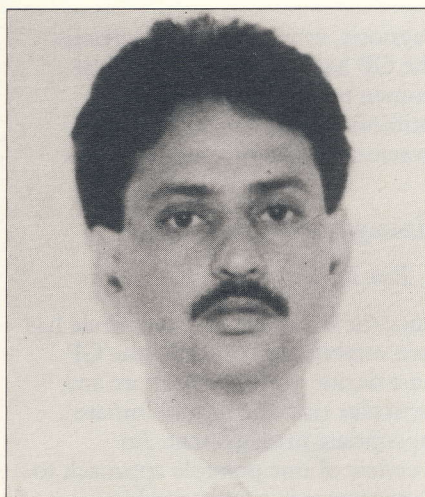


Management of Pneumonia in Adults in General Practice – Dr UG Lalloo



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Curriculum vitae

Dr Lalloo obtained the MBChB at the University of Natal in 1979, the FCP (SA) in 1984 and the Diploma in Occupational Health in 1986. He is currently a lecturer with the Department of Medicine, University of Natal and is Head of the Respiratory Unit. Dr Lalloo is a member of various associations/societies including The American Thoracic Society, the SA Pulmonary Society as well as being an Executive Member of the Durban Regional Branch of NAMDA. He is currently President of the Medical Graduates Association of the University of Natal.

Summary

Acute respiratory tract illnesses account for a high percentage of all GP consultations and millions of antibiotic prescriptions per year; 75% of new respiratory consultations in general practice result in a prescription of an antibiotic. Therefore a GP must keep abreast of developments in the area of antibiotics. Most instances of pneumonia can safely be managed at home by the GP, but he should have a good knowledge of the clinical presentation, underlying cause, antibiotic choices, the resistance as well as the recovery patterns. Different antibiotics are discussed.

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KEYWORDS:

Pneumonia; Drug Therapy; Antibiotics.

Introduction

Acute respiratory tract illnesses are an important cause of morbidity and mortality in the community and form a major burden on the health services. In England and Wales they account for 15% of all general practitioner (GP) consultations. Each year 25 million prescriptions are written for antibiotics for respiratory infections and 75% of new respiratory consultations in general practice result in the prescription of an antibiotic.¹ A community based respiratory health survey of the Indian population of Lenasia in Johannesburg in 1985 showed that

4,2% of adults had a history of pneumonia (Lalloo et al, unpublished data). Symptoms of cough, catarrh and phlegm occur in approximately 10% of South Africans. A GP is likely to see an average of 10 cases of pneumonia per year in a first world practice and many more in a third world practice. Many of these could be managed at home.

Definition and Diagnosis of Pneumonia

In a hospital context the definition of pneumonia is straight-forward and includes the presence of acute radiographic shadowing. A chest radiograph is not readily available to the GP and this definition is therefore inappropriate. For the purpose of this discussion I have defined pneumonia as "an acute lower respiratory tract infection associated with focal signs on examination of the chest". The diagnosis of pneumonia is both a morphological and aetiological one.

The former relies on careful history and clinical examination. An insight into the epidemiology of pneumonias in the environment is required by a GP to make a reasonable aetiological diagnosis. Table I is a list of the spectrum of investigations (in hierarchical order) available to make an aetiological diagnosis of pneumonia. Many of these investigations are sophisticated and costly. In adults it is rare for the chest radiograph to be normal in pneumonia. Occasionally patients with pneumonia may manifest no respiratory symptoms at all.^{2,3} The radiographic pattern does not correlate with any aetiology.

There is, to the best of my knowledge, no published study of the

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Table I. Methods of Diagnosing Pneumonia

Morphological
Clinical - History and examination.
Chest Radiograph.
Aetiological
Sputum examination
Blood cultures
Immunologic methods
Transtracheal aspiration
Transthoracic aspiration
Bronchoscopic specimens
- Bronchial washings
- Specimens from guarded brush catheter
- Transbronchial needle aspiration
- Bronchoalveolar lavage
- Transbronchial biopsy
Open lung biopsy

epidemiology of community acquired pneumonias in GP practice in South Africa. Table II is a summary of 3 studies on pneumonia in practice.^{1,2,4} Most of the patients with a clinical diagnosis of pneumonia in these studies had a chest radiograph and one or more of the following investigations: sputum examination and culture, throat swab, blood culture and serological tests for the possible aetiological agents. It is sobering to note, that despite this, a definite aetiology was made in only slightly more than 50% of the instances. In a retrospective study of adult patients with community acquired pneumonia admitted to the medical wards of King Edward VIII Hospital, an aetiology was established in less than 20% of cases. These findings highlight the difficulty in making an aetiological

diagnosis, even in research settings. The GP has to rely on his clinical acumen to decide on empiric antibiotic therapy for the patient presenting with pneumonia.

