

ANTIBIOTICS IN GENERAL PRACTICE III

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Hardyman's Truism

Random stamping rarely catches bugs.

In the first two articles I gave a personal view of the main agents available for use in general practice. Now I shall attempt to bring these together in a suggested formulary for use in management of commonly encountered conditions. Intelligent empirical antibiotic use should be targeted at the likely pathogens without being unnecessarily broad-spectrum. Broad spectrum cover is attained at a high cost, both in terms of finance and the creation of an ecological situation where resistance is encouraged.

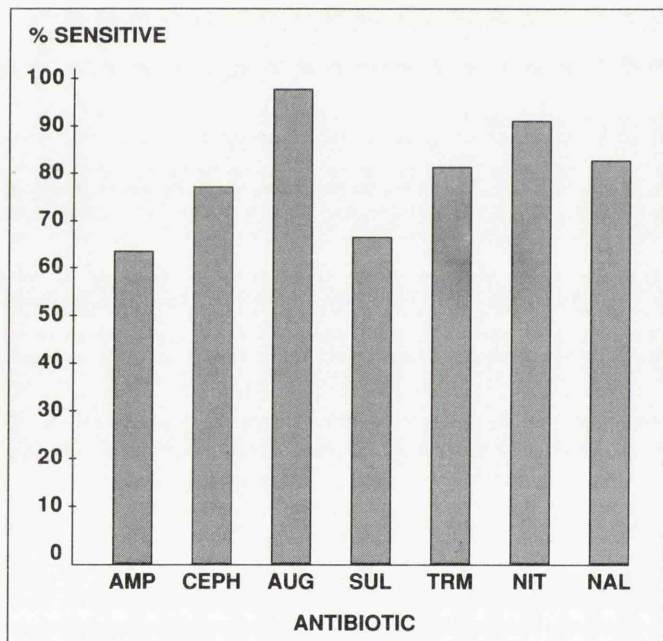


Fig. 1. Antibiotic sensitivities G.P. urine isolates May 1990

URINARY INFECTIONS

The vast majority of simple, acute, community acquired urinary infections are due to coliform organisms, enterococci and micrococci. Usually they are reasonably sensitive to simple cheap and safe antibiotics. Fig 1 is a summary of sensitivity patterns for GP urine isolated for May this year. Ampicillin/Amoxycillin are the only agents with a high level of resistance. Almost all isolates will be covered by Cephalixin or Co-amoxyclav (as we are now supposed to call Augmentin!). Resistance to the folic acid antagonists is seen quite frequently and whilst they are still reasonably cheap and effective, toxicity is unacceptably high in these safety-conscious days. Nitrofurantoin is still the best agent for long-term suppression if this is needed. Pseudomonas will only be a problem in chronic UTI, usually with an underlying urological, gynaecological or neurological

problem and a long history of antibiotic therapy. In the immunocompetent individual it is very low-grade pathogen, and it is worth reflecting on the point in treating symptomless infection if nothing is to be done for the underlying condition. If there are symptoms, Ciprofloxacin will help in the short term but probably not in the long term. It is the best second-line urinary antibiotic but we have not heard the last about resistance, it is expensive, and widespread use is to be discouraged for the time being. The current trend in management of urinary infections is to high dose, short course regimens and these seem to be very effective.

UPPER AND LOWER RESPIRATORY INFECTIONS

Viruses are the commonest cause of upper respiratory infection in adults, and the only bacterium of any significance is the group A streptococcus. It is a frequent cause of severe pharyngitis and there are hints from America of a resurgence of post-streptococcal diseases. Streptococci are still uniformly sensitive to penicillin V and this should be used. Ampicillin/amoxycillin is no more effective and carries the added risk of unpleasant allergic reactions in glandular fever – an all too common scenario. In children under four *Haemophilus influenzae* is a significant pathogen. Ampicillin/amoxycillin will cover this but in some areas resistance is increasing and Augmentin or Cefaclor will be needed. In our experience, however, resistance is found in less than 10% of isolates. The microbiology of acute sinusitis can be complex but Cephalexin, Augmentin or erythromycin will cover most of the possibilities.

The management of lower respiratory infections will depend on the clinical scenario. Community-acquired pneumonias are fairly well-defined clinical conditions with specific microbial causes and well established treatments. So, for example, lobar pneumonia is largely pneumococcal and sensitive to penicillin, a typical pneumonia is due to chlamydiae, mycoplasmas, or legionellae and should respond to erythromycin. However, these conditions can be quite serious and require aggressive management which tends to make them hospital cases. 'Non-specific' chest infections are a different matter. A chest infection, with or without productive cough, in an otherwise healthy individual will usually be viral and self-limiting. Bacteria, if present, are playing an opportunistic role. If an antibiotic is needed, erythromycin covers the respiratory bacteria as well as the mycoplasmas which at times can be a very common cause of respiratory infection. Alternatives are Ampicillin/amoxycillin or Cefaclor. However, it should be born in mind that these will not cover the mycoplasmas. For all I have said against tetracycline, it is still a very good respiratory antibiotic and popular in the management of exacerbations of chronic

respiratory infection. The natural tendency of most chest infections is towards cure so good success rates can be quoted for almost every antibiotic including such agents as first-generation cephalosporins and ciprofloxacin. The former do not cover haemophilus and the latter has relatively poor activity against pneumococci. They really should have no place in this area.

