordic countries and Switzerland, countries which have previously demonstrated high transplant activity.

**Table 9.** Most commonly reported upper age limit for a donor from which centres would accept a cadaver kidney. Results are shown for selected countries

| Country | Upper age limit (years) |
|---|---|
| Nordic | None |
| France | 60 |
| Fed. Rep. Germany | 60–70 |
| Greece | 70 |
| Israel | 70 |
| Italy | 60 |
| Netherlands | 70 |
| Portugal | 60 |
| Spain | 60 |
| Switzerland | 60 |
| United Kingdom | 70 |

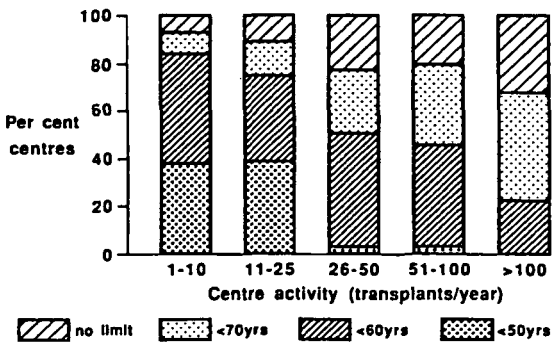


**Fig. 10.** Centre policy concerning the upper age limit for a donor from which a cadaver kidney would be accepted, according to centre activity.

## *(g) Cadaveric Kidney Graft Retrieval*

The transplant centres were asked for their policy concerning the upper age limit for a donor from which they would accept a cadaver kidney. Table 9 shows the most commonly reported acceptable upper age limit for a donor in selected countries. The centre policy concerning the upper age limit for a donor according to centre activity is shown in Fig. 10 and demonstrates that centres with high transplant activity are more willing to accept donors with a higher age than centres with a low transplant activity. One wonders whether activity is low in some centres because of a reluctance to use donors from the upper age range.

It was also found that the greater the centre activity, the higher the proportion of centres which in 1986 sent a surgical team to other hospital(s) to perform cadaver donor nephrectomy (Fig. 11). The proportion of centres (excluding paediatric units) which sent a surgical team to other hospital(s) for cadaver donor nephrectomy in 1986 according to country or region is shown in Fig. 12. In Nordic countries this practice has been adopted by nearly all the transplant units (90%), whereas in Spain only a small proportion of transplant units (17%) sent a surgical

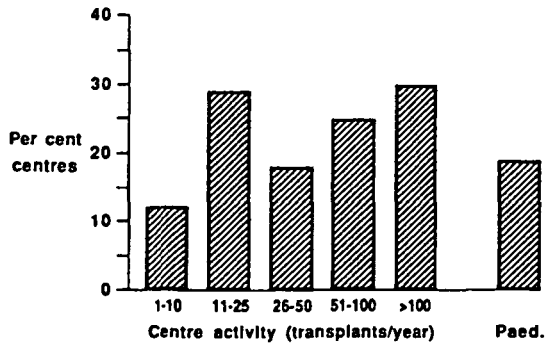


**Fig. 11.** Proportion of centres sending a surgical team to other hospital(s) for cadaver donor nephrectomy in 1986, according to centre activity and in paediatric centres.

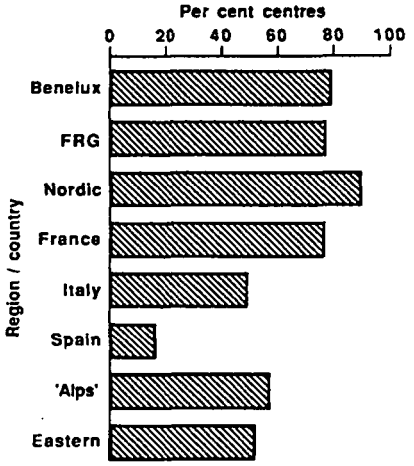


**Fig. 12.** Proportion of centres sending a surgical team to other hospital(s) for cadaver donor nephrectomy in 1986 according to country or region. Paediatric centres have been excluded from this analysis. (Benelux = Belgium, Netherlands, Luxembourg; FRG = Federal Republic of Germany; Nordic = Denmark, Finland, Iceland, Norway, Sweden; 'Alps' = Austria, Switzerland; Eastern = Czechoslovakia, German Democratic Republic, Hungary, Poland.)

team to other hospital(s) for procurement of cadaver kidneys.

