COMMON UPPER RESPIRATORY TRACT & ENT INFECTIONS

- Most URTIs are viral in origin and require symptomatic treatment only.
- Knowledge of the current sensitivity of prevalent organisms directs choice of antibiotic.
- Cephalosporins and quinolones should not be routinely employed.
- Amoxycillin is the drug of choice in 1st line empirical therapy.

Upper respiratory tract infections are among the commonest reasons for attendance to the general practitioner, with an incidence of 6-8 and 2-3 infections in children and adults respectively per year. They are a major source of morbidity and absenteeism at work. URTIs are among the commonest reasons for prescribing antibiotics, although most URTIs are viral in origin and require symptomatic treatment only.

Antibiotic intervention should be based on a knowledge of likely prevalent organisms and their current sensitivity. The increased use of broader spectrum and more expensive antimicrobial drugs have implications for all patients due to the impact on health care costs and the increasing emergence of anti-microbial resistance.

Clinical differentiation of viral and bacterial URTIs is unreliable. Ideally antibiotics should be prescribed based on samples sent for microbiological analysis. This is often not possible and antibiotic choice is commonly empirical.

In this bulletin URTIs are divided into viral and bacterial URTIs. Viral are discussed under 'Common Cold', while bacterial are discussed in the sections on 'Pharyngitis/Tonsillitis', 'Sinusitis' and 'Otitis Media'.

COMMON COLD
Viral URTIs are otherwise known as the 'common cold'. They are the commonest diseases among humans. This limited acute mild catarrhal illness is usually a nasopharyngitis of 5 to 7 days duration. Symptoms include nasal discharge/congestion, pharyngitis, cough, and catarrh with minimal fever or systemic symptoms.

Most colds are caused by rhinovirus infection. Other frequent pathogens include, coronavirus, adenovirus, para-influenza virus, respiratory syncytial virus and influenza virus (A + B). Colds induced by different viruses differ primarily in their incubation period, ranging from 48-72 hours. Influenza virus has been shown to produce consistently more severe symptoms in all age groups when compared to rhinovirus infection and may be particularly debilitating in certain high risk patient groups.

INFLUENZA VACCINATION
Vaccination should be considered for persons at special risk provided it is not contraindicated. Trivalent vaccines are currently in use.

Indications include: -
- chronic pulmonary disease
- chronic heart disease
- chronic renal disease
- immunosuppressed patients
- elderly patients in long stay institutions

Contraindicated in: -
- children under 4 years
- pregnancy
- patients sensitive to egg protein

PHARYNGITIS / TONSILLITIS
Sore throat, the principal symptom of acute pharyngitis/tonsillitis is often seen as part of a flu-like illness due to a viral infection. The most common bacterial cause is group A β-haemolytic streptococci (GAβHS). This is isolated in up to 30% of adults and 50% of children. GAβHS may be associated with rheumatic fever and acute glomerulonephritis. GAβHS pharyngitis/tonsillitis is characterised by extreme sore throat, high fever, pharyngeal exudate and tender cervical lymphadenopathy without significant coryza or cough. These typical features are present in only 15% of cases.
Other pathogens isolated include *strep. pneumonia, haemophilus influenza* and *staphylococcus aureus* and are particularly implicated in cases of recurrent tonsillitis.

Other causes of acute exudative pharyngitis/tonsillitis include infectious mononucleosis especially in young adults, and rarely gonococcal pharyngitis and diphtheria.

A throat swab is the conventional laboratory test used to make a definitive diagnosis of streptococcal infection. Up to 80% of patients with a sore throat are treated with an antibiotic without laboratory investigation.

**SINUSITIS**

Sinusitis occurs in up to 5% of patients with a URTI. The main symptoms include purulent rhinorrhoea (nasal discharge), malaise, cough, fever, nasal obstruction (unilateral or alternating), impaired smell and facial pain. It may be difficult to distinguish from allergic rhinitis but this is suggested by watery rhinorrhoea, sneezing, nasal obstruction (bilateral) and nasal itch.

The maxillary sinus is the most commonly affected and pain occurs over the cheek/upper teeth region. The commonest organisms isolated include, *strep. pneumonia, H. influenza* and *M. catarrhalis*. Other pathogens include *strep. pyogenes* and gram negative bacilli and anaerobes. Complications are rare but include orbital abscess, meningitis, cerebral abscess and cavernous sinus thrombosis.

**OTITIS MEDIA**

Acute otitis media (AOM) is predominantly a disease of early childhood. Approximately 40% of children under 10 years suffer from an episode. The incidence is highest in the first two years of life. Specific symptoms including earache (otalgia), fever and impairment of hearing, may be accompanied by non-specific symptoms such as, nausea, vomiting, irritability, loss of appetite and lethargy. Young children may pull at their ear or bang their heads. Ear pain is worsened by swallowing and is often markedly reduced with the onset of a discharge (present in 20% of children at presentation).

