method of cooling is sponging the patient with tepid water in a cool, well-ventilated room.[9] Sedation, to lower the metabolic rate and prevent convulsions, has its place,[10] though it should be used cautiously, as severe liver damage may occur in heatstroke. Once the body temperature has been restored to normal treatment should be non-specific, with particular attention to restoring fluid balance, blood-clotting mechanisms, and renal function. The chances of full recovery seem to be governed by the duration of unconsciousness and hyperpyrexia, and recovery may take some weeks.

In the United Kingdom heatstroke is not common. Nevertheless, where the environment is excessively hot, such as in the steel or mining industry, operating theatres, or in situations where energy output is very high,[11] timely advice from a doctor who is aware of the possibilities of heatstroke will avoid the need for treatment.

Arsenic and Cancer

Inorganic arsenic has been used for over 200 years to treat conditions as diverse as anaemia, epilepsy, and skin diseases. Now that more effective drugs are available arsenic has been omitted from the *National Formulary*, and there are virtually no indications for prescribing it.

Though the immediate toxic effects of arsenic have long been recognized, the sinister long-term effects are only just coming to be appreciated. Of these generalized pigmentation is the best known but by no means the most important. It does not always have the well-known rain-drop appearance and may at times involve the mouth and so even more closely mimic Addison's disease. The commonest complication is the development of cutaneous neoplasms, both premalignant and malignant. In a survey of 262 patients treated with arsenic between six and 26 years before[1] the characteristic keratoses of the palms and soles were found in over 40%. These keratoses often show histological evidence of intra-epidermal carcinoma. Other effects of arsenic on the skin include the development of multiple superficial basal cell carcinomas, Bowen's disease (intra-epidermal squamous carcinoma), and invasive squamous and basal cell carcinomas. Patients with these lesions do not necessarily have palmar keratoses or other evidence of arsenic intoxication.[2]

The incidence of lesions depends on the total dose of arsenic taken. If the latter has exceeded 400 ml. of Fowler's solution lesions occur in about half the cases,[1] while a total of as little as 75 ml. is capable of giving rise to keratoses and carcinomas. The interval between starting arsenic medication and the appearance of lesions varies from three to 40 years ; thus many patients develop lesions when they are still young. By the time neoplasms have developed the levels of arsenic in the skin, hair, and nails may have returned to normal, and it is impossible to prevent the development of more lesions by removing residual traces of arsenic by treatment with dimercaprol.

Another even more important long-term effect of arsenic is that it probably gives rise to carcinomas in other organs, such as the lung.[3] The exact frequency of this complication is difficult to establish. Patients with Bowen's disease, especially on covered parts and not necessarily due to arsenic, are known to have an increased incidence of systemic cancer.[4 5] As many as one-third of these patients develop systemic cancer within 10 years of the time of diagnosis. Moreover, even patients with palmar keratoses resembling those due to arsenic but in whom no evidence for such a cause is found are more prone than usual to develop cancer.[6]

It is important that these toxic effects should be familiar not only to the medical but also to the pharmaceutical profession, and M. M. Black has recently reviewed the subject in the *Pharmaceutical Journal*.[7] He points out that arsenic is still being given not only in conventional doses as Fowler's solution for conditions such as psoriasis and dermatitis herpetiformis but also in much smaller, though significant, doses as skin and blood tonics. As it is not yet known whether any dose of arsenic, however small, is safe, such empirical prescribing should be condemned.

Psychological Factors in Renal Transplantation

It is never easy for a patient with chronic renal failure to accept the fact that he must undergo regular haemodialysis if he is to stay alive. Once he does understand this, however, he is likely to develop anxiety and depression, while hostile, overdependent, or child-like behaviour may also occur. It is important that the staff of the renal unit should understand these reactions, and their task is easier the more they know about the patient, his relationship with his family, his finances, and his general security. Not only does the patient himself need sympathetic handling but his family may also need support and help. Patients most likely to make a good adjustment are of good intelligence and reasonably stable personality who receive strong support from their families.

Psychiatric assessment may also be helpful in advising which patient can adjust to long-term haemodialysis and which one should be considered for early renal transplantation. Moreover, W. A. Cramond and his colleagues[1 2] have recently suggested that the psychiatrist also has an important role in the selection of potential renal donors. Because the operation is more likely to be successful if the donor is a relative, complex relationships between the donor, the recipient, and the relatives are likely to occur. For example, Cramond and his colleagues found that the families of patients with chronic renal disease often preselected a donor from their midst. Those donors who openly refused risked rejection by their families. At least one young man put into such a position escaped operation, with his family honour preserved, by approaching one of the members of the medical team confidentially.

The implications of failure of the graft also have to be considered. Cramond and his colleagues rejected the brother of one of their patients as a donor because the relationship was coloured by hostility and resentment. They felt that,

[1] Fierz, U., *Dermatologica (Basel)*, 1965, **131**, 41.
[2] Sanderson, K. V., *Trans. St John's Hosp. derm. Soc. (Lond.)*, 1963, **49**, 115
[3] Robson, A. O., and Jelliffe, A. M., *Brit. med. J.*, 1963, **2**, 207.
[4] Graham, J. H., and Helwig, E. B., *Arch. Derm.*, 1959, **80**, 133.
[5] Peterka, E. S., Lynch, F. W., and Goltz, R. W., *Arch. Derm.*, 1961, **84**, 623.
[6] Dobson, R. L., Young, M. R., and Pinto, J. S., *Arch. Derm.*, 1965, **92**, 553.
[7] Black, M. M., *Pharm. J.*, 1967, **199**, 593.

