

# CHAPTER 21 - GENERAL PRINCIPLES OF THERAPEUTICS

## INTRODUCTION

1. When you are asked to discuss the management of a problem the first essential is to define whether the **diagnosis** is complete in all its aspects. And in this respect I mean whether all four aspects of our diagnostic categories are established i.e.

(i) Do we understand the anatomical site of the problem.

(ii) Do we know its general pathological nature.

(iii) What are the secondary functional consequences of the disease, either in terms of impairment of organ function or sequelae or complications arising therefrom.

(iv) Aetiological diagnosis - i.e. what are the background factors behind the condition. Where the condition is chronic, such as atheroma, you should look for long term "risk factors" e.g. hypertension, cigarette smoking etc. Where it is acute-on-chronic, you must also consider acute precipitating factors. It is for the latter reason that we take so much trouble looking into the social and personal background of the patient, particularly in the time immediately preceding the attack. In this respect, many acute episodes of disease are clustered around life events of a stressful nature, and these are especially worth finding out. Even if you cannot be sure of just how much psychological factors are contributing to the organic problem confronting you, they still likely bear on the patient's reaction to it, and are therefore important in the management of your patient as a whole.

2. Your first diagnosis in the four categories will be a clinical one. But they also define the investigational aspects, i.e. you should only investigate your patient in areas where diagnosis in any of the various categories is not yet complete, e.g. you may need a chest X-ray in a patient with obscure chest signs difficult to localise, anatomically; in a patient with prolonged pain due to myocardial ischaemia, you may need to look at enzymes to see whether there has been any damage or even death of heart muscle, pathologically, i.e. myocardial infarction.

3. Occam's razor. An important principle of diagnosis is to try and make the whole picture fit one condition. And it is surprising how often you can do this even where there are a multitude of signs and symptoms affecting many different organs, e.g. impairment of liver function causing all of the manifestations which we come to know in so many different systems. Of course, you will not always be able to make one single diagnosis, but you must try.

4. Once the diagnosis has been established, there are some important principles about treatment. The first is to think of measures you can take which do *not* involve giving drugs.

## **PATIENT MANAGEMENT**

### **Non-drug treatment.**

(a) Reassurance. This involves much more than just a few words. First, you must develop a good rapport with your patient and also be in charge of the situation; otherwise your patient will not be confident in anything you do or say. So as well as being a good diagnostician, you must be able to handle the patient's problem in a sympathetic way, and without using medical jargon. In this way the patient will understand much more of what you say in explaining their condition and its treatment. Always do this simply, but err on the side of understatement in cases of doubt. It is particularly important to leave the patient with some hope when you are giving an explanation of his future prognosis. Even in cases of cancer where you cannot offer cure, be supportive and assure them that you will make sure they they don't suffer at any stage

In chronic conditions, if you know what you are doing and can instill confidence, your patient will develop faith in you, and this alone will have an important therapeutic effect. There is what we call a placebo effect in many patients, even those who have undoubted organic disease; e.g. approx 30% of patients with angina show improvement on placebo tablets in various clinical trials. This placebo effect has not yet been fully explored but must, if you think about it, have a strong psychological component, i.e. that the mind must be influencing the organic disease or its manifestation as symptoms in some important way. If that is so, then the placebo effect will be greater where patients have more confidence in the way you are handling their condition. The corollary of this is that there will also be a placebo effect to any drug with proven efficacy, so that your patient's response even to drugs of known value will depend, often to a large extent, on how he relates to you as a doctor.

(b) Rest is often important, particularly in those diseases with a strong psychological or psychosomatic component. Rest in hospital is often particularly important in this situation.

But the down side with bed rest in patients in hospital is the risk of deep venous thrombosis &/or pulmonary emboli. This is preventable with low dose subcutaneous heparin or enoxaparin. All patients who are, for whatever reason, confined strictly to bed, should be given such prophylactic treatment, whatever their age.

(c) Other non-drug measures. Consider your diagnostic list of Anatomical, Pathological, Functional and Aetiological diagnoses and think about what you can do in a non-drug way in each. Pain from particular anatomical sources may be eased by different postures in bed. Pathologically, symptoms from local inflammation may be eased by elevating the appropriate part, or by applying heat. Functionally, posture and oxygen may be important in heart failure; reassurance in reducing the pain, sweating etc. from anxiety in myocardial infarction; oxygen in patients with asthma. Aetiologically, in many chronic conditions non-drug treatments are just as important as changes in drug therapy. For

example, in patients with myocardial infarction preventing a further attack may be just as dependent on the patient giving up cigarettes as on your drug treatment of his hypertension. Even the latter can be approached partly through nondrug means, e.g. reduction of salt, alcohol, obesity, and stress can all help lower blood pressure.

In patients presenting with acute conditions, try to look for the precipitating factor, e.g. was the paroxysmal atrial tachycardia confronting you precipitated by alcohol withdrawal - Monday morning supraventricular dysrhythmias.

