New Trends in Health

B. O. Osuntokun

The changing pattern of disease in developing countries

Some important noncommunicable diseases like lung cancer and heart disease are now becoming more common in the developing countries. One reason for this appears to be that the people are giving up their traditional ways of life and adopting those of the developed countries. It has been suggested that, for some of the diseases, changes in dietary habits are the main causative factor.

Many afflictions that are common today were rare or absent in our ancestors and can be seen as the results of man’s poor adaptation to significant environmental changes. In comparatively recent times, following industrialization, such changes have occurred in living and working conditions, means of transport, the atmosphere, and agriculture, and even the preparation of food has been affected. Man has adopted habits that are not conducive to good health, such as sedentary living, smoking, the use of alcohol and drugs, and overeating without regard to a good dietary balance.

Some impressive evidence has been collected by Trowell & Burkitt (1) on the increasing prevalence in developing countries of non-communicable diseases previously seen only in the industrial world. However, it must be emphasized that most developing countries lack reliable data. Many are unable to organize a census each decade as recommended by the United Nations, and surveys on patterns of disease, morbidity and mortality, based on representative samples, are equally scarce.

There is an urgent need for more facts and figures from developing countries: accurate data will help planners to assess what health care is needed.

With some exceptions, the information on disease patterns in developing countries is derived from hospital data, which are unrepresentative of the communities. Often the reported prevalence of a particular disease reflects only the interest in it of medical practitioners. Nevertheless, the following examples indicate that the situation in developing countries is rapidly changing and now merits serious consideration by those responsible for public health.

Hypertension

Ideally, blood pressure should not rise with age. In developed countries, however, it does, and there is some evidence that life-style, environment and diet may be determinant factors.

In Kenya, Uganda, and the United Republic of Tanzania, clinical and epidemiological evidence suggested that between 1929 and 1940 hypertension did not occur in any African: the
first patient was reported in 1941 (2). In other parts of Africa, several studies in black Africans over the last three decades have shown consistent findings of blood pressure rising with age and prevalence rates of hypertension similar to those in black and white communities elsewhere (3). Mean arterial pressures were usually higher in urban than in rural populations, which might be explained by diet and obesity.

About thirty isolated, primitive communities have been identified in several parts of the world where people’s blood pressure did not rise with age, and studies of some of these have led to speculation that lifestyle could be responsible. The reasons may include the dietary pattern (high in fibre, complex carbohydrates, and potassium; low in fat and sodium), the degree of physical activity, absence of stress, and environmental factors.

In one such isolated community—the Samburus of Kenya (4)—it was found that when the men were recruited into the Kenyan army their way of life underwent considerable changes, particularly as far as their dietary habits and physical activity were concerned. Significant changes occurred in body structure and skinfold thickness, and subsequently blood pressure rose with age.

Coronary Artery Disease and Atherosclerosis

There is no doubt that heart disease was hardly seen until recently in developing countries and was particularly uncommon in Africa.

Williams and co-workers (5) showed that atherosclerosis of the coronary vessels, aorta, and cerebral vessels was minimal in Nigerians compared with Caucasians and American blacks in Minneapolis, USA. Coronary artery disease is considered rare in South African urban blacks, including those who are hypertensive and hypercholesterolaemic, and is far less common than in South African whites and Indians of similar age and sex (6). Atherosclerosis is equally unusual even in diabetic Africans, among whom the commonest risk factors for gangrene are peripheral neuropathy, trauma, and infections. On the other hand, some communities in India appear to be unusually susceptible to heart problems both in their native land and when they migrate to more prosperous countries.

 Coronary artery disease associated with cigarette smoking is a major recent feature in India, Pakistan, and the Philippines (7). In New Zealand, too, the introduction of smoking among the Maoris has a lot to answer for: the Maori women’s death rate from heart disease and from lung cancer has been found to be the highest in the world.

The reasons why some communities in developing countries have a low prevalence of heart disease are unknown, but it is noted that the cholesterol and fat content of their diets is low and the proportion of fibre and starch is high.

The intense physical activity of man’s ancestors during hunting for example, as in the Bushman and the Hottentot, who may have run 30-40 km a day as routine, must have contributed to the complete absence of obesity in those days, and low physical activity is known to be a risk factor for atherosclerosis. Generally, the prevalence rate of obesity in developing countries even now is much less than the rate in developed countries, about 3% compared with 25%.