Management

a) Risk Factors

Once the diagnosis of pneumonia has been established clinically, the GP must decide whether there are any particular risk factors and initiate appropriate management. An overview of one possible approach to management is summarised in Figure I.

The patient who is severely ill needs hospitalisation and special investigations. The patients who are not severely distressed but have

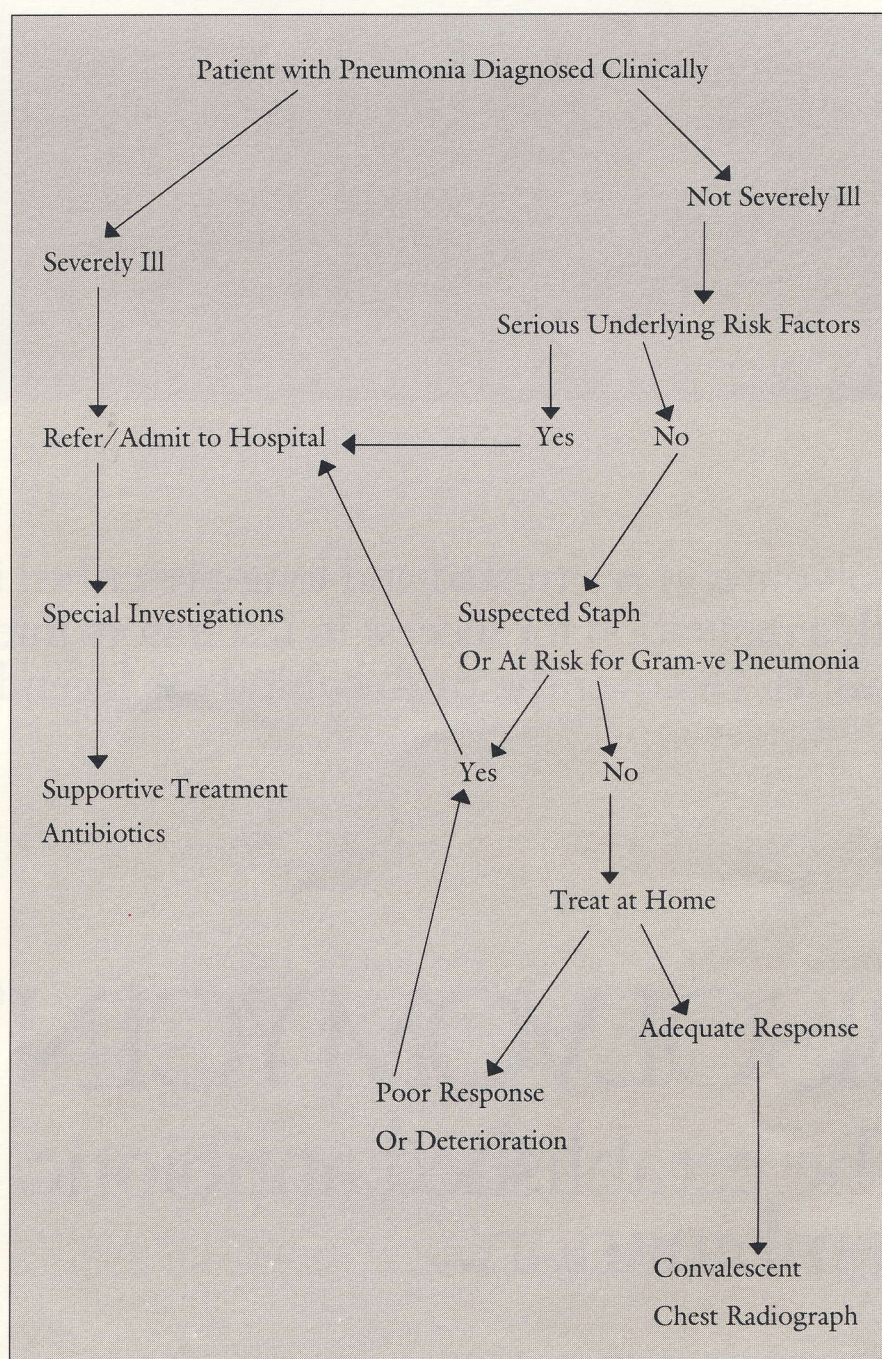
Table II

Study No & Year	Author/Ref	Country	No. of Patients* Studied	Five Commonest Aetiologies in Decreasing Frequency	
1	1983	Everett ²	England	189 (59%)	Pneumococcus Mycoplasma Pneumoniae Viral Psittacosis Secondary CA
2	1987	Woodhead et al ¹	England	751 (55%)	Pneumococcus Haemophilus Influenza Viral Mycoplasma Tuberculosis
3	1989	J Germouty ⁴	France	274 (51%)	Pneumococcus Legionella Mycoplasma Haemophilus Influenza Klebsiella

*Proportion of patients in whom an aetiological diagnosis was established presented in brackets.