On examination, the tympanic membrane appearance varies with the stage of infection. It initially shows increased vascularity, becoming red and thickened with loss of landmarks, bulges and eventually perforates resulting in a purulent discharge. Bacterial infection accounts for the majority of cases with viruses responsible for the remainder. The most frequently isolated pathogens are *strep. pneumonia and H. influenza*. Additional pathogens include, *M. catarrhalis, strep. pyogenes, staph aureus*, gram negative bacteria and anaerobes.

**CHOICE OF ANTIBIOTIC**

− Choice depends on the likely susceptibility of the organism, ease of administration, freedom from adverse effects and relative cost.
− An antibiotic that has a short simple dosing regimen and is convenient to administer and acceptable to the patient (especially if a child), will improve compliance and thus more reliably resolve infection.
− The longer the regimen after resolution of symptoms the more likely non-compliance becomes.
− Poor compliance has been identified as the most frequent cause of antibiotic treatment failures.

**PENICILLINS**

− Amoxycillin remains the antibiotic of 1st choice. It is active against strep pneumonia and most strains of *haemophilus influenza*.
− Ampicillin is similar in efficacy to amoxycillin but its GI absorption is less than 50% and is further decreased by food.
− Phenoxy methyl penicillin (Penicillin V) is less active than amoxycillin or ampicillin, but has been used as 1st line treatment in *streptococcal pharyngitis*.
− Co-amoxyclov (amoxycillin/clavulanic acid) should be reserved for infections which are likely to be β-lactamase producing.
− Side effects of penicillins include nausea, diarrhoea and hypersensitivity reactions.
CEPHALOSPORINS
− Divided into three groups based on their increasing gram negative activity:-
  1st Generation: Not suitable for URTI due to poor activity against *haemophilus influenza* and *moraxella catarrhalis*.25
  2nd Generation: Cefaclor and cefuroxime axetil have enhanced activity against *haemophilus influenza* and *moraxella catarrhalis*. The activity of cefuroxime is in most cases greater than cefaclor.26 Its Bioavailability is increased if taken with food.
  3rd Generation: This group currently includes cefixime and cefpodoxime proxetil. They are even less susceptible to inactivation by β-lactamases and have greater activity against these gram negative bacteria.27,28
10-16% of patients allergic to penicillins are also allergic to cephalosporins.28 Patients who experience immediate hypersensitivity reactions to penicillins should not be given a cephalosporin. In general the new oral broad spectrum cephalosporins offer no clear advantage over previously available drugs and are far more expensive and should be used as 2nd line agents only.

MACROLIDES
Erythromycin:
Suitable for use in patients allergic to penicillins. It is active against β-lactamase producing organisms. Disadvantages include poor oral bioavailability, gastrointestinal side effects and 'intermediate' activity against *haemophilus influenza*.29
The newer macrolides, azithromycin and clarithromycin are more effective than erythromycin against *strep pneumonia*, *haemophilus influenza* and *moraxella catarrhalis*. They have greater bioavailability than erythromycin,27 fewer gastrointestinal side effects30,31 and azithromycin has the benefit of a short treatment course (3 days). However, they are more expensive and should be used as 2nd line agents.

Quinolones:
Ciprofloxacin and ofloxacin have good activity against *haemophilus influenza* and *moraxella catarrhalis* but poor activity against *strep. pneumoniae*. They should be reserved as 2nd or 3rd line treatment where few alternatives exist and there is a differential benefit in terms of efficacy, safety or cost.

TREATMENT
− Treatment is aimed at relieving pain, eradicating infection, preventing complications while avoiding unnecessary antibiotic therapy.
− Broad spectrum antibiotics are usually indicated in acute sinusitis. Acute sinusitis usually resolves within three weeks.
− Acute otitis media resolves spontaneously without antibiotic therapy in approximately 70-80% of cases within 72 hours.17 There are conflicting studies both supporting and refuting improved recovery rates and decreased complication rates in patients receiving antibiotics compared to those on no treatment.18,19,20 Antibiotics are currently widely accepted as the mainstay of treatment.

DURATION OF TREATMENT
− The optimal duration of antibiotic treatment (5 - 14 days) remains controversial.
− Shorter courses may be effective especially where compliance is a problem.

ANTIBIOTIC RESISTANCE
− Rates of antimicrobial resistance to ampicillin/amoxycillin have been increasing in bacteria responsible for community acquired respiratory tract infections, e.g. M. catarrhais, H. influenza and Strept. pneumonia
− The unnecessary use of antibiotics, in particular, broad spectrum β-lactamase stable antibiotics are more likely to lead to the emergence of resistant strains mainly by gram negative pathogens.

IMPORTANT DRUG INTERACTIONS
A number of the newer antimicrobials may inhibit drug metabolism\textsuperscript{33} and broad spectrum antibiotics may reduce the contraceptive efficacy of the combined oral contraceptive pill\textsuperscript{33}.

### COST

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\textit{- Price quoted is cost price (G.M.S. 1996)}

\textit{- Dose quoted is adult dosage}

### REFERENCES

15. New Ethicals, 1994; 31: 31-34.