## *(h) Immunosuppressive Regimes*

Transplant centres were asked to record their policy in 1986 regarding the use of antilymphocyte globulin (ALG), antithymocyte globulin (ATG) or monoclonal antibodies for prophylactic immunosuppression, and the use of ALG, ATG, monoclonal antibodies and plasma exchange for antirejection therapy. Results concerning prophylactic immunosuppression are shown in Table 10 according to country. Twelve per cent of centres reported having used either ALG, ATG or monoclonal antibodies for prophylactic immunosuppression for most or all of their patients, 20% reported one of these immunosuppressive agents for some of their patients, and 62%

Table 10. Centre policy concerning the use of ALG, ATG or monoclonal antibodies for prophylactic immunosuppression in 1986. Numbers of centres reporting that these regimes were never used, used in some patients, or used in most or all patients

| Country | ALG | | | ATG | | | Monoclonal antibodies | | |
|---|---|---|---|---|---|---|---|---|---|
| | Never used | Some patients | Most/all patients | Never used | Some patients | Most/all patients | Never used | Some patients | Most/all patients |
| Austria | 4 | 1 | 0 | 4 | 2 | 0 | 4 | 1 | 0 |
| Belgium | 2 | 2 | 1 | 5 | 0 | 0 | 5 | 0 | 0 |
| Czechoslovakia | 4 | 0 | 0 | 4 | 0 | 0 | 4 | 0 | 0 |
| Denmark | 4 | 0 | 0 | 4 | 0 | 0 | 4 | 0 | 0 |
| Egypt | 2 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 |
| Fed. Rep. Germany | 12 | 5 | 2 | 11 | 8 | 0 | 17 | 3 | 0 |
| Finland | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| France | 2 | 3 | 12 | 8 | 5 | 2 | 12 | 3 | 0 |
| German Dem. Rep. | 2 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 0 |
| Greece | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hungary | 2 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 |
| Ireland | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Israel | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Italy | 6 | 0 | 1 | 6 | 0 | 0 | 5 | 1 | 0 |
| Netherlands | 7 | 0 | 0 | 6 | 0 | 1 | 6 | 1 | 0 |
| Norway | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Poland | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 |
| Portugal | 2 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 |
| Spain | 15 | 5 | 0 | 14 | 4 | 2 | 19 | 1 | 0 |
| Sweden | 3 | 0 | 0 | 2 | 2 | 0 | 2 | 0 | 0 |
| Switzerland | 5 | 0 | 0 | 3 | 2 | 1 | 5 | 1 | 0 |
| Turkey | 2 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 |
| United Kingdom | 29 | 3 | 0 | 27 | 7 | 0 | 31 | 2 | 0 |
| Yugoslavia | 1 | 2 | 2 | 3 | 1 | 0 | 5 | 0 | 0 |
| Total Registry | 110 | 23 | 18 | 112 | 33 | 6 | 135 | 13 | 0 |

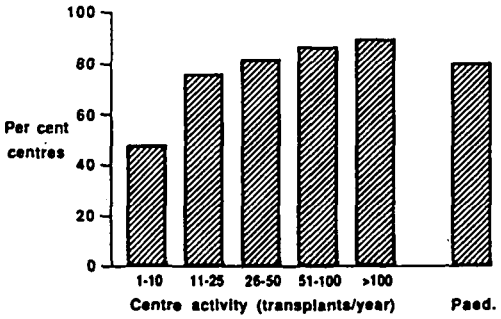


Fig. 13. Proportion of centres using ALG, ATG, monoclonal antibodies or plasma exchange for prophylactic immunosuppression or in the treatment of rejection episodes in 1986, according to centre activity and in paediatric centres.

never to have used any of these agents. Table 12 gives information by country concerning treatment of rejection episodes.

Figure 13 shows that the higher the transplant activity, the greater the percentage of centres which used ALG, ATG, monoclonal antibodies or plasma exchange for either prophylactic immunosuppression or treatment of rejection episodes. Most centres performing more than 10 transplants in 1986 used one or several of these agents for the treatment of at least some rejection episodes.

Table 11. Number of combined kidney/pancreas transplants performed in 1986 according to country and number of centres performing these transplants

| Country | Transplants (*n*) | Centres (*n*) |
|---|---|---|
| Austria | 5 | 1 |
| Belgium | 3 | 2 |
| Czechoslovakia | 4 | 1 |
| Fed. Rep. Germany | 25 | 5 |
| France | 13 | 2 |
| German Dem. Rep. | 2 | 1 |
| Italy | 3 | 2 |
| Netherlands | 10 | 3 |
| Norway | 10 | 1 |
| Spain | 4 | 2 |
| Sweden | 31 | 4 |
| Switzerland | 4 | 1 |
| United Kingdom | 8 | 4 |
| Total Registry | 122 | 29 |