### **Drug treatment.**

Again look at treatment in each of the four major categories, i.e. what can you do to alter the Anatomical nature of the lesion (e.g. is coronary artery bypass surgery necessary); how you can alleviate and preferably reverse, the general Pathological condition, its Functional consequences of organ impairment, other sequelae and complications; and finally what can be done to reverse the aetiological factors in the background so as to prevent further recurrence?

There are really two aspects to drug treatment.

In the ideal case, we are looking for a cure to all the aspects, Anatomical, Pathological, Functional and Aetiological. But there will be cases where this is not possible, and then what you must do is alleviate as far as possible the symptoms and particularly the functional consequences of the disease. Such palliative therapy is the essence, especially in patients with incurable illnesses. In the latter respect, never neglect the possibility of reversible manifestations even where the overall disease itself is incurable (e.g. the development of hypercalcaemic weakness, diarrhoea and irritability etc. in patients with squamous cell carcinoma of the lung secreting parathyroid hormone-like material from the tumour).

There is another important reason why you must distinguish identify a potentially reversible condition, and this relates to investigation. Thus, there is no use in submitting a patient to extensive investigations for renal artery stenosis when you are not going to operate even if you find it! The latter will particularly hold in cases where hypertension is mild or easily controlled, or in elderly patients who have other and quite severe vascular complications, e.g. myocardial infarction, intermittent claudication, previous strokes, etc.

The other very important, perhaps most important, principle of therapeutic management is:

### **Again: First do no harm.**

Use of any drug involves a risk of adverse effects either in the short or long term. Just because a drug is available with appropriate pharmacological actions to ameliorate symptoms, and appears logical to use, you should not do so without first weighing the risk vs. benefits. Of course, greater

risks are justified in patients who have life-threatening conditions or severely symptomatic conditions. But the corollary is equally important, viz. if a patient has a trivial illness you should not use drugs that have the potential to cause serious side effects. What you do in between will depend on your clinical judgement.

If you are uncertain about the nature of any condition, then provided the patient is not deteriorating, time will usually be on your side. Then, waiting and watching may reveal more than mindless investigation, especially invasive, potentially hazardous, and extremely costly. 'gropegrams'. Also, if you treat too early, you may obscure the very condition you want to delineate. For example, too-early antibiotic treatment of presumed infections before definitive diagnosis may seriously hamper more appropriate treatment. Thus, if you suspect meningitis, do lumbar puncture with micro, biochem. and culture etc. before giving antibiotic treatment.

Occasionally, patients are so ill that there is no time to worry about all aspects of the history and examination, and no time to delineate all its various diagnostic aspects. Then, your initial treatment will be resuscitative, e.g. cardiac massage, blood transfusion, urgent treatment of heart failure or other functional organ impairment, before any of the pathological or aetiological aspects are known. It is particularly important that you treat such Functional aspects immediately. Acute shortness of breath of any description is a case in point where, if the patient is cyanosed, he needs immediate oxygen (closely monitored), and maybe even ventilation, before pursuing other aspects of the diagnostic and therapeutic problem overall.

Always think of reversible conditions, however unlikely. For example in a patient with rheumatic heart disease and obscure vague lethargy, always think of and exclude the possibility of bacterial endocarditis. Your clinical signs and symptoms may not point that way, but you should investigate the slightest possibility of its presence, because if untreated its consequences are disastrous.

By the time you come to the end of your course in Medicine, you must know the treatment, including drug treatment and dosage, of the common diseases, particularly acute reversible conditions, because in that situation there may not be time to ask some more senior or experienced doctor for advice. Examples include the immediate treatment of status epilepticus, status asthmaticus, severe acute heart failure, and indeed any sudden organ failure or metabolic disorder.

### **Clinical pharmacology.**

To use drugs in the correct manner, you must understand their rationale, and this means understanding clinical pharmacology. Understand the action of important drugs in simple terms. For example, in the treatment of hypertension, looked at it simply, we lower blood pressure by reducing the pump output (beta-blockade) by dilating the peripheral resistance vessels (vasodilators, ACEI, ARB), and by reducing the circulating blood volume (diuretics).

Also explain your treatment to the patient in simple terms so as to obtain optimal adherence to therapy, especially in treating chronic disease.

Compliance also means looking out for drug side effects. There are usually suitable alternatives e.g. a variety of different drugs available for treating hypertension. Sometimes the patient has a side-effect which he is too embarrassed to discuss, e.g. impotence. So be on the lookout for such effects and ask about them directly when suspicion arises.

In most diseases, treatment is a partnership between you and your patient, e.g. in hypertension, it is most important to explain to the patient that there are some things (s)he can do and some you can do e.g. salt reduction and weight reduction by him/her whilst you are tailoring drugs. If this partnership is to work, your patient has to understand all aspects of his illness. Unfortunately, all too often, patients tend to put things off, especially when it comes to, say, weight to help control diabetes.

Finally, always try to reduce the number and dose of drugs to a minimum. Such controlled drug reduction is especially important in long-term conditions such as arthritis, angina, hypertension, etc.; in all of these conditions there are fairly clear end-points to allow this approach to be feasible.