Changing Patterns of Renal Medicine

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Major changes in medical practice should be the result of advances in knowledge, especially in those specialties in which expensive hospital care and complex procedures are involved. The experiences of a Midlands centre where a medical renal unit was started in 1957 may be informative after 20 years' experience and the study of over 5000 patients with miscellaneous renal disorders.

INCIDENCE OF RENAL DISEASE IN THE WEST MIDLANDS

The true incidence of renal disorders in the community is almost impossible to assess since many mild abnormalities remain unrecognised or are not referred to specialised units. Urinary tract infections, for example, are extremely common but are often not referred to hospital, so accurate records of incidence are not available. In hospital, such patients are seen about equally by urological surgeons and physicians, and detailed information may be difficult to obtain. Symptomless proteinuria is also common, often remaining unrecognised until some other clinical problem or routine medical examination (e.g. for life insurance) prompts investigation (Blainey, 1975).

More serious or persistent conditions are likely to be referred to hospital, and Table 1 shows the frequency of the final diagnosis reached in new patients referred to a renal clinic from 1965-76, averaged over three year periods. It is remarkable that the pattern has changed so little over this time and that the diagnostic problems remain unchanged.

A survey of admissions, discharges and deaths has been kept for a sample of 50 per cent of all hospital patients with renal diseases in the West Midlands area for many years. Table 2 shows that although the total incidence of hospital in-patient work for all forms of renal disease at all ages has not changed appreciably over the ten-year period, the numbers of discharges and deaths has decreased, particularly in nephritis and urinary tract infections. The figures for other renal disorders include such conditions as renal calculi, hydronephrosis, congenital disorders of the renal tract and urethral strictures but exclude prostatic obstruction (WHO, 1967). It is possible, therefore, to define with reasonable accuracy for this geographical area, the incidence of the most serious manifestations of renal disorders, and these figures agree with national records based upon individual surveys or the annual returns from the Registrar General for the deaths (Branch et al., 1971; Pendreigh et al., 1972; McGeown, 1972). The data emphasise that the
Table 1. Average attendances (new patients per year) of patients at renal clinic by final diagnosis.

| Final Diagnosis                      | 1965-67 | 1968-70 | 1971-73 | 1974-76 |
|--------------------------------------|---------|---------|---------|---------|
| Nephrotic syndrome:                  |         |         |         |         |
| proliferative                        | 34      | 24      | 31      | 37      |
| membranous                           | 13      | 7       | 3       | 5       |
| minimal                              | 10      | 13      | 13      | 8       |
| Renal failure (all causes)           | 28      | 40      | 35      | 56      |
| Urinary tract infection              | 29      | 22      | 26      | 36      |
| Symptomless proteinuria              | 15      | 15      | 13      | 12      |
| Renal calculi                        | 3       | 2       | 3       | 4       |
| Hypertension                         | 14      | 16      | 18      | 23      |
| Renal vein thrombosis                | 4       | 8       | 6       | 5       |
| SLE                                  | 3       | 6       | 8       | 3       |
| Diabetes                             | 13      | 1       | 2       | 3       |
| Polycystic kidney                    | 5       | 5       | 6       | 5       |
| Erythema nodosa                      | 2       | 1       | 1       | 1       |
| Anaphylactoid purpura                | 3       | 2       | 2       | 0       |
| Polyarteritis nodosa                 | 2       | 1       | 2       | 3       |
| Nephrocalcinosis                     | 3       | 1       | 2       | 1       |
| Renal tubular acidosis               | 1       | 4       | 2       | 1       |
| Ureteric obstruction                 | 1       | 1       | 1       | 2       |
| Alport syndrome                      | 2       | 1       | 3       | 6       |
| Sarcoidosis                          | 2       | 2       | 2       | 1       |
| Infective endocarditis               | 1       | 1       | 0       | 2       |
| Cadmium poisoning                    | 2       | 0       | 1       | 1       |

deadth rates remain very high in the older age groups for whom modern forms of therapy are simply not available in sufficient quantity (Renal Association, 1976).

