Ureidopenicillins and risk of *Clostridium difficile* infection

*J Antimicrob Chemother* 2001; 47: 719

Jane Freeman and Mark H. Wilcox*

Department of Microbiology, University of Leeds and The General Infirmary, Leeds LS2 9JT, UK

*Corresponding author. Tel: +44-113-233-5595; Fax: +44-113-233-5649; E-mail: markwi@pathology.leeds.ac.uk

Sir,

In their prospective study of 2462 antibiotic-treated hospitalized patients, Wiström and colleagues1 state that ‘... the highest frequencies of antibiotic-associated diarrhoea (AAD) were found in patients treated with broad-spectrum penicillins (ampicillin derivatives, pivmecillinam and piperacillin alone or in combination with tazobactam) ...’. The inclusion of all these penicillins under the general term ‘broad-spectrum penicillins’ fails to make the distinction between ureidopenicillins, such as piperacillin or piperacillin–tazobactam, and aminopenicillins, such as ampicillin. Ureidopenicillins are notable for their lack of propensity to induce *Clostridium difficile* infection, whereas ampicillin and amoxycillin are frequently associated with the disease.2–5 The description and assessment of broad-spectrum penicillins as a single group is all the more confusing since cephalosporins are assessed both as a group, and as individual antibiotics.

The authors state: ‘As in previous studies, AAD was most frequently associated with cephalosporins, clindamycin and broad-spectrum penicillins, like amoxycillin and piperacillin ...’1 and cite six references in support of this statement. To our knowledge piperacillin, either alone or in combination with tazobactam has not been strongly associated with AAD or *C. difficile* infection, and indeed the above statement is not corroborated by the references cited. On the contrary, several studies have compared ureidopenicillins with other antimicrobial agents (mainly cephalosporins) and concluded that they are not significantly associated with *C. difficile* infection.2–5 In particular, we highlight the only prospective comparative study of antibiotic-related *C. difficile* infection risk, which found a seven-fold excess risk of symptomatic infection in patients receiving cefotaxime as opposed to piperacillin–tazobactam.2 Wiström et al.1 also associate disturbance of gut flora by an antimicrobial agent with predisposition to cause *C. difficile* diarrhoea, inferring that antibiotics that exert profound effects are more likely to predispose to AAD or *C. difficile* infection.1 It is surprising therefore, to find ureidopenicillins included in a group of high-risk antibiotics, as Nord et al.6 have previously reported the absence of marked changes in gut microflora during or after therapy with piperacillin–tazobactam.

In summary, while we welcome the comprehensive prospective data reported by Wiström and colleagues,1 the inclusion of piperacillin–tazobactam in the general group of broad-spectrum penicillins in the context of AAD and *C. difficile* infection is misleading, and caution should be exercised when interpreting and presenting such data.

References


© 2001 The British Society for Antimicrobial Chemotherapy