

CHRONIC DISEASES IN THE EASTERN MEDITERRANEAN REGION : AN OVERVIEW

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ABSTRACT

Profound demographic, socio-economic, and behavioural transformations have taken place in the Eastern Mediterranean Region (EMR) over the last three decades. Longevity has progressively increased and a steady shift from traditional and rural lifestyles to more urbanized and modernized patterns is demonstrated. With modernization, lifestyles characterised by smoking, physical inactivity and new eating habits have emerged. The significant transition to economic affluence in the Region has been associated with changes in nutritional status and dietary consumption trends. Analysis of data collected from some Arab countries demonstrate a rapid rise in food energy availability and a steep upward trend in the consumption of animal fats and sugar. Rates of obesity presently reported are remarkably high. The impact of these changes on health are considerable and the implications for the epidemiological profile in countries of the Region have been dramatic. While infections and parasitic diseases generally remain priorities, countries now face a new set of health problems related to urbanization, emergence of westernized lifestyles and progressive aging of populations. Among the so-called diseases of modern lifestyles, cardiovascular diseases (CVD), cancer and diabetes emerge as the most important in terms of morbidity and mortality. Data from the Region indicate increased death rates from hypertension and coronary heart disease. A steadily rising rate of mortality from CVD has been reported; these groups of diseases are now reported to be the leading identifiable cause of death in many countries. The increasing magnitude of non-communicable diseases calls for urgent action to initiate prevention and control measures.

Key Words : Heart diseases, hypertension, diabetes, Middle-East

INTRODUCTION

A multitude of factors influence health. They include genetic predisposition, environmental factors as well as demographic and socioeconomic variables. Behavioural risk factors in the form of lifestyle characteristics of modernization have become increasingly visible as underlying causes of preventable morbidity and premature death. Alcohol, tobacco, overnutrition, high serum cholesterol levels,

mental stress and injuries are the major precursors of the leading causes of morbidity and mortality namely, cardiovascular diseases, neoplasms, diabetes and accidents (Last and Wallace, 1992).

It has been shown that modern "disturbances of human culture" operating from early childhood onwards, are responsible for the epidemic of noncommunicable diseases and their complications. These disturbances include :

- Overnutrition associated with elevated levels of blood pressure, serum cholesterol and body weight, as well as high prevalence of diabetes;
- The twentieth century mass habit of cigarette smoking; and
- A sedentary life-style (WHO, 1990).

With modernization and urbanization of developing populations, new eating trends have emerged. These include habitual high intakes of :

- Total food energy in relation to energy expenditure (physical activity);
- Total fats, saturated fats and cholesterol;
- Refined sugar and other processed foodstuffs low in fibre;
- Salt and other high sodium compounds and
- In some populations, alcohol.

High intakes of saturated fat and cholesterol, together with low fibre intake, lead to high levels of serum cholesterol which is one of the major aetiological factors for cardiovascular diseases. Obesity, high dietary intake of sodium and heavy alcohol consumption lead to higher level of blood pressure and increased prevalence of hypertension from youth onwards. High blood pressure is also a major risk factor for other cardiovascular diseases such as coronary heart disease and strokes. In addition, obesity and physical inactivity are closely linked to the aetiology of non-insulin dependent diabetes which is also a significant risk factor for cardiovascular diseases.

Worldwide, smoking is responsible for an estimated 30% of all cancer deaths, 21% of deaths from coronary heart disease, 18% of stroke deaths and 82% of deaths from chronic obstructive pulmonary disease. Globally, tobacco is estimated to cause at least three million deaths a year, about one million of which occur in developing countries (WHO/PAHO, 1992).

A recent analysis of studies of exercise and heart disease concludes that lack of exercise is causally related to increased risks of heart disease, and that the relative risk of this factor is in the order of magnitude as those of moderate smoking and elevated cholesterol Powell et al. (1987). Analysis of studies on the role of behavioural factors in disease suggests that approximately two thirds of deaths in the United States are attributable to preventable precursors. Tobacco and three other precursors strongly related to personal health behaviour, namely high blood pressure, overnutrition and alcohol, account for the majority of preventable deaths, life-years lost and hospital days (Emler and Eddins, 1987).

Coronary heart disease (CHD), diabetes and hypertension are now considered examples of multifactorial disorders which result from the interaction of environmental factors with genetic predisposition. Although individuals differ in the nature of their responses to the environmental "disturbances of human culture", these differences in genetic predisposition appear to play a smaller part in accounting for the interpopulation differences in the incidence of, and mortality from, these diseases (WHO, 1990). Thus, by controlling environmental factors, which exert an overwhelming influence on the occurrence of the noncommunicable diseases, the potential for the prevention of this epidemic is indeed great, as the recent marked declines in CHD mortality in several developed countries indicate (WHO/EURO, 1988).

The so called "diseases of modern lifestyles" are now the major causes of morbidity and mortality. Cardiovascular diseases (CVD) taken together account for a major proportion of all deaths during adulthood in both developed and developing countries. It is estimated, that around the year 1980, almost 50% of all deaths in developed countries were caused by CVD and about 20% by cancer (WHO, 1990).