MEDICAL DIAGNOSIS OF RENAL DISORDERS

Methods of diagnosis have not altered greatly in the past 20 years, although wider use has been made of specialised services. Quantitative measurement of factors such as daily urine protein loss, immunological protein clearances, bacterial and cell excretion rates, and serial renal function tests remain the basis of adequate diagnosis, together with pyelography and renal biopsy examination. The development of immunological techniques and electron-microscopy of tissue from renal biopsies has added considerable understanding of the mechanism of production of glomerulonephritis but has had little impact on the management and treatment of the individual patient. Increased precision of diagnosis, with correlation of clinical, biochemical and histological changes, has added useful factual knowledge on prognosis and response to treatment for certain groups of patients suffering from glomerulonephritis and has helped to dispel some of the confusion of nomenclature of previous classifications (Blainey, 1977). For many patients with...
renal disorders, however, diagnosis remains inaccurate and haphazard and is particularly difficult in older patients in whom renal biopsy is undesirable.

THE TREATMENT OF RENAL DISORDERS
The development of effective antibiotic therapy, especially against Gram-negative bacteria, has clearly altered the mortality and admission rates for urinary infection (Table 2). The use of immunosuppressive agents and corticosteroids has had little effect upon admission rates for various forms of nephritis, but dialysis and transplantation have reduced the numbers of deaths in the younger age groups. The limited facilities for these modern developments in the heavily populated West Midlands area has meant that treatment for chronic renal failure could not be offered to the older patients or the large numbers admitted to hospital with other renal conditions, and the death rates in these groups have remained unaltered.

Acute Renal Failure and Dialysis
Acute renal failure after Gram-negative septicaemia, trauma, septic abortion and complications of abdominal surgery used to be relatively common, and most of the older dialysis units in Britain were developed around the necessity for treatment of this condition. Success in treatment was gratifying, and the Birmingham experience of reduction of mortality in 1960 from about 90 per cent to less than 30 per cent was common to most units. Improved transfusion, effective antibiotics against Gram-negative organisms, the disappearance of illegal septic abortion and changes in techniques, especially of gastric surgery, resulted in a dramatic reduction in the incidence of acute renal failure. Peritoneal dialysis also became universally available so that the decreasing numbers of acute cases have tended to be treated in local district hospitals, often with telephone advice from renal units.

At the same time, dialysis for chronic renal failure has become increasingly common and has involved a complete change of emphasis for many renal units, whose work has changed from the intensive care approach for fairly large numbers of patients with acute renal failure to the long-term treatment of small numbers of patients who attend hospital two or three times a week for dialysis (Table 3). The former required intensive medical care, were often acutely ill with the underlying cause of the renal failure and required the services of every specialised department in the hospital. The technical and emotional problems of the chronic dialysis unit have been well described by De-Nour and Czaczes (1968).

Kidney Transplantation
The severe limitation of facilities for dialysis, largely resulting from the alarming cost of treatment and chronic staffing problems, has resulted in a rapid increase in kidney transplantation. Although early results were disappointing, it is now clear
| Year | Nephritis Discharges | Nephritis Deaths | Kidney Infections Discharges | Kidney Infections Deaths | Other Renal Disorders Discharges | Other Renal Disorders Deaths | Total Discharges | Total Deaths |
|------|------------------|------------------|-----------------------------|-------------------------|---------------------------------|---------------------------|-----------------|-------------|
|      | All ages | 15-55 | All ages | 15-55 | All ages | 15-55 | All ages | 15-55 | All ages | 15-55 | All ages | 15-55 |
| 1966 | 1052 | 220 | 80 | 1007 | 137 | 19 | 6232 | 76 | 7 | 8291 | 434 | 106 |
| 1967 | 1577 | 235 | 76 | 1080 | 137 | 21 | 6225 | 87 | 7 | 8880 | 460 | 102 |
| 1968 | 1128 | 180 | 73 | 1035 | 95 | 9 | 6851 | 154 | 28 | 9015 | 429 | 109 |
| 1969 | 1142 | 192 | 90 | 954 | 92 | 19 | 6956 | 149 | 21 | 9053 | 434 | 121 |
| 1970 | 1099 | 152 | 54 | 819 | 57 | 4 | 7153 | 185 | 26 | 9072 | 394 | 85 |
| 1971 | 1376 | 176 | 64 | 759 | 60 | 7 | 6875 | 166 | 27 | 8871 | 445 | 105 |
| 1972 | 1700 | 256 | 90 | 788 | 64 | 2 | 7785 | 211 | 33 | 10281 | 534 | 128 |
| 1973 | 1645 | 192 | 59 | 781 | 57 | 4 | 7507 | 206 | 31 | 9668 | 453 | 97 |
| 1974 | 1031 | 133 | 20 | 465 | 31 | 2 | 6781 | 124 | 14 | 8278 | 393 | 142 |
| 1975 | 649 | 117 | 31 | 356 | 41 | 4 | 6377 | 247 | 56 | 7460 | 406 | 92 |

