A coordinated approach to treat chronic disorders

Many non-infectious diseases are the product of similar life-styles and correspond to the same risk factors. WHO has launched Inter-Health, a global initiative directed at a group of such chronic diseases. In view of similarities in their treatment and prevention, the coordinated approach is expected to bring good results.

Several non-infectious diseases are occurring at an increasing and alarming frequency in many parts of the world. Non-insulin-dependent diabetes, for instance, was found in one-third of adults in populations as disparate as Nauru in the Pacific and the Pima Indians of Arizona, USA. Immigrant Asian Indian populations were showing similar trends. Heart disease was also found to be increasing, together with many of the known cardiovascular risk factors such as high blood pressure, obesity and hyperlipidaemia. At the same time, these noncommunicable diseases continued to be a scourge of the developed nations, particularly in northern and eastern parts of Europe.

The basic philosophy of WHO’s global Inter-Health programme is to take a whole group of non-infectious diseases and deal with them together (1, 2). This makes sense in view of their parallel occurrence and the similar preventive and therapeutic actions they require. Model demonstration projects have now been established in many different countries including Chile, China, Cuba, Cyprus, Finland, Malta, Mauritius, Sri Lanka, Tanzania, Thailand, USA and USSR. This list in itself reflects the rapid appearance of many of these disorders following industrialization and the westernization of life-styles.

It is relatively easy to establish how many people have a particular disease or face a specific risk factor, through population studies over a short period. But in itself this is unhelpful unless it leads to action—preventive and therapeutic. Long-term action and considerable resources are

Professor Alberti is Professor and Chairman, Department of Medicine, University of Newcastle upon Tyne, Framlington Place, Newcastle upon Tyne NE2 4HH, England, and Director of WHO’s Collaborating Centre for Research and Development in Laboratory Techniques in Diabetes at the same address.
needed. One of the most difficult tasks is to persuade governments that preventive action today, although expensive, will save money in ten or twenty years' time when the chronic diseases take their toll.

Prevention can be at several levels. Primordial prevention means that even the risk factors of the disease are not yet present and one wants to stop them appearing. This would be appropriate for heart disease in many parts of Africa, for example. Primary prevention implies that the risk factors are present, and what is wanted is to diminish their frequency and hence decrease the appearance of the disease. An example is to convince smokers to stop smoking in order to reduce their chances of getting lung cancer. Secondary prevention means that people have the disorder and the aim is to decrease the development of problems as a result. Thus if someone has hypertension, the goal is to prevent strokes and heart disease; if someone has diabetes, the aim is to stop that person developing the long-term complications of eye, kidney and nerve damage. Finally there is tertiary prevention, where people have the disease and its complications but there is still a chance of preventing major disability and death from these complications. Examples include stopping diabetic patients with eye disease going blind, or someone with diabetic neuropathy having a leg amputated.

All these levels of prevention must be considered when working out treatment strategies. Inevitably they involve approaches to whole populations as well as attention to the individual.

**Life-style approaches**

Several of the chronic diseases that we have focused upon in the Inter-Health programme call for similar action. There are indeed three key life-style approaches which must be addressed in preventing heart disease, diabetes, hypertension and lung disease. These are smoking, diet and exercise.

**Smoking**

It is well known that smoking causes lung disease, but it is also an important risk factor for heart disease and disease of the large blood vessels. Anti-smoking programmes are well established in some developed countries, but smoking rates are increasing in many developing nations, particularly among young people. National action is urgently needed involving countrywide education programmes and positive action rather than simply lip-service from governments. Individual guidance may be helpful but it is economically unrealistic in many countries.

**Diet**

Diet forms the cornerstone of prevention and treatment for many disorders. In many developing countries the diet is actually appropriate, even though it may be insufficient in total calories. The ideal diet for the prevention of heart disease and the treatment of diabetes is one that is low in sugar but high in unrefined and complex carbohydrates, with a moderate amount of fat—from vegetable sources or oily fish—and adequate protein.
In rural Tanzania, where such a diet is common, we found that cholesterol levels were low, diabetes rates were low and that there was no ischaemic heart disease; there was also very little obesity (3, 4). By contrast in Mauritius, where there is more fat, meat and refined sugar in the diet, we found high rates of all these conditions (4, 5). It is worth emphasizing that "fast foods" with their easily consumed excess calories are not available in rural Africa, but are freely available in cities all over the world.

