

LEADING ARTICLES

METHICILLIN-RESISTANT *STAPHYLOCOCCUS AUREUS*

Dr E H Sng, MBBS
Medical Director

Department of Pathology
Outram Road
Singapore 0316

The *Staphylococcus aureus* has always been an important human pathogen. Its ability to survive and thrive despite the availability of so many antibiotics is a firm reminder that the battle against micro-organisms is a continuing one.

Following the introduction of penicillin in the 1940s, it was expected that diseases caused by *Staph. aureus* would soon be controlled. Unfortunately, within a decade penicillinase-producing strains were appearing and quickly spread across the globe. In the late 1950s, the penicillinase-resistant semi-synthetic penicillins were introduced. Within a few years, methicillin-resistant *Staph. aureus* (MRSA) were reported. Since then outbreaks of MRSA have been reported in Europe, Australia and the United States.

At present the occurrence of MRSA is a major concern in many hospitals. Morbidity and mortality may increase since patients with suspected *Staph. aureus* infections are usually initially treated with a penicillinase-resistant penicillin or a cephalosporin. In Singapore over 10% of *Staph. aureus* isolated from the 5 major government hospitals in 1987 are MRSA. This contrasts with a low 2% for those strains isolated from the other smaller hospitals. Clusters of infection occur among patients with burns and in neonates.

In this issue on page xx, Dr Puthuchearry et al of the University Hospital, Kuala Lumpur describes a newborn baby with bacteraemia and septic arthritis caused by MRSA. Early laboratory diagnosis and vigorous antibiotic treatment brought about a cure in what would otherwise have been a fatal infection. The case illustrates the need for laboratory staff and clinician to be fully aware of this bacterium.

Vancomycin is a highly effective drug against MRSA,

but the cost is prohibitive. Each day's treatment may cost up to \$200. The drug is therefore best reserved for serious infections. For milder infections different combinations of fucidin, cotrimoxazole and rifampicin are often used. The newer quinolones, such as ciprofloxacin and norfloxacin are effective against MRSA and may be given orally. There should be a place in the hospital pharmacopoeia for these drugs. They should best be reserved for patients with special problems, such as MRSA infections. Other promising drugs such as teicoplanin and coumermycin are also being evaluated, and should increase the range of alternative drugs.

For longer term solutions, there is need for hospital infection committees to plan appropriate measures for the prevention and control of such infections. Hospital micro-biology laboratories should be alert to the problem and maintain a surveillance programme. Handwashing should be strictly enforced, particularly in wards with MRSA patients. As most nosocomial transmission is now felt to occur by hand carriage, the importance of handwashing cannot be over-emphasized. Antibiotic usage, cohorting of patients, isolation and early discharge of infected patients, and decontamination of carriers are other measures that need to be considered.

Studies are being conducted in several centres to evaluate the relative efficacies of these measures. They will need to be cost-effective and practical. An on-going control programme in the Singapore General Hospital is looking at some of them. As resources available to different hospitals vary, hospital infection committees have the task of determining what is appropriate for their respective institutions.