Table 2. West Midlands hospitals data on renal disease 1966-75. (Total estimated figures based upon 50% sample all hospitals in former Birmingham Regional Hospital Board Area.)
Table 3. Dialysis in United Birmingham Hospitals Renal Unit, 1960-76.

| Year | Acute Renal Failure | Chronic Renal Failure |
|------|---------------------|-----------------------|
|      | Dialyses | Patients | Dialyses | Patients |
| 1960 | 12       | 6        | 0        | 0        |
| 1961 | 58       | 31       | 0        | 0        |
| 1962 | 100      | 53       | 0        | 0        |
| 1963 | 122      | 75       | 0        | 0        |
| 1964 | 195      | 74       | 0        | 0        |
| 1965 | 110      | 50       | 315      | 3        |
| 1966 | 122      | 56       | 413      | 4        |
| 1967 | 132      | 63       | 491      | 5        |
| 1968 | 258      | 88       | 633      | 7        |
| 1969 | 105      | 51       | 980      | 9        |
| 1970 | 120      | 59       | 1630     | 31*(25)  |
| 1971 | 52       | 17       | 1536     | 55*(35)  |
| 1972 | 31       | 10       | 2022     | 72*(60)  |
| 1973 | 19       | 7        | 1662     | 61*(50)  |
| 1974 | 8        | 5        | 1436     | 75*(68)  |
| 1975 | 11       | 6        | 1202     | 79*(67)  |
| 1976 | 13       | 6        | 1253     | 70*(59)  |

* (includes renal transplant patients requiring dialysis in immediate post-transplant period – numbers in parenthesis)

that, with increased experience, improved tissue-typing, and better selection of suitable donor material, a graft survival of 40 per cent or more at five years is to be expected from cadaver kidneys. Living-donor grafts from close relatives of similar tissue type and mixed lymphocyte culture compatibility have an 85 per cent graft survival at five years. The regrettable opposition of some medical staff and of Health Authorities to transplantation has undoubtedly delayed further development and most transplant units could treat many more patients were donor material available. The renal physician in 1977 has to spend a regrettably large proportion of his time trying to explain to patients and their relatives why facilities for treatment are not available, especially for the patient over the age of 50. Press coverage of dialysis and transplantation advances has not made this invidious task any easier. When it is further realised that the five-year results of kidney transplantation in a fatal condition are some ten times better than those for most cancer surgery or radiotherapy, the importance of increasing facilities for treatment of these patients becomes even more obvious.
Nephrology has now become a respectable and recognised specialty, with its main clinical emphasis on accurate diagnosis, and its main therapeutic successes in the use of antibiotics, dialysis and transplantation. Reference to the mortality figures (Table 2) shows the need for more effective treatment for glomerulonephritis and for the various other forms of renal disease leading to renal failure. It is likely that many of the congenital abnormalities of the renal tract, normally referred to the urological surgeons and included in this group of conditions, are never referred to dialysis or transplant units, largely because of the shortage of treatment facilities and the large numbers of patients involved. While it will certainly never be possible to treat all patients with renal disorders, a more generous allocation of resources in this field would certainly reap valuable rewards in the reduction of morbidity, hospital admissions, and deaths. A more aggressive and evangelistic attitude, based on facts now available on the needs of patients suffering from these disorders, may be required from those physicians practising in this specialty in the future.

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References

Blainey, J. D. (1975) Royal College of Physicians' Advanced Medicine Symposium, 11, 317. Tunbridge Wells: Pitman Medical.

Blainey, J. D. (1977) Recent Advances in Medicine, 12, in press.

Branch, R. A., Clark, G. W., Cochrane, A. L., Jones, J. H. and Scarborough, H. (1971) British Medical Journal, 1, 249.

De-Nour, A. K. and Czaczes, J. W. (1968) Lancet, 2, 987.

McGeown, M. G. (1972) Lancet, 1, 307.

Pendreigh, D. M., Howitt, L. F., MacDougall, A. I., Robson, J. S., Heasman, M. A., Kennedy, A. C., McLeod, M. and Stewart, W. K. (1972) Lancet, 1, 305.

Report of the Executive Committee of the Renal Association, (1976) British Medical Journal, 2, 903.

World Health Organisation (1967) Manual of the International Statistical Classification of Diseases, Injuries and Causes of Death, 1, 224.