Thorax 1986;**41**:816

Correspondence

Antibiotic prophylaxis in cardiothoracic surgery in the United Kingdom: current practice

SIR,—We were interested to read the article by Dr APR Wilson and others (May 1986;**41**:396–400). It shows the divergent opinions held on this topic and, in particular, the existence of two schools of thought on the breadth of prophylaxis required.

Protagonists of narrow spectrum prophylaxis can argue that regimens comprising drugs such as flucloxacillin alone will suffice since the spectrum of its effectiveness includes those organisms associated with early prosthetic valve endocarditis and sternal sepsis. Moreover, this benefit is achieved without any important change in the tracheal, bowel or skin flora of the patient, thus minimising the incidence of colonisation and infection with Gram negative bacilli in the postoperative period.[1]

While we agree with the authors that formal prospective comparisons of narrow versus broad spectrum regimens will be of value we also agree that demonstration of a significant difference in efficacy will be difficult because of the very low incidence of early prosthetic valve endocarditis. However, even if efficacy was not significantly different we believe that the impact of these two types of regimen on the patients' bacterial flora would be easily differentiated.[2] A clear demonstration that colonisation and infection with Gram negative bacilli was promoted by the broad spectrum regimens would be a very potent argument against their use, given that efficacy was not substantially different.

We wonder therefore whether Dr Wilson and his colleagues collected any data reflecting such problems in their survey. The incidence and nature of postoperative Gram negative infections related to the various styles of prophylaxis and the incidence of any outbreaks of nosocomial infections on intensive care units would both be important figures in this context. In any case, we urge the authors to audit prospectively the bacterial flora of both groups of patients in their intended trial of teichoplanin versus flucloxacillin plus tobramycin.

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1 Freeman R, McPeake P. Acquisition, spread and control of *Pseudomonas aeruginosa* in a cardiothoracic intensive care unit. *Thorax* 1982;**37**:732–6.
2 Freeman R. Short-term adverse effects of antibiotic prophlaxis for open-heart surgery. *Thorax* 1980;**35**:941–4.

*** Dr Wilson and his colleagues reply below.

SIR,—We thank Dr Freeman and Dr Gould for their comments on our survey of antibiotic prophylaxis. To ensure a good response to our questionnaire, we tried to keep the information requested to a minimum and we did not attempt to collect statistics on the incidence of Gram negative infections with the different prophylactic regimens. The answer would also be difficult to analyse in view of the different surgical techniques, postoperative care, and concepts of infection in use throughout Britain.

Nevertheless, we have studied the effect of narrow and broad spectrum prophlaxis on nosocomial infections in our own clinical trial comparing teicoplanin with a combination of flucloxacillin and tobramycin. The preliminary results of this prospective randomised trial have been published recently.[1] In the 198 patients reported there was no significant difference in the numbers of wounds from which Gram negative bacteria were isolated but postoperative urinary tract infection with Gram negative bacteria was found more frequently in the teicoplanin treated patients (15 of 95 compared with 6 of 103; $0{\cdot}05 > p > 0{\cdot}01$, χ^2 test). One of these patients required parenteral therapy for Gram negative septicaemia. Respiratory infections were not significantly affected but it proved difficult to apply rigid criteria for infection. We have since inducted a further 220 patients into the trial but the general findings remain the same.

We have also examined intensively the skin flora at four different sites in 12 patients before operation and for the first postoperative week (unpublished observations). The acquisition of Gram negative bacteria was not affected by the spectrum of the prophylaxis, except that patients receiving tobramycin became colonised with strains less sensitive to the aminoglycosides.

Other workers have also reported more urinary and pulmonary infections after narrow spectrum prophylaxis but failed to show any difference in the rate of wound infection. We suggest that each surgeon decide with the microbiologist the likely benefit of reducing urinary and possibly respiratory infection against the risk of promoting a highly resistant environmental flora in their particular unit.

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1 Wilson APR, Grüneberg RN, Treasure T, Sturridge MF. A clinical trial of teicoplanin compared with a combination of flucloxacillin and tobramycin as antibiotic prophylaxis for cardiac surgery: the use of a scoring method to assess the incidence of wound infection. *J Hosp Infect* 1986;**7** (suppl A):105–12.
2 Myerowitz PD, Caswell K, Lindsay WG, Nicoloff DM. Antibiotic prophylaxis for open heart surgery. *J Thorac Cardiovasc Surg* 1977;**73**:885–97.