

operatively. Appropriate regimens include the following.

1. Ampicillin (1 g, intravenously) immediately before the operation and every six hours for 24 hours, and metronidazole (500 mg, intravenously) before the operation and 12 hours later.

2. Cephadrine (1 g, by mouth) three to four hours before surgery and 0.5 g every six hours after the operation for three doses, and tinidazole (1 g, by mouth) three to four hours before surgery and again after 12 hours.

Parenteral administration is preferred, but satisfactory results can be achieved with adequately supervised oral regimens.

Implant surgery

The incidence of infection after placing deep implants such as vascular grafts and orthopaedic prostheses is low (generally 1%). However, the consequences of infection around deep implants demands maximal preventive measures.

The technical aspects of operating theatre design, patient preparation and operative technique are clearly most important, but further improvements in outcome can be achieved by the administration of preventive antibiotic agents. As the principal infecting organisms are *Staph. aureus* and *Staph. epidermidis*, the administration of flucloxacillin should be satisfactory. In some situations however, an increased incidence of infection by facultative enteric organisms has been noted, and, in this situation, broader cover with a cephalosporin agent, such as cephadrine, would be more appropriate. When surgery involves groin incisions or the patient has existing sites (for example, ulcers)

that are infected with "mixed faecal bacteria", it is wise to provide cover against these bacteria. Importantly, the surgeon must be aware of any prevailing cross-infection and tailor the prescribing to the specific problem.

Although the minimum duration of therapy has not been clearly defined, the shortest effective reported cover is with cephaloridine for 24 hours.¹¹ Since most studies have used a longer time than this,¹² we recommend commencing therapy immediately before the operation and maintaining adequate blood levels for at least 24 hours.

Conclusion

Preventive antibiotics have a role in preventing the sepsis that can result from contamination during surgery. The operations that deserve prophylaxis are those where the operative field is contaminated. For a given operation, the likelihood of contamination will depend upon the underlying disease and the patient's immune status. In general, if a procedure carries a septic complication rate in excess of 5% (1% for implant surgery) and this is due to contamination with the patient's own bacteria, a short course of preoperative antibiotic prophylaxis will reduce the septic complications, providing that the contaminating bacteria are susceptible to the chosen antibiotics.

The problems of antibiotic prophylaxis usually result from prolonged administration which predisposes the patient to superinfection, and inappropriate dosage which

fails to achieve adequate tissue concentrations during the critical period of contamination.

References

- Cruse PJE, Foord R. A five year prospective study of 23,649 wounds. *Arch Surg* 1973; 107: 206-210.
- Morris WT, Innes DB, Richardson RA, et al. The prevention of post-appendectomy sepsis by metronidazole and cefazolin: a controlled double blind trial. *Aust NZ J Surg* 1980; 50: 429-433.
- Watts JMCK, Roberts A, Finlay-Jones JJ. Infection in biliary tract surgery — Flinders Medical Centre experience. In: Watts JMCK, McDonald PJ, O'Brien PE, et al., eds. *Infection in surgery: basic and clinical aspects*. Edinburgh: Churchill-Livingstone, 1981: 187-193.
- Miles AA, Miles EM, Burke JF. The value and duration of defence reactions of the skin to the primary lodgement of bacteria. *Br J Exp Pathol* 1957; 38: 79-86.
- Burke JF. The effective period of preventive antibiotic action in experimental incisions and dermal lesions. *Surgery* 1961; 50: 161-168.
- Clarke JS, Condon RE, Bartlett JG, et al. Preoperative oral antibiotics reduce septic complications of colon operations: results of prospective, randomized, double-blind clinical study. *Ann Surg* 1977; 186: 251-259.
- Keighley MRB. Prevention and treatment of infection in colorectal surgery. *World J Surg* 1982; 6: 312-320.
- Willis AT, Ferguson IR, Jones PH, et al. Metronidazole in the prevention and treatment of bacteroides infection after appendectomy. *Br Med J* 1976; 1: 318-321.
- Bates T, Touquet LR, Tutton MK, et al. Prophylactic metronidazole in appendectomy: a controlled trial. *Br J Surg* 1980; 67: 547-550.
- Hirschmann JV, Innui TS. Antimicrobial prophylaxis: a critique of recent trials. *Rev Infect Dis* 1980; 2: 1-21.
- Pollard JP, Hughes BPF, Scott JE, et al. Antibiotic prophylaxis in total hip replacement. *Br Med J* 1979; 1: 707-709.
- Norden CW. A critical review of antibiotic prophylaxis in orthopaedic surgery. *Rev Infect Dis* 1983; 5: 928-932.

Letters to Therapeutics

Alternative medicine

To the Editor: The article on "Alternative Medicine" that appeared recently in the *Therapeutics* section of the Journal¹ was noted with considerable interest by the Sub-Committee on Alternative Medicine of the Victorian State Committee of The Royal Australasian College of Physicians. In this article, Dr Ian Maddocks made some assessment of the popularity of the disciplines that are regarded as alternative, from the relative frequency of practitioners of these disciplines in the Yellow Pages of the telephone directory. In Victoria, chiropractic headed the list, followed by naturopathy.

During the month of April 1985, a questionnaire was sent to 849 Fellows of the College in Victoria; 229 responded. Questions were asked about the proportion of their patients who engaged in some form of alternative medicine. Among subspecialists, rheumatologists and oncologists/haematologists more frequently encountered these practices, with a range of 21%–49% as the mode. By comparison, practising physicians, such as geriatricians, encountered these practices uncommonly (a mode of 1%–5%); for Fellows practising general medicine or paediatrics, the modes were 11%–20%.

Among physicians as a group, naturopathy and

nutrient supplementation were the most commonly encountered "alternative" practices, followed by the cluster of chiropractic, osteopathy and the use of appliances. Herbal remedies were the third most commonly encountered practice, followed by homeopathy and the consultation of practitioners of ethnic medicine. The experience of the various subspecialists in internal medicine was similar to that of the group, except that of oncologists/haematologists, where herbal remedies were the second most commonly encountered practice.

When asked how alternative medicine affected orthodox management, the overwhelming experience of physicians was of considerable interest. Their common observation was that it was most frequently used in parallel with mainstream medicine without interference with it. The cessation of orthodox therapy was the next most commonly encountered result, followed by experiences of the adverse outcomes of alternative procedures.

Forty-two case reports of adverse outcomes which were judged to be serious or life-threatening by our committee were reported in the survey. These included:

1. Abnormal therapies such as the injection of water with consequent permanent brain damage; and immersion in manure for the treatment of cerebral palsy.

2. The cessation of orthodox management in the treatment of diabetes (the suspension of insulin therapy resulted in ketoacidosis); the adrenogenital syndrome (the suspension of therapy with cortico-

steroid agents resulted in illness); epilepsy (anticonvulsant therapy was suspended and the patient encouraged to use "re-breathing" techniques); diffuse (type 3) scleroderma (the suspension of therapy resulted in a leg ulcer and hypertension); asthma; and patients with cancer (the introduction of unidietetic [fad] diets).

3. The delayed introduction of therapy for temporal arteritis.

Although these outcomes were reported by only a minority of physicians, they are of concern to us. The question both the College and the community face is: "What is the price to be paid for the exploration of alternatives to orthodox therapy?". Health care professionals and the community have insisted that iatrogenic illness is subjected to greater scrutiny. The same might be said of alternative medicine.

Our committee has welcomed the Inquiry into Alternative Medicine by the Government of Victoria's Social Development Committee and has made a submission to it.

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- Maddocks I. Alternative medicine. *Med J Aust* 1985; 142: 547-551.