ANTIBIOTICS IN GENERAL PRACTICE II

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ERYTHROMYCIN

This was developed as an antistaphylococcal drug when penicillin resistance was becoming a problem. The success of flucloxacillin and the high level of gastrointestinal intolerance to erythromycin kept it firmly in the background and for many years it was a bit of curiosity restricted to gram-positive infections in penicillin-allergic patients. In the past decade however, use has soared with awareness of its value in several clinical situations and with the improved patient tolerance of some of the newer formulations. As a respiratory antibiotic, it covers streptococci and haemophilus quite well and is one of the few agents active against legionellae, mycoplasma and the chlamydiae. The latter two organisms can be significant causes of community-acquired respiratory infections and now erythromycin can be considered as a first line drug in the management of chest infections. It has made a growing contribution to the management of soft tissue infections. If given early enough, it can influence the course of campylobacter infection. By the time the patients present, however, its value is likely to be very limited and I would not go as far as to advocate its use in acute diarrhoea.

FOLIC ACID ANTAGONISTS
(Sulphonamides, Cotrimoxazole, Trimethoprim)

Sulphonamides are one of the oldest groups of antibiotics and have been good all round agents with a place in the management of urinary and respiratory infections. Serious toxicity, intolerance and increasing resistance and competition from newer agents have tended to push them into the background. The addition of trimethoprim to produce cotrimoxazole increased the antimicrobial activity but serious toxicity, such as marrow dycrasias, is still a problem. In these days of very high expectations of antibiotic safety and with a wide range of choices their role is declining. The longer acting sulphonamides have no place at all. Trimethoprim on its own does seem to be better tolerated. It is a reasonable respiratory antibiotic and is one of the few drugs active in the prostate giving it a role in the management of bacterial prostatitis.

FOUR AMINOQUINOLONES
(Ciprofloxacin)

Developed from nalidixic acid, these are the only really new antibiotics to appear for many years. They are very broad spectrum gram-negative agents and the first effective oral antipseudomonals. But whilst pseudomonal colonisation is common, it rarely causes clinical problems and usually need not to be treated. They are excellent urinary antibiotics, but expensive and no better than the newer beta-lactams in most cases. They are active in the prostate and should work in bacterial prostatitis. Whilst they cover gram-positive organisms they are not particularly potent here and have no significant role in the management of soft tissue and respiratory infections. An emerging role is in the management of gastrointestinal infections. Conventional wisdom has it that antibiotics are useless, if not counterproductive, in diarrhoeal disease: Ciprofloxacin, however, does seem to reduce the symptom-free period in travellers diarrhoea, and it is starting to appear alongside metronidazole in trekkers' rucksacks. The enterotoxigenic **E.coli** which cause this condition are very rare in western countries so I do not think it has much place in the management of diarrhoea here. It seems effective in eradicating salmonella but as most patients clear the organism quickly it should be reserved for persistent carriers or those patients where its presence is inconvenient or embarrassing. Quinolones are not free of side effects. Damage to growing cartilage means they have no product licence for paediatric use. Central nervous system toxicity, especially in the elderly, and those taking theophylline drugs and non-steroidal anti-inflammatory agent, is a problem. Hopefully, a combination of cost and complications will restrict use to a few important indications.

FUCIDIC ACID

This is an excellent antistaphylococcal drug and works well in soft tissue infections. Its main disadvantage is that resistance readily emerges in vivo and prolonged or topical courses will be counter-productive unless given in combination with another antibiotic such as erythromycin or flucloxacillin. The new ophthalmic preparation is an excellent formulation. Unfortunately chloramphenicol is a better empirical choice so this is a case of a good formulation of the wrong antibiotic.

METRONIDAZOLE

Another valuable drug, it was first developed as an anti-protozoal drug and is still the treatment of choice for giardiasis and tissue amoebiasis. Its anaerobic spectrum was a later discovery but has expanded its indications to include surgical and dental infections and the management of offensive vaginal discharges.

NALIDIXIC ACID

The grandfather of the quinolones. It only achieves therapeutic concentrations in the urine and is an expensive but rational empirical treatment in UTI. Resistance emerges too readily for it to be of any value in the long term suppression of urinary infection. It has a role in bacillary dysentery but will shortly be superseded by Ciprofloxacin.

NITROFURANTOIN

Another useful urinary antibiotic. Resistance emerges very slowly and if an antibiotic is needed for the long term control of urinary infection this would be a good choice, though antiseptics such as hexamine are to be preferred.

TETRACYCLINES

These are old workhorses with problems of toxicity and resistance, rather left behind by newer innovations. Their role now is restricted to the management of chlamydial infections and acne. Toxicity in children and increasing resistance should limit use in respiratory infections and restrict it to a few specific indications such as brucellosis and lyme disease.

CHLORAMPHENICOL

A very powerful broad spectrum antibiotic. Its bad toxicity image restricts its empirical use for trivial infections where there is almost certainly a safer alternative. It remains an excellent topical agents for eye infections.

In the closing article, I will try to draw all this together into a suggested formulary.