Misconceptions about Antibiotics in general practice

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Summary
In this short article a few common misconceptions about antibiotics are discussed and some guidelines about their usage are given from a general practitioner's point of view.

KEYWORDS: Antibiotics; Penicillins; Ampicillin; Amoxicillin; Cephalosporins; Physicians, Family; Prescriptions, Drug, Family Practice.

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Curriculum Vitae
Johan Dippenaar practices in Grahamstown and has had a special interest in the use of antibiotics for the past six years. He received his MB ChB and M PRAX MED degrees from the University of Pretoria and practiced for three years in the Transvaal before establishing a practice in Grahamstown in 1981.

The general practitioner is bombarded by drug companies trying to promote their products. For the over-worked general practitioner it is almost impossible to keep abreast with rapidly developing modern medicine. The purpose of this article is to eliminate a few misconceptions about antibiotics and to try to establish a policy for the use of antibiotics by the general practitioner.

There are several common myths about certain antibiotics:

- Penicillin is an "outdated antibiotic", and ampicillin or amoxicillin is much more potent.

Penicillin, in my opinion, is the ideal general practice antibiotic. It is cheap and effective in susceptible

infections. It is the treatment of choice for tonsillitis, cellulitis, erysipelas, gonorrhoea, syphilis and pneumococcal pneumonia. In susceptible infections, it is more active than any other antibiotic. For example, it is six to eight times more active against streptococci than amoxicillin, which is more expensive.

Penicillin therapy is safe and the only complication (which is rare) is allergy. A careful history of the patient's past; asthma, hayfever or other allergies or previous penicillin allergy is important, and after a penicillin injection a patient should be kept under observation for fifteen minutes.

- Cotrimoxazole is a panacea.

Cotrimoxazole is a useful antibiotic for urinary infections, typhoid fever, prostatitis and certain chest infections. However, it is not a routine drug for tonsillitis and upper respiratory infections. Goodman and Gilman puts it clearly; "Cotrimoxazole should not be used to treat streptococcal pharyngitis, as it does not eradicate the micro-organism."[1]

- Minocycline is an "exceptional" antibiotic.

Minocycline is a modified tetracycline. It has advantages because there is better absorption from the stomach than with the tetracyclines and it does not increase the blood urea in patients with reduced renal function. This advantage, I believe, is outweighed by the fact that it causes a vestibular dysfunction with resultant vertigo at therapeutic dosages, which limits its usefulness. For the treatment of acne vulgaris, where it is used at a reduced dosage, this side-effect is uncommon and the drug may be used.

- Cephalosporins are "magic".

Cephalosporins are expensive antibiotics. It is almost impossible for the general practitioner to choose between the ever-increasing number of cephalosporins on the market.

I do not believe that cephalosporins are first choice drugs for every-day infections. Unfortunately the drug companies promote their use for tonsillitis, otitis media and upper respiratory infections. I think this advertising is totally unacceptable, and I believe the occasions when cephalosporins are used in general practice are few and far between.

- Combination therapy like Ampiclox or Suprapen is almost "a guarantee for success."

Commercially available combinations like ampicillin cloxacillin (Ampiclox) and amoxicillin/flucloxacillin (Suprapen) are expensive and usually unnecessary. For the therapy of staphylococcal infections, the patient only needs the penicillinase-resistant penicillin part of the combination. The broad spectrum penicillin (ampicillin or amoxicillin) is inactivated by the enzyme betalactamase, excreted by the organism. Cloxacillin and flucloxacillin, moreover, are highly protein bound, and their tissue availability has been questioned[2].

Alternative drugs for the oral treatment of staphylococcus infections are clindamycin or a cephalosporin.

- Clindamycin is a "dangerous" antibiotic because it "commonly' causes pseudomembranous colitis (PMC).

Initial reports on the association between clindamycin and PMC suggested that clindamycin commonly causes PMC. Recent studies contradict the earlier findings. It has now been shown that other antibiotics like ampicillin cause PMC more often than clindamycin.