[1] Cramond, W. A., Knight, P. R., Lawrence, J. R., Higgins, B. A., Court, J. H., MacNamara, F. M., Clarkson, A. R., and Miller, C. D. J., *Brit. med. J.*, 1968, **1**, 539.
[2] Cramond, W. A., Knight, P. R., and Lawrence, J. R., *Brit. J. Psychiat.*, 1967, **113**, 1201.
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while a successful graft might have served as an expiation of these feelings, a failure might have produced unconscious feelings that the donor had murdered his brother.

These workers have also discussed[3] the psychological and socio-economic problems of five patients who underwent renal transplantation and their donors. The reaction of a man who received a kidney from a female donor was such that they suggest that this represented a threat to the patient's sexual identity. Hence they recommend that if possible the donor and patient should be of the same sex. Four of the five patients showed evidence of ambivalence towards the donor. Patients had difficulty in dealing with their sense of obligation to their donors. At first they were grateful, but later they tended to develop resentment with feelings of guilt. Some donors also developed resentful feelings towards the recipient, and sometimes criticized him severely for not behaving as the donor felt he should. These papers make out a good case for psychological assessment of both potential recipients and donors. Ambivalence of feeling is present in all close relationships. There may even be occasions when not becoming a donor could have as profound a psychological effect as becoming one.

Urethral Syndrome

Half of all women who have frequency and dysuria do not have significant numbers of bacteria or pus cells in the urine.[1 2] It is easy to call these women neurotic, but their symptoms are distressing and usually have an organic basis, though elaborate investigation may be needed to make a diagnosis.

The absence of organisms and of pus does not necessarily exclude disease in the upper urinary tract, especially since pus cells may disappear rapidly from urine stored even in the cold.[3] Whatever the urine report states, if the history is convincing trouble in the upper urinary tract must be ruled out. Patients with "urethral" symptoms may have stones, hydronephrosis, duplex reflux, and even tumours. If the pyelogram shows scarring it may be necessary to culture urine from each ureter before ruling out renal infection,[4] and repeated culture of early morning urine specimens should be done to exclude tuberculosis. These investigations are conventional urological practice, and disease of the upper tract is not often missed. Urethral disease is another matter.

Pathogens from the paraurethral glands may be washed away in the first few millilitres of urine so that they do not register in a colony count on urine passed later on. To detect them the two-glass test[5] may be used, or, better, the urine got from the bladder by suprapubic puncture may be compared with that passed through the urethra.[6] More direct examination of urethral secretions is difficult and hitherto has largely been the province of the venereologist working on an unusually selected population. About three-quarters of the female contacts of promiscuous men with non-gonococcal urethritis harbour T-strain pleuropneumonia organisms in the urethra[7-10]; a small number grow the TRIC agent[11]; those taking oral contraceptives especially may grow candida[12] and others the trichomonas. All these agents may cause urethritis but will not be detected by conventional bacteriological studies of the urine. Yet there remain women with urethral symptoms who have none of them.

Endoscopy is necessary. It may be difficult to pass even a narrow (22 Ch) cystoscope, because of urethral resistance. Cystoscopy may show trabeculation and injection of the trigone—but these signs are seen in patients with none of the symptoms of urethritis, and neither can be measured objectively. To see the urethra it is necessary to use the panendoscope or urethroscope, which may show the hillocks and polypi dear to an earlier generation of urologists who had no doubts about their significance or their treatment.[13] Histologically these oedematous blebs of mucosa may show some inflammation in paraurethral glands and metaplasia of the urethral mucosa, but both changes can occur in normal controls. More convincing is the sight of pus issuing like toothpaste from paraurethral glands, or the uncommon view of a diverticulum showing like a golf-hole in the floor of the urethra.

Among these women with "sterile cystitis" are a few victims of overuse of antibiotics with a sore "abacterial vaginitis."[14] There are some whose urethritis is chemical in origin, from contraceptive foam, bubble baths,[15] douches, aerosol deodorants, and obsessive washing with soap and water. Some are allergic to antioxidants in the rubber of their contraceptive devices, or can relate the syndrome to intercourse, the menstrual cycle, or to the direction in which they wipe themselves after defaecation.

The real question is whether this urethritis, a safe condition, goes on to develop into upper urinary tract infection, which is a dangerous one. In some series patients presenting initially with sterile cystitis went on to develop pyelonephritis[1 2 4] but in others they did not.[5] As some patients with infection of the upper urinary tract excrete organisms only intermittently in the urine, adequate prospective studies are the only way of settling this question, and until then patients with this syndrome should be followed with care.

In the meantime it is a miserable condition and the patient would like to be rid of it. When disease in the upper urinary tract and outflow obstruction in the bladder have been excluded the next step is to attempt to identify causative organisms in the urethra, and to treat these appropriately with antibiotics. If the urethra is narrow and even if there is no residual urine there may be a place for the traditional ritual urethral dilatation of the urologist, though benefit from this procedure may well be the result of therapeutic suggestion.

Despite treatment along these lines some patients scarcely improve year after year, and we still need to know more about the pathology of the condition. Until we do, it is wrong to dismiss the patient out of hand as yet another neurotic with a tiresome symptom for which there is no cause and no treatment.

The Queen has appointed Sir Solly Zuckerman, F.R.S., a member of the Order of Merit.

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