National food and diet policies need to be linked with widespread public education, particularly in the schools. At the same time counselling for individuals must be done by dietitians, doctors, nurses and other health workers. It is estimated that blood sugar levels could be controlled in 80% or more of people with non-insulin-dependent diabetes—if they followed the correct diet. In practice one-third or less are treated by diet alone—and then not very successfully. Similarly, eating the proper diet could reduce the prevalence of high blood cholesterol from the 50% encountered in the United Kingdom to the less than 5% that we found in rural Africa. Obesity also requires community action, not least to counter the attitude that overweight means prosperity; perhaps it may, but obesity also means ill-health. Guidance on alcohol consumption, of course, can and should be given at the same time.

**Exercise**

The third life-style “treatment” is exercise. In several surveys it has been found that diabetes rates are 50% lower among people who exercise—either through their jobs or during leisure activities. Similarly blood fats, heart function and blood pressure are improved, and obesity is less likely. Some populations already have high activity levels, for instance those who work on the land, and exercise programmes are not required in the poorer developing countries or in many rural areas. But in cities, in rapidly industrializing nations and in much of the developed world, exercise programmes could help greatly. Mauritius, for example, has an exercise programme with active encouragement from the Ministry of Health and widespread public advertising. Such an approach can be combined with healthy eating and “no smoking” material.

**Use of drugs**

Clearly, much can be done for non-communicable diseases in terms of primary and secondary prevention and treatment without the use of drugs at all. This is an important social and economic message. However, people who already suffer from these diseases will require drugs.

The Inter-Health programme is working on simple guidelines for the effective treatment of diabetes, high blood pressure and high cholesterol. There needs to be emphasis on economic realities as well as efficacy. In non-insulin-dependent diabetes—the commonest form worldwide—the main drugs are sulfonylureas. The oldest ones—tolbutamide and chlorpropamide—are cheap and effective, and we are advising the use of the former in the Inter-Health programmes.
For insulin-dependent diabetes, insulin therapy is vital. There are many insulins available on the market, but again it is easier to select a short-acting and an intermediate-acting insulin, and ensure that they are available to and reach those who require them. Sadly enough, many people still die because insulin is not available to them.

A further essential requirement is the means for diabetic patients to assess their own blood sugar level—either through blood or urine tests. This is needed so that they can keep blood sugar levels near normal in order to prevent the development of complications. Unfortunately again, such tests are not available for many patients, so that inevitably many lose control and risk death from either too low or too high a blood sugar level, and develop infections or long-term complications.

Hypertension also requires drug therapy to decrease the risk of heart disease and stroke. There are very good modern drugs but they are costly. Some of the older drugs are much cheaper and effective, although a little more likely to have side-effects. The same is true of cholesterol-lowering drugs—very costly new drugs versus somewhat less effective but cheaper old drugs. With cholesterol, however, diet can achieve a great deal, so that more emphasis needs to be placed on this and less on drugs.

The organization of care is as important as the actual treatment. Much of the treatment does not require physicians, and in any case community health workers are arguably better at educating patients, families and countries, so the basis must be primary health care. Community health workers can also be trained to monitor blood pressure and blood sugar levels, and so can many patients. Only if problems arise should patients be referred to physicians or to hospitals. Specialized centres are certainly needed, but for referral of problems and patients with complications rather than for day-to-day care.

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In summary, there is a worldwide epidemic of noncommunicable diseases. This will worsen as the numbers of old people increase and as communicable diseases and starvation are conquered. Fortunately, much can be done for all levels of prevention by community-based and individual actions on life-style, without the need for drug intervention. When drugs are needed, then the simple, cheap ones that are available should be used. Health care for noncommunicable diseases should be based in the community, with community health workers as the first line of care. To organize care worldwide along these lines is a formidable challenge, but the Inter-Health programme is expected to show that such an approach can work. This can then be applied on a nationwide basis with appropriate emphasis on primordial, primary or secondary prevention depending upon the health status of the country.

References