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Figure I. Proposed Algorithmic Approach to Management of Pneumonia in General Practice



serious underlying risk factors, should also be referred. These include immunocompromised states (eg AIDS, steroid therapy, malignancy), malnutrition and debilitating chronic diseases. This group is also at risk of infection with gram-negative bacilli such as Escherichia Coli, Klebsiella, Enterobacter, Proteus and Serratia. The risk factors for these infections are summarised in Table III.^{5,6} Staphylococcal pneumonia is likely to occur in patients with influenza.¹

A GP is likely to see 10 patients with pneumonia every years and many more in a third world population

However, these patients are invariably severely ill and require hospitalisation. Woodhead et al found that the GPs in their study in England were very good at selecting patients with severe illness requiring hospital admission.¹

b) Home Management

The balance of patients, who form the majority, may be managed at home. The prerequisite must be that easy access to a health care facility is ensured should an unexpected deterioration occur. This may exclude many patients, particularly blacks, who come from poor socio-economic backgrounds.

c) Initial Investigations and Therapy

The value of special investigations for pneumonia in the community is questionable. The previously mentioned prospective studies^{1,2,3,4} revealed that most of the tests were of

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little practical help. The yield from blood cultures was low, sero-conversion took long and sputum cultures seldom gave results that demanded a change of antibiotics. The GP therefore has to make an intelligent choice of antibiotic therapy. Our local experience

The majority of pneumonias can be safely managed at home by the GP

supports the published evidence that pneumococcus still ranks as the commonest cause of pneumonia so that therapy must cover this organism. Therapy should cover in addition, Haemophilus influenza and possibly Mycoplasma pneumoniae. The latter is not a common aetiology in our experience at King Edward VIII Hospital.

The antibiotic prescribed most frequently in general practice was a beta lactam antibiotic like amoxycillin or a clavulanate - potentiated amoxycillin.² Many patients who were found to have Mycoplasma pneumoniae on serological testing had already recovered completely despite not receiving the appropriate antibiotic viz erythromycin. The choice of empiric antibiotic therapy is vast. Penicillin is recommended as the first-line choice of empiric antibiotic therapy because pneumococcus still ranks as the commonest cause of community acquired pneumonia. This is a cost-effective choice of therapy in a third world environment. Tetracycline should be avoided because of resistance. Erythromycin or amoxycillin are useful alternative

first line therapies. When penicillin allergy is suspected cotrimoxazole or erythromycin are useful substitutes. If there is no response within 72 hours or deterioration occurs, a change of antibiotic and/or referral should be considered. The patient should be re-examined carefully for complications like a parapneumonic effusion. If the patient becomes markedly distressed, referral for appropriate investigation and treatment in hospital is necessary. Once again, if cost is a factor,

Table III. Patients at Risk for Infection with Gram-negative Bacilli

Alcoholics
Diabetics
Immunocompromised patients
Cancer patients
Congestive heart failure patients
Patients debilitated by chronic diseases
Old age enduring a bed-ridden or bed to chair existence

chloramphenicol is an excellent 2nd line therapy. The fear of bone marrow depression limits its widespread use.

Erythromycin is a useful broad spectrum antibiotic for patients with mild to moderate pneumonia. It covers a wide spectrum of organisms and simplifies therapy.

The GP must keep abreast of developments in the area of antibiotics. Close liaison with the microbiologist is important in order

to be informed of resistance patterns in community acquired infections.

d) Follow-up

The only recommended investigation in the mildly ill patients may be a convalescent chest radiograph. This should be done earlier in those who are slow to recover.¹ The higher frequency of bronchial carcinoma in the older smoker, especially warrants a chest radiograph in the convalescent period. The radiographic resolution of pneumonia may take up to 3 months. The GP can observe such patients provided there is complete clinical recovery.

Careful follow-up will aid early recognition of those who respond poorly or deteriorate. In these patients early investigations and/or referral is necessary. If this simple guideline is not followed then complications will occur. The GP must also be aware of the high background incidence of tuberculosis in the environment.

The case history of a 35 year old Indian clerk illustrates an avoidable situation. He presented with cough, dyspnoea, a marked weight loss over a 4 month period. He had bronchogenic tuberculosis. He had consulted his GP 3 months earlier with respiratory symptoms and was given 4 courses of antibiotics over the 3 months without any referral or recognition of the progressive clinical deterioration.

Conclusion

The majority of instances of pneumonia can be safely managed by

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the GP at home. This will reduce the cost of health care delivery with very little risk to the patient. The GP's knowledge of clinical presentation, underlying causes, antibiotic choices and resistance patterns and expected recovery patterns will help intelligent control of this common problem.

There is a need for a prospective GP based study of pneumonia in this region in order to define the aetiology of pneumonia. At present we have to rely on published data from overseas experience.

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