I do not think that PMC is a common side-effect when clindamycin is used. Clindamycin is a useful antibiotic for the general practitioner in the therapy of gram-positive sepsis. I have never seen PMC as a side-effect of clindamycin therapy, and I have used it fairly often for the past three years. I must admit, however, that I still warn the patients to stop taking the drug should they develop diarrhoea, and I have never given it for longer than six or seven days.

AN ANTIBIOTIC POLICY FOR THE GP

Penicillin should be the treatment of choice for tonsillitis and other streptococcal and pneunococcal infections.

The oral form, Penicillin VK, is available. For more serious infections, Procaine Penicillin should be injected daily or Penicillin G given intravenously in hospital.

Otitis media in adults is usually caused by pneumococcus and penicillin will normally cure it. In children under five years haemophylis influenza is frequently the cause and amoxicillin is the preferred treatment[3].

Tetracyclines are useful agents in general practice because they are cheap, and are the drugs of choice for upper respiratory infections, tick-bite fever and certain venereal infections. They should not be used in children or pregnant women.

Pneumonia is frequently seen by the general practitioner. In a previously healthy adult, pneumococcus is normally the infecting agent, and penicillin is the treatment of choice.
Bronchopneumonia in patients with previous lung disease like bronchitis or heart failure is usually caused by H influenza and amoxicillin is the treatment of choice.

Pneumonia following influenza is usually caused by staphylococcus aureus and the patient should be hospitalized. Therapy should be with intravenous lincomycin, one of the cephalosporins, or in rare cases intravenous fucidic acid.

The atypical pneumoniae, presenting with a flu-like illness with many extra-pulmonary symptoms like myalgia, headache, confusion and diarrhoea, should be treated with tetracyclines or erythromycin.

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Acute bronchitis usually is a viral disease but in smokers or patients with purulent sputum, I think it is advisable to give an antibiotic. The antibiotics of choice are the same as for acute exacerbations of chronic bronchitis — in other words, a tetracycline, amoxicillin or cotrimoxazole.

Abscesses, boils and furuncles are frequently seen by the general practitioner. Most of these require surgical drainage and no antibiotics. Three indications exist for antibiotic therapy after an abscess has been drained[4]:

- Immuno-compromised host - like diabetics.
- When signs indicate systemic spread such as pyrexia, lymph node involvement and severe residual erythaema.
- Large facial abscesses because of the risk of cavernous sinus involvement.

Most superficial abscesses are caused by staphylococcus aureus and I use clindamycin. Pelvic and perianal suppuration are more serious and are usually caused by anaerobes. Metromidazole should be included in the antibiotic regime.

Gastro-enteritis is a viral disease and does not normally require antibiotics. Most cases do better without antibiotics and some even develop drug induced diarrhoea.

Anaerobes are normal microflora of the mouth, vagina and gut. They may cause infections however, like oral sepsis, lung abscesses, chronic sinusitis, appendix abscesses, perianal suppuration and pelvic inflammatory disease.

A few factors suggest infections by anaerobes:

a. Infections in anatomical regions like the mouth, vagina and intra-abdominally.

b. Pus draining from these wounds or abscesses with a putrid smell.

c. Sometimes, despite severe sepsis, the patient does not look ill.

The treatment of choice is metronidazole.

Venerial infections are becoming more common and patients with urethral discharge are seen more frequently.

A study in 1980 showed that the general practitioner can predict with considerable accuracy whether the infection is gonorrhoea or Non-Gonococcal Urethritis (Pretoria JJB, Balt EL and Dippenaar J, unpublished observations). Gonorrhoea causes a profuse, creamy discharge, and NGU a scanty watery discharge. The treatment of gonorrhoea is Proc. penicillin 2,4 mu. as a single dose. NGU is treated with oral tetracycline one or two grams daily for seven to ten days. Recent studies have indicated that resistance of gonococci to penicillin is on the increase, but the practical implication of this is not yet clear.

To make the right decision in antibiotic therapy it is important to think of the bug before the drug. One should therefore speak of antimicrobial rather than antibiotic therapy.

Antimicrobial therapy is also an ever-changing subject due to changing resistance patterns of micro-organism, but the contents of this article tries to reflect current opinion.

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"References for Forum; Babes in the Wood, Jan 1985, p21-24 omitted in error."

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