June 2001

National Prescribing Service Limited

PPR twelve

Prescribing Practice Review—*PPR* For General Practice

Are you under pressure to prescribe newer antibiotics?

Be critical of the evidence

When evaluating studies comparing how effective antibiotics are in the clinical setting, ask the following questions.

Are the data based on laboratory studies or clinical outcomes?

Clinical outcomes are a 'real life' measure and should be used rather than laboratory parameters to define antibiotic efficacy.

The *in vitro* minimum inhibitory concentration (MIC) is used to measure bacterial resistance to antibiotics but is only a surrogate marker of antibiotic efficacy. It concerns two variables: bacterium and drug.

In clinical infection, however, there are three variables: bacterium, drug and patient.[1] Clinical outcomes are a measure of antibiotic efficacy. Studies looking at clinical outcomes in patients with infections take into account the complex interaction between the type of infecting bacterium, its location in the body, the concentration of antibiotic in the body at the site of infection, and the immune status of the patient.[2]

Were the trial subjects typical of patients seen in general practice?

Patients in hospital are more seriously ill and the bacterial pathogens in the hospital environment tend to show greater resistance to many antibiotics.

Exceptions are *Haemophilus influenzae* and *Streptococcus pneumoniae* which are common community respiratory pathogens; resistance levels seen in hospitals are no greater than those in the community.

Is the level of resistance described clinically relevant?

The potential for treatment failure due to bacterial resistance which is considered 'acceptable' changes with the type of infection being treated.

A certain potential for resistance may be tolerated when considering amoxycillin to treat otitis media or sinusitis because the likely organisms remain largely susceptible and the consequences of treatment failure are not profound. This is not the case, however, with more serious infections such as meningitis where the consequences of treatment failure are significant.

How effective is an old drug like amoxycillin in the face of changing resistance patterns?

A survey in Australia found *S. pneumoniae* resistance was lowest for amoxycillin compared with other antibiotics typically used to treat upper respiratory tract infections (URTIs), including penicillin V, cefaclor, erythromycin and tetracycline.[1]

Amoxycillin has the best pharmacodynamic profile against *S. pneumoniae* (the longest time above the MIC that kills 90% of the bacteria) of any of the commonly available oral antibiotics.[2]

Failed URTI treatment with amoxycillin can be due to beta-lactamase production by *H. influenzae* or resistant *S. pneumoniae* (which is not linked to beta-lactamase production but to changes in the bacterial penicillin-binding proteins). In practice, it is difficult to know why amoxycillin has failed, therefore a strategy must be used to cover either possibility.

Amoxycillin/clavulanate (as the 875 mg/125 mg Duo Forte® combination) is recommended: the clavulanate inhibits *H. influenzae* beta-lactamase while this combination, given three times a day and with its greater amoxycillin content, can overcome *S. pneumoniae* resistance.[1,3,4] In cases of continued poor response, other reasons for the failure should be considered (e.g. other uncommon respiratory pathogens, such as anaerobes, or anatomical abnormalities).

Amoxycillin remains the drug of choice for acute otitis media:

- *H. influenzae* is the cause of 15–30% of acute otitis media cases. Although *H. influenzae* has a lower resistance to cefaclor than amoxycillin, 80% remain susceptible to amoxycillin.[4]
- *S. pneumoniae* is the cause 25–50% of the time. Cefaclor is less active than amoxycillin against *S. pneumoniae* that are not susceptible to penicillins.[1]

Which antibiotics do you use for URTIs and acute bronchitis?

Bacterial resistance to antibiotics makes some infections more difficult to treat and the emergence of multidrug-resistant organisms is of growing concern. However the vast majority of URTIs requiring antibiotics still respond to the narrower spectrum agents.

Antibiotics not recommended in:

- rhinosinusitis
- pharyngitis
- acute bronchitis

Acute otitis media[1,2]

Whether viral or bacterial, 60% of children are pain free within 24 hours without antibiotics:

- consider paracetamol for pain and fever initially and review in 48 hours for children 2 years and older or in 24 hours for children between 6 months and 2 years.

S. pneumoniae, *H. influenzae* or *Moraxella catarrhalis* are the most common bacterial causes:

- **amoxycillin for 7 days remains first-line therapy when an antibiotic is required** (use cefaclor* in penicillin-allergic patients)
- if there is a poor response to first-line therapy (due to resistant *S. pneumoniae* or beta-lactamase-producing *H. influenzae*), use amoxycillin/clavulanate (child: 22.5 mg/kg of amoxycillin content up to 875/125 mg) every 8 hours for 7 days.

Acute sinusitis[1,3]

Frequently viral and will often resolve spontaneously without antibiotic treatment, even if it is bacterial in origin:

- provide reassurance and consider paracetamol or aspirin (in adults) and a topical nasal decongestant for symptomatic relief.

Bacterial sinusitis (due mainly to *S. pneumoniae* and *H. influenzae*, less frequently *M. catarrhalis*) follows a viral URTI in less than 5% of cases:

- consider antibiotics in cases displaying at least three of the following features: mucopurulent nasal discharge for more than 7 days; facial pain; a poor response to decongestants; tenderness over the sinuses; tenderness on percussion of maxillary molar and premolar teeth not attributed to a single tooth
- **amoxycillin for 7 days remains first-line therapy when an antibiotic is required** (use cefaclor* or doxycycline† in penicillin-allergic patients)
- if there is a poor response to first-line therapy (due to resistant *S. pneumoniae* or beta-lactamase-producing *H. influenzae*), use amoxycillin/clavulanate (875 mg/125 mg) every 8 hours for 7–14 days.

Sore throats (pharyngitis, tonsillitis)[1,4]

A predominantly viral, self-limiting condition:

- provide reassurance and consider paracetamol, aspirin (in adults), or ibuprofen for symptomatic relief.

