Guest editorial

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Controlling the spread of *Acinetobacter* in hospitals – a challenge for the new millennium!

Acinetobacter species – Gram-negative cocco-bacilli with some interesting biological features – were until relatively recently of little clinical interest. Not always easy to speciate, they were not commonly recovered from clinical specimens and hitherto rarely associated with infection. However, these opportunist bacteria have acquired a certain status as an emerging pathogen among debilitated patients, especially those in intensive care units (ICUs). Recent reviews[1,2] have emphasised the multi-antibiotic resistance of many isolates and the ability of this adaptable group of bacteria to cause infection in more and more hospital patients.

The relative importance of *Acinetobacter* in both the ICU and other areas of the hospital varies considerably. In a recent survey of ICUs in five European countries and involving over 110 hospitals, *Acinetobacter* spp. were among the five most common Gram-negative bacteria recovered from clinical specimens[3] and the **most** antibiotic-resistant, even when compared with *Pseudomonas aeruginosa* and *Serratia* spp. A recent survey in Great Britain and Ireland, however, suggests that although *Acinetobacter* may be recovered from time to time, outbreaks are still relatively unusual[4]. Organ failure, recent antimicrobial chemotherapy (for example, the use of fluoroquinolones) and disseminated intravascular coagulation are recognised risk factors, and the consequences of infection include prolonged length of stay in the ICU and mortality in up to 50 per cent of patients[5,6].

Two reports in this issue highlight the challenge posed by *Acinetobacter* in Australia and emphasise the importance of aggressive infection control practices, modern molecular typing techniques (to distinguish between strains) and prudent use of antimicrobials in controlling spread[7,8]. Pearman and colleagues describe an outbreak involving an ICU, orthopaedic wards and a spinal unit that continued over a 5-year period[7]. While it had significant financial implications, it was eventually managed by way of enhanced infection control procedures such as environmental disinfection for prolonged periods, regular surveillance and restricted use of third-generation cephalosporins[7]. Mitchell and colleagues also describe an extended period during which 130 patients were colonised or infected with multi-antibiotic-resistant *Acinetobacter baumanii*. The use of pulsed-field gel electrophoresis demonstrated the presence of six distinct genotypes, two of which demonstrated high-level carbapenem resistance[8]. This is somewhat worrying, since carbapenem antibiotics such as meropenem are the mainstay of treatment in many centres in which resistance to most other classes of agents is prevalent. Both reports emphasise that *Acinetobacter* infects as well as colonises susceptible patients, highlighting the complexity of the challenge facing infection control teams and underlining the considerable efforts required to control spread.

As with many other antibiotic-resistant nosocomial pathogens, the inappropriate use or abuse of antimicrobial agents, inadequate numbers of isolation rooms or equivalent, staff shortages and sub-optimal handwashing practice all facilitate the emergence and spread of *Acinetobacter*. One of the characteristic features of this group of organisms is their ability to survive in relatively dry conditions, unlike many other Gram-negative bacilli. In a series of elegant experiments, Jawad and colleagues (from Leeds in the UK) have demonstrated that strains of *Acinetobacter* may survive up to 60 days when suspended in bovine sera albumen and that, like *Staphylococcus aureus* and *Serratia marcescens*, *A. baumanii* should be considered desiccation-resistant[9]. This, together with a reservoir of vulnerable patients and high antibiotic usage, may explain why these bacteria can persist even for long periods in the ICU[10]. In many outbreaks, aggressive decontamination regimens that involve the use of disinfectants and even ward closure (usually not possible in ICUs) are required before an outbreak is brought to an end[11].

As we approach the new millennium, it is likely that ICUs and high-dependency areas will admit increasingly debilitated and elderly patients and that, as a consequence, *Acinetobacter* spp. are likely to remain important pathogens. However, we retain the potential to control the spread of, if not eradicate, these bacteria. Enhanced surveillance of the microbial flora in our ICUs, including the use of appropriate typing techniques to distinguish the presence of epidemic or sporadic strains, is important in prevention. More rational antibiotic prescribing, involving restricted use of extended-spectrum cephalosporins (as illustrated in Perth[8]) and perhaps also fluoroquinolones, is essential. This will also assist greatly in controlling the spread of both methicillin-resistant *Staphylococcus aureus* (MRSA) and *Clostridium difficile*. Further, more aggressive cleaning regimens in those clinical areas in which at-risk patients are cared for are important in ensuring the environment is no longer a reservoir for *Acinentobacter*. More research is also necessary, to determine whether decontamination regimens that include disinfectants like phenolics are always superior to detergent-only containing regimens, as are additional epidemiological investigations that can enhance our understanding of these bacteria. Only then will we know what precipitating events herald the onset of epidemics or endemicity. While the challenge of *Acinetobacter* spp. differs somewhat from that of MRSA and glycopeptide-resistant enterococci, we must learn from the experience gained in controlling these and other antibiotic-resistant bacteria in hospitals. If we do not, infection control teams in Australia and elsewhere will see history repeating itself!

References

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ERRATUM

In the article 'Hospital costs of, and factors contributing to, a pertussis epidemic', Figure 1 contained an error in that the vertical axis was labelled 'Number of staff' instead of 'Number of patients'. Apologies to the authors.