

Antibiotic Resistance

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Antibiotic resistance is now a major problem all over the world. This issue has attracted the attention of the international lay press and in recent months major publications like *Newsweek* (March 28, 1994), *Time* (September 12, 1994) and *Fortune* (September 5, 1994) have all featured the problem of antibiotic resistance in leading articles. This is not surprising since infections caused by multiple resistant bacteria and fungi are difficult and expensive to treat. Very often clinicians have to resort to newer, more costly antibiotics thereby increasing health care expenditure. Patients who are infected by resistant strains also tend to stay longer in hospitals and there is increased morbidity and mortality. Studies on antibiotic resistance are therefore important, not only in providing clinicians with useful information but they also serve as the basis for planning strategies to be implemented in order to overcome this problem.

In this issue of the *Medical Journal of Malaysia*, Cheong *et al*¹ have provided some figures on the current pattern of antibiotic resistance in Malaysian hospitals. This very large survey conducted in six general hospitals between 1991 to 1992 and involving some 36,000 bacterial strains has produced results that are rather alarming. Some of the more common nosocomial pathogens have now acquired significant resistance to aminoglycosides and the new cephalosporins. Between 10% to 15% of local *Klebsiella* strains are now resistant to all the newer cephalosporins like cefuroxime, cefoperazone, ceftazidime and ceftriaxone. Nearly 30% of *Pseudomonas aeruginosa* strains are currently resistant to gentamicin which used to be one of the most effective and useful aminoglycoside. Almost 20% of *Staphylococcus aureus* are resistant to methicillin or the so called methicillin-resistant *Staphylococcus aureus* (MRSA).

The high prevalence of antibiotic resistance in Malaysian hospitals will have important implications for clinical practice and the cost of medical treatment. While methicillin-sensitive *Staphylococcus aureus* (MSSA) infections can be effectively treated with inexpensive cloxacillin, MRSA infections will require the use of vancomycin which costs approximately RM 50.00 for a 500mg injection. Apart from cost considerations, there are now also bacterial strains that are resistant to virtually every antibiotic available. Patients infected by such strains face the grave prospect of both increased morbidity and mortality.

It has been shown for nearly three decades now that there is a good correlation rate between antibiotic resistance and antibiotic usage in hospitals². Infections that are acquired in hospitals where antibiotic usage is high, are more likely to be caused by resistant bacteria than community acquired infections. Outbreaks of resistant infections in hospital are more likely to occur in patients who have been given previous antibiotics. The rate of resistance is closely correlated with the amount of antibiotic used. In one classic case-study, the eradication of a resistant *Klebsiella aerogenes* from a neurosurgical unit was only achieved when there was total withdrawal of all antibiotics from that unit³. In this particular incident, even moving to a brand new facility did not succeed in eradicating the offending pathogen. Units with the highest usage of antibiotics like the intensive care and neonatal units usually also have the highest resistant rates in the hospital.

The only effective way of reducing antibiotic resistance rates in hospitals would be through a combination of controlling the use of antibiotics and preventing the spread of the resistant strains. The former is achieved by effective implementation of sound antibiotic

policies. High standards of hospital hygiene are necessary to prevent cross infections of these resistant strains among staff and patients. All hospitals in Malaysia should view the problem of antibiotic

resistance as one that requires their urgent attention and they must take immediate steps to contain this major clinical problem. Failure to do so now can result in rather disastrous consequences in the future.

References

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