In adults 5–10% are caused by *Streptococcus pyogenes*:

- bacterial cause is more likely if patients have fever (>38°C), tonsillar swelling/exudate, tender cervical lymphadenopathy, no cough
- when an antibiotic is required in severe tonsillitis, **penicillin V every 12 hours for 10 days remains first-line therapy** (use roxithromycin in penicillin-allergic patients)
- amoxycillin, amoxycillin/clavulanate or cefaclor **do not** offer any advantage over penicillin V and increase the risks of side-effects.

Antibiotic therapy to prevent rheumatic fever is no longer recommended except in those communities (e.g. Aboriginal and Torres Strait Islanders) where its incidence is higher than in the general population.

A meta-analysis of more than 10,000 patients found insufficient evidence to conclude that antibiotics prevent acute glomerulonephritis.[5]

Acute bronchitis[1,6,7]

Predominantly viral and antibiotics are **not** justified:

- antibiotics have no impact on illness duration, activity limitation or work loss.

Modest benefits from antibiotics in some patients are offset by risks of adverse effects of a similar magnitude.

Inhaled bronchodilators may be useful for short-term symptom management.

Fact

Cephalexin continues to account for around 5% of prescribing for URTIs.[8] Cephalexin **is not effective** against *H. influenzae* and has no role in the empirical treatment of URTIs.

* cephalosporins are contra-indicated in patients with a history of immediate hypersensitivity to penicillins
† doxycycline should not be used in children under 8 years of age or in pregnant or breast-feeding women

Are you pressured to prescribe by patients eager for rapid recovery?

Evidence is accumulating that patients are not less satisfied when an antibiotic is not prescribed.[1]

Prescribing antibiotics for self-limiting conditions can reinforce patients' erroneous beliefs that antibiotics are 'cure-alls' for infection; this in turn encourages future consultations in similar circumstances.[2,3]

Keys to changing patients' expectations include:

- explaining why an antibiotic will not be beneficial
- emphasising the risks of prescribing unnecessary antibiotics, such as side-effects and the potential for developing resistant organisms and spreading them to others[4]
- reassuring the patient
- providing alternatives to manage symptoms.

NPS launches community campaign: *Common colds need common sense*

In response to GPs' requests of NPS to assist in raising community awareness about appropriate antibiotic prescribing, we are pleased to announce that the campaign *Common colds need common sense* will run from June to August 2001.

Primary targets for the campaign are people in the workforce and parents and carers of young children.

The campaign is part of a long-term strategy to increase community awareness about the unnecessary use of antibiotics for treating coughs, colds and flu-like symptoms. It is designed to assist GPs to discuss with patients treatment options for URTIs, including prescribing of antibiotics.

Resources promoting a 'common sense' approach to treating a cold are available for GPs and pharmacists. A sample of the campaign brochure and one of the posters is enclosed; on the reverse of the poster you will find details of other resources available to you free of charge. Please fax your order to us on the form on the reverse side of the poster.

The NPS *Symptomatic Management Pad for Acute URTIs and Acute Bronchitis* is also available free of charge, for use by GPs wishing to provide patients with written information. It is available in Arabic, Chinese, English, Greek, Italian and Vietnamese.

For more information, call us on 02 9699 4499 or visit our website at http://www.nps.org.au.

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Are you under pressure to prescribe newer antibiotics?

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How effective is an old drug like amoxycillin?

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Are you pressured to prescribe by patients?

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4. Turnidge J. BMJ 1998;317:645–7.

National Prescribing Service Limited

Our goal To improve health outcomes for Australians through prescribing that is: safe effective cost-effective

Our programs To enable prescribers to make the best prescribing decisions for their patients, the NPS provides information education support resources

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National Prescribing Service Limited

Invitation to participate

Clinical Audit

Antibiotic use in the management of uncomplicated upper respiratory tract infections (URTIs) and bronchitis

This clinical audit is an activity for the Quality Prescribing Initiative of the Practice Incentives Program (PIP) which can be use to claim PIP payments.

Application has been made to the Royal Australian College of General Practitioners (RACGP) for allocation of 20 clinical audit points in the Quality Assurance and Continuing Education program.

There is no charge for this audit.

What the audit involves

Aim:

To review the use of antibiotics in the management of patients with uncomplicated URTIs and bronchitis.

Evaluation:

Data Collection:

Prospectively record prescribing for 20 patients who present with uncomplicated URTIs or bronchitis over the next several weeks.

Response:

Your data will be collated and you will be provided with:

- your individual and aggregated results
- expert commentary on the audit results and management of uncomplicated URTIs and bronchitis
- a set of review questions to assist you to review your management of these patients. Completed review questions must be returned to the NPS for allocation of RACGP and/or PIP points.

How to participate

Telephone 02 9698 0022 by Friday 31 August 2001 to request your audit pack (includes instructions and audit forms).

Request your audit pack by: Friday 31 August 2001.

Other enquiries about the audit

Margaret Fitzgerald; telephone 02 9699 4499, fax 02 9699 5155, email mfitzgerald@nps.org.au

Alternative clinical audits

Other clinical audits may be recognised for the Quality Prescribing Initiative of the Practice Incentives Program. Check with the provider or telephone the NPS on 02 9699 4499.

Please note this is one of the last NPS clinical audits available for completion within the RACGP Triennium 1999–2001.

Telephone 02 9698 0022 now to request your audit pack

The best thing to prescribe for common colds is common sense.

Take it easy.

Drink plenty of fluids.

Treat the symptoms.

Got a cold? You won't get better more quickly by taking antibiotics because the common cold is a virus.
So if you have a cold, use common sense.

For more info, call 02 9699 4499 or visit www.nps.org.au

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