A total of 21% of transplant centres were using monoclonal antibodies. Again, there is a relationship between the use of monoclonal antibodies and centre activity. Of centres performing 50–100 transplants in 1986, more than 40% reported at least occasional use of monoclonal antibodies. Approximately 22% of transplant centres

12. Centre policy concerning the use of ALG, ATG, monoclonal antibodies or plasma exchange for antirejection therapy in 1986. Number of centres reporting that these s were never used, used in some rejection episodes, or used in most or all rejection episodes

| ry | ALG | | | ATG | | | Monoclonal antibodies | | | Plasma exchange | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Never used | Some episodes | Most/all episodes | Never used | Some episodes | Most/all episodes | Never used | Some episodes | Most/all episodes | Never used | Some episodes | Most/all episodes |
| a | 4 | 0 | 0 | 0 | 5 | 1 | 2 | 3 | 0 | 1 | 3 | 0 |
| n | 3 | 2 | 1 | 2 | 3 | 0 | 3 | 2 | 0 | 4 | 1 | 0 |
| oslovakia | 2 | 1 | 1 | 2 | 2 | 0 | 4 | 0 | 0 | 3 | 1 | 0 |
| ark | 4 | 0 | 0 | 4 | 0 | 0 | 3 | 1 | 0 | 4 | 0 | 0 |
| | 2 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 2 | 0 | 0 |
| ep. Germany | 10 | 9 | 0 | 4 | 13 | 2 | 9 | 10 | 1 | 11 | 9 | 0 |
| d | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| | 0 | 11 | 6 | 10 | 5 | 1 | 10 | 6 | 0 | 8 | 5 | 0 |
| an Dem. Rep. | 2 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 1 | 1 | 0 |
| | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| ary | 1 | 1 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 |
| d | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| | 2 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |
| | 5 | 1 | 1 | 5 | 1 | 0 | 3 | 3 | 0 | 6 | 0 | 0 |
| rlands | 7 | 0 | 0 | 0 | 5 | 2 | 6 | 1 | 0 | 7 | 0 | 0 |
| ay | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| d | 2 | 1 | 0 | 2 | 1 | 0 | 2 | 1 | 0 | 3 | 0 | 0 |
| gal | 2 | 0 | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 1 | 1 | 0 |
| | 8 | 12 | 0 | 7 | 12 | 1 | 19 | 1 | 0 | 16 | 4 | 0 |
| n | 3 | 0 | 0 | 0 | 4 | 0 | 2 | 1 | 0 | 2 | 1 | 0 |
| rland | 3 | 2 | 0 | 0 | 6 | 0 | 5 | 1 | 0 | 4 | 1 | 0 |
| y | 1 | 1 | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |
| d Kingdom | 19 | 14 | 0 | 17 | 17 | 0 | 25 | 7 | 0 | 25 | 8 | 0 |
| slavia | 0 | 4 | 1 | 3 | 1 | 1 | 4 | 1 | 0 | 0 | 5 | 0 |
| Registry | 82 | 61 | 10 | 67 | 79 | 9 | 108 | 42 | 1 | 104 | 44 | 0 |

reported occasional use of plasma exchange for the treatment of rejection episodes and this percentage did not appear to depend on centre activity.

### *(i) Combined Kidney and Pancreas Grafts*

In 1986, 28 centres performed 122 combined kidney/pancreas transplants (Table 11). This number should be compared to the 58 grafts reported by 14 centres in 1983 [3]. The numbers for each country are small, with the highest number in 1986 reported from Sweden. All four Swedish transplant centres carried out combined kidney/pancreas transplants and between them reported a total of 31 such grafts.

## Conclusions

EDTA Registry centre questionnaire data continues to be an important source for analysing trends in renal replacement therapy. The large number of centres reporting outweighs individual shortcomings in these types of analyses. This paper summarises several topics and, wherever possible, data have been presented on a countrywide basis.

Although there are national variations in treatment, attitudes and modalities, some generalised conclusions can be made. The total number of patients on hospital haemodialysis has started to level off, accompanied by a decrease in the number of patients treated with home haemodialysis. On the other hand, the number of patients alive on CAPD or with a functioning graft continues to increase.

The frequency of new cases of hepatitis B amongst patients and staff declined in 1986. Renal transplant activity is still rapidly increasing, but the number of patients on a waiting list for a renal graft was much higher than the number of available organs in most countries. Also the number of combined kidney/pancreas transplant operations increased, but only a minority of patients with diabetic end-stage renal failure were treated by this procedure.

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