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Editorial

A billion years before the advent of man on planet earth, bacteria had made it their home. When competing species began to colonize the earth, bacteria had to learn to survive. They learnt to evade fungi which secreted antibacterial substances, and became adept at surviving--even flourishing - in inimical microenvironments. They found ways to coexist, and to parasitize, even. Incredibly, they found ways to talk to other micro-organisms, exchanging through plasmids, sophisticated tools to build their armouries. And through their astonishing ability to continually transform themselves, they learnt to hide.

Medicine continues to be baffled by mankind's most ancient enemies. Uncertainty and ignorance has led to escalating antibiotic use. For instance (according to a popularly quoted study) as many as 40% of prescriptions for tuberculosis contain errors.

The CDC figures that over 25 million pounds of antibiotics each year are used without good reason—and that's in the USA alone. Only 50% of all antibiotics produced are used therapeutically. The rest are used *prophylactically* in animals and poultry, to keep livestock healthy. Such misuse of antibiotics cannot be without consequences. It has been shown that each day of antibiotic use in the last 6 months ups the infection with Pseudomonas by 4%. Nowhere has the impact of antibiotic resistance been felt more profoundly than in the Intensive care unit. Multidrug resistant bacteria are now regularly incriminated in many nosocomial infections. More and more of the dreaded extended-spectrum beta-lactamase (ESBL) enzymes are identified by the day.

Once resistance appears in a particular milieu, it is almost certain to persist. In spite of the clear and present danger, antibiotic misuse continues. 17 billion dollars each year go into antibiotic production each year, but a hundred billion dollars go into the treatment of the consequences of ill-conceived treatment: drug resistant infections. In desperation clinicians have again turned to antibiotics like Colistin and Polymyxin—discarded thirty years ago for their toxic potential.

Even when the pathogens are identifiable, decisions concerning antimicrobial therapy can be complex. Negative cultures present their own special problems. In such cases, it could be that an infection has been masked by prior antibiotic use, that the culture media used are inappropriate, that the 'holding time' has not been long enough, or even that the organisms are 'atypical' and therefore innately resistant to the selected therapy. In this issue we take a closer look at culture-negative surgical site infections.

Antibiotics are all that mankind has to combat infections. Virtually no new antibiotics are anticipated in the immediate future, at least with respect to gram-negative bacillary infections. Bacteria have developed and refined their bio-arsenal over the aeons, whereas Medicine has had just eighty years' experience with antimicrobial therapy.

Clearly, the lessons have not been learnt.

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