

Antibiotic prophylaxis

The next step should be an urgent systematic review of the relationship between dental procedures and infective endocarditis and the effectiveness and risk of antibiotic prophylaxis

On page 610 of this issue of the *BDJ*, the paper by Seymour *et al.* on antibiotic prophylaxis summarises the latest findings regarding antibiotic prophylaxis for infective endocarditis (IE) and sheds significant doubt on the causation of infective endocarditis and the benefit/risk ratio of antibiotic prophylaxis.

For many dentists this sounds almost like heresy, based on the past guidelines for treatment (including a simple scaling) of patients with a heart valve murmur arising from rheumatic fever. Are we now to believe that the risk of developing IE is negligible and that providing antibiotic cover for these patients is more dangerous than not doing so?

We need to examine some of the reasons for this change in views. Over the last few years doubts have been voiced over the need for the 'accepted' regime of care for 'at risk' patients and research has challenged previously held views about the link between dental treatment and IE. One example of this has been the recognition that the prevalence of IE has not reduced since the introduction of antibiotic prophylaxis and other researchers have noted that bacteraemias are more likely to lead to IE following chewing than dental treatment. In addition, only a minority of IE cases are caused by oral streptococci or medical/dental treatment. Perhaps one of the most persuasive arguments is the fact that it has been estimated that 670,000 'at risk' patients in the UK have dental treatment without antibiotic cover and yet the actual cases of IE are only 2410 (3.6 per cent).

The other side of the coin is the fact that antibiotic prophylaxis has the potential for serious adverse effects. Seymour *et al.* remind us that the risk of death following amoxicillin prophylaxis is 1.36 deaths per million population and this compares with the risk of death from dentally induced IE of 0.26. In other words antibiotic prophylaxis has a five times greater risk of death than the risk from IE. This is a pretty persuasive argument.

A lack of consideration of adverse effects of treatment, compared with the interest in beneficial results, is a common deficiency in medical research. When I looked back at the most recent report of the antibiotic prophylaxis working party¹ I was surprised to see that there was no consideration of the adverse effects of antibiotic prophylaxis. Similarly, in a recent *BDJ* paper examining IE cases that led to litigation, no consideration of the legal situation regarding the concrete risk of antibiotic induced anaphylaxis was made.²

So where do we go next? The critical review by Seymour *et al.* should alert us to reconsider antibiotic prophylaxis and the questions that they raise must not be ignored. To be confident that all of the relevant research has been considered and therefore that a balanced view has been achieved, the next step should be an urgent systematic review of the relationship between dental procedures and infective endocarditis and the effectiveness and risk of antibiotic prophylaxis. Such a review is a matter of priority and should receive public funding to ensure that it can be completed swiftly. With the confidence that such a review has been both systematic and exhaustive, we will be in a better position to understand the strength of the evidence relating to IE and to decide (as appears likely) whether further research is needed. To conduct a randomised controlled trial testing antibiotic prophylaxis will require clinical equipoise. In other words, that for patients undergoing dental treatment and at risk of IE, an evidence-based belief exists that they are not disadvantaged whether they receive placebo or antibiotic prophylaxis.

The question mark over the dental causation of IE, the doubt on the effectiveness of antibiotics for preventing IE and the risk of serious effects from antibiotics mean that we might be at equipoise already, but we cannot be sure. Let us find out urgently.

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1 Simmons N A, Ball A P, Cawson R A *et al.*

Antibiotic prophylaxis and infective endocarditis. *Lancet* 1992; 339: 1292-1293

2 Martin M W, Butterworth M L, Longman L P. Infective endocarditis and the dental practitioner: a review of 53 cases involving litigation. *Br Dent J* 1997; 192: 465-468