Industrialization and urbanization, with their associated social problems and stress, were unknown in primitive communities.

There is an urgent need for more facts and figures from developing countries: accurate data will help planners to assess what health care is needed.

These factors, taken together with changes in eating habits—less fibre and starch together with more fatty foods, alcohol, and refined carbohydrates such as sugar—are recognized as being likely reasons for the high prevalence of some noncommunicable diseases. They are now becoming increasingly visible in many developing countries.
Diabetes

Diabetes mellitus is said to have been unknown in East African countries before 1953, when it was first reported in an overweight African nursemaid. A few well-conducted surveys in developing countries have produced data to justify the statement that changes in life-style, associated with urbanization and the adoption of "Western civilization", have produced manifold increases in the incidence of diabetes mellitus (8). The prevalence of obesity in most developing countries has also increased in the last three decades. A diet low in fat and sucrose, and high in unrefined starch and fibre could protect against the occurrence of non-insulin-dependent diabetes mellitus and also be efficacious in the treatment of both this and the insulin-dependent form of the disease (2, 9).

Cancer

Cancer registries established in many developing countries have shown that cancer is not a disease of Western society alone. More than half of the world's 5.9 million annual total of new cancer cases arise in the developing world (10). The annual total of deaths from all forms of cancer is estimated to be 4.3 million, of which 2.3 million occur in the developing countries.

However, socioeconomic factors, life-style, behaviour and environment appear to influence the types of cancer that predominate in developing countries, but now high death rates from this cause are reported from China, Hong Kong, and South African blacks in Natal, while several cases are being reported from other parts of Africa and tropical America. Traditional practices such as the chewing of betel quid and tobacco or hookah smoking are hazardous and probably constitute the main reason for 90% of the 100 000 new cases annually of oral cancer in south-east Asia.

Economic development tends to be accompanied by an increased incidence of cancers in the lung, large bowel, breast, prostate, bladder and ovary (11), and by their reduced incidence in the oesophagus, stomach and liver. This is due to a variety of reasons, including the use of tobacco and alcohol, occupational exposure to chemicals, environmental pollution, sexual behaviour, personal and community hygiene, and diet. High-fat diets are believed to predispose to cancers of the large bowel, breast, and prostate, and a protective effect is exercised by some dietary components, especially a high content of fibre and vitamins A and C.

Accidents and Violence

Road accidents cause many casualties in developing countries: Nigeria and some of the East African countries are said to have the highest number of accidents per million vehicle-miles in the world.

Urban violence is also on the increase, and is one of the commonest causes of death in the 18 million black population in South Africa (12).

The Future

The limitations of the data available are obvious. There is very little valid information about most of the diseases, and some of it is anecdotal. It is unrealistic to compare the prevalence of diseases between countries that have not come to agreements on methods of data collection and investigation, nor on the definition of what is being studied. In spite of this it is possible to detect an emerging trend.

In the light of the experience of developed countries, changes to be expected in the pattern of diseases associated with industrialization in developing countries include:
CHANGING PATTERN OF DISEASE

- fewer nutritional deficiencies and infections, with falls in mortality rates of infants and young adults;
- more dental caries, obesity, hypertension, diabetes and vascular diseases;
- more gastrointestinal diseases such as large bowel malignancy, diverticulitis and appendicitis; and
- fewer cancers in certain sites (e.g., liver), offset by more in others (e.g., lung cancer related to smoking).

These changes have already begun to appear in many developing countries and in some groups of immigrant populations in industrial countries. Although the developing countries will probably achieve control of infectious and deficiency diseases in the future, they must take appropriate steps now to avoid the "epidemics" of noncommunicable diseases likely to come with industrialization.

It is necessary to determine how best to obtain and use information on the prevention and management of noncommunicable diseases in developing countries, and considerable research is required to this end. Such research would probably be rewarding, as some developed countries have been able to reduce the incidence of diseases such as hypertension and stroke as a result of active intervention programmes.

REFERENCES


Dietary foes — and friends

A great variety of natural mutagens and carcinogens find their way into the modern US diet. Excessive fat and alcohol consumption have been studied in relation to many kinds of malignancies. Dietary anticarcinogens include vitamins A, C, and E, although under certain conditions some generally inhibitive substances can actually enhance carcinogenesis. A provocative hypothesis argues that a high-fiber diet can substantially reduce the likelihood of carcinoma of the colon.