SKIN AND SOFT TISSUE INFECTIONS

In the community, almost all these are due to *Staphylococcus aureus* and *Streptococcus pyogenes*. Penicillin resistance has been universal in staphylococci for thirty years now but Flucloxacillin resistance is not a community problem yet. Flucloxacillin or erythromycin will be safe, effective and cheap agents for cellulitis, abscesses and infected wounds. Augmentin and cephalosporins are unnecessarily broad-spectrum outside the context of infected animal bites. Here the range of organisms is much greater and one of these two agents are indicated. The microbiology of infected ulcers is complex. The mainstay of management is sound wound hygiene and frequent cleansing and dressing. There are a vast number of nostrums here. Suffice to say that if any one was the answer we would all be using it! If the flora is gram-positive (staphylococci and streptococci) and if there is much inflammation, Flucloxacillin or erythromycin is indicated. If the flora is gram-negative (coliforms) this is usually a reflection of poor wound hygiene and the first approach is to address this. Pseudomonas is best managed by improved hygiene. If coliforms or pseudomonas is associated with any significant inflammation, however, an antibiotic should be prescribed according to the sensitivities. A short course should produce all the improvement possible and antibiotics are not a substitute for good topical management. Topical antibiotics (as opposed to antiseptics) are frowned upon.

GASTROINTESTINAL INFECTIONS

The conventional wisdom is that antibiotics are unhelpful, if not counterproductive, in acute gastroenteritis and this is still a reasonable generalisation. However, a few exceptions are now emerging. Campylobacter is our most frequent faecal isolate in Lancaster. If given early enough antibiotics it will mitigate the more serious cases but probably do not have any effect on carriage. Giardia is a well-recognised cause of protracted diarrhoea in children and travellers and it will respond to Metronidazole. It should probably not be used without laboratory confirmation. Ciprofloxacin is an effective drug in the management of acute bacterial gastroenteritis due to salmonellae shigellae or enterotoxigenic *E.coli*. It is the first antibiotic with any effect in travellers' diarrhoea. Bear in mind, however, that to use Ciprofloxacin routinely would be to overtreat most cases, as in England the vast majority of acute diarrhoea is viral in origin and therefore beyond antibiotics. If antibiotics are reserved for the more serious cases, the bacterial diarrhoeas will self-select.

VAGINAL INFECTIONS

Whilst this is supposed to be a review of antibacterial agents, it would be silly to discuss genital infections without mentioning thrush. Clotrimazole is still highly effective although good results are reported for the new nitroimidazoles, especially Fluconazole. The 150mg single dose seems to have a very high success rate and good user acceptability.

Anaerobic vaginosis, a complex disturbance of the normal vaginal flora leading to an offensive discharge, is almost as common as thrush. *Gardnerella vaginalis* is a useful indicator organism and we do report it. However, other organisms are involved and *G. vaginalis* can be part of the normal flora so interpretation can be difficult. It is best to use empirical Metronidazole for an offensive discharge.

We are often asked about the management of Actinomycetes identified on a cervical smear. This is a frequent finding and whilst pelvic actinomycosis can be very serious in the presence of a coil, the organisms usually have no significance and it would not be practical to advocate coil removal on the basis of a single cytology report. If symptoms of pelvic inflammatory disease are mild or absent, a course of penicillin or metronidazole followed by a further smear should be adequate. If symptoms are more severe or if the smear shows marked inflammatory changes then it may be necessary to remove the coil as well as give antibiotics.

For sexually transmitted diseases, tetracycline or erythromycin work well in chlamydial infections and single dose Ciprofloxacin is fashionable for gonorrhoea. However, given the need for thorough contact tracing and advice on lifestyle, patients are best referred to a genitourinary medicine clinic.

In summary, for unguided empirical therapy in the majority of cases you need look no further than Cephalexin or Augmentin for UTI, Flucloxacillin or erythromycin for skin and soft tissue infections, Penicillin or erythromycin for upper respiratory infections, and erythromycin or Tetracycline for lower respiratory infections; a total of six antibiotics. All else should be kept in reserve for unusual situations, probably with laboratory guidance.

SUMMARY OF RECOMMENDATIONS

Cephalexin or Augmentin	for	UTI
Flucloxacillin or Erythromycin	for	Skin and soft tissue
Penicillin or Erythromycin	for	URTI
Erythromycin or Tetracycline	for	LRTI