Like CVD, cancer is forcing itself into every country's health agenda. Each year it affects at least nine million people and kills five million. Its economic, as well as health consequences, are considerable. More than one half of all cancers occur among the three quarters of the world's population residing in developing nations (WHO, 1992).

The prevalence of diabetes shows considerable variations between various population groups. Up to 35% of adults have been reported to have diabetes in certain predisposed communities. While available data confirm the global nature of the problem, there is evidence to indicate that the disease

reaches its greatest frequency in developing countries and among minority groups and the disadvantaged in the industrialized world (King et al. 1991).

This paper attempts to review available data on the epidemiological aspects of the most common chronic health problems associated with modern lifestyles in the Eastern Mediterranean Region (EMR), and to discuss the potentials for their prevention and control.

Demographic trends

During the last two decades, significant demographic changes took place. The total population in the region has almost doubled in 20 years. The population has grown from 209 millions in 1970 to 376 in 1990 and is estimated to be 513 in the year 2000. Children under 15 years constitute about 44% (range : 26-48%). The percentage of persons aged 65 years and over has been maintained at a low proportion, 3% in 1990. However, because of the favourable trend in infant and under 15 years mortality, life expectancy at birth has increased from 56 years in 1985 to 62 years in 1990 (WHO/EMRO, 1991).

The population density is 28 inhabitants per sq. km with a range of 3-746 inhabitants per sq. km highlighting the differences among countries in their space distribution. Urbanization continues to increase. The proportion of the urban population has changed from 39% in 1985 to 44% in 1990. In some countries, up to 100% of the population is urbanized.

There is a wide variation in demographic trends among countries. At one end of the spectrum are countries with a life expectancy as high as 76 years and on the other extreme are those with life expectancies as low as 42 years. A more striking pattern exists concerning socioeconomic indicators where extreme variations are seen. The per capita income ranges between US \$ 190 in one country to \$ 15 700 in another (average of \$ 1130). Adult literacy rate ranges from 11% to 95% (average 43.5%).

Despite this heterogeneity, follow up of the demographic and socioeconomic indicators generally demonstrates a steady shift from traditional and rural lifestyles to more urbanized and modernized patterns.

Nutritional trends

In the EMR, the significant transition to economic affluence has been associated with changes in dietary pattern and nutritional status. Analysis of the data collected from some countries of the region on dietary consumption trends demonstrates a rapid rise in food energy availability and consumption beyond requirement. It is predicted that if the increase continues at the present rate, the food energy availability in the Region as a whole will exceed that in developed countries in less than a decade (WHO/EMRO, 1989). In a significant number of countries, consumption of animal fat and sugar shows a steep upward trend. Adverse consequences on health are anticipated if this trend continues.

Information on adult obesity is only available from a few countries. Nevertheless, it is clear that it represents a significant problem in the region. The rates of obesity reported from some member countries are remarkably high. In one country, up to 53% of males and 63% of females are obese. Among Saudi Arabian adults aged 18 to 74 years attending a primary health care centre, 51.5% of the men and 63% of females were considered obese. Overall marked obesity, defined as a body mass index of 30 Kg/m² was seen in 25% of people (Benhemd et al. 1991).

Studies on total serum cholesterol levels are scarce in the Region. However, available data from one country indicate that a substantial proportion of the population have levels above what is considered as the upper permissible limit (Inam et al, 1991).

Cardiovascular Diseases : Mortality and morbidity data

Precise data on the magnitude of CVD as a public health problem in the EMR are generally scarce. Despite the general impressions held by the medical profession and the general public of the increasing occurrence of CVD, the extent of the problem has not been adequately examined in most Member States. Reliable mortality data are hard to obtain. However, data reported to the WHO Regional office from several member countries over the last 5 years provide valuable indicators on mortality trends. In most of these countries, CVD is the leading identifiable cause of death. The proportion of cardiovascular deaths ranged from 25% in one country to over 45% in another.

Analysis of mortality data from selected populations of the region reveals interesting results. Data from Kuwait indicate increasing deaths from coronary heart disease and hypertension (Nissinen et al., 1988; Uemura et al., 1988). The mortality rates

for cardiovascular diseases, accidents and malignant neoplasms represented almost half of the general mortality rate in 1984. Review of the data available on the main causes of death registered in Jordan in 1985 show that CVD is clearly the leading cause of death. It is responsible for 39.1% of all male deaths in 1985. The same data indicate a steadily rising rate of mortality from CVD over the period 1961-1985. In males, CVD was responsible for 5% of all deaths in 1961, rising to 12.6% in 1970, 18.9% in 1975, 22.2% in 1979 and 39.1% in 1985. Corresponding figures for females are 2.9%, 11.7%, 13%, 18.5%, and 27.2% respectively. The same data show concomitant reductions in mortality due to communicable diseases over the same period (MOH, 1989).

The frequency of CVD morbidity in the general population of EMR countries is not known. No nationwide morbidity statistics are generally available; however, a limited number of prevalence studies has been carried out and other descriptive epidemiological data are available in some countries. As countries are realizing the increasing importance of these diseases and the need for action at the national level, the importance of reliable epidemiological data is becoming more recognized.

Coronary Heart Disease

CHD seems to be the predominant type of heart disease now encountered in many countries of the Region. Hospital data indicate rising trends. In Jordan, analysis of data on patients managed by the National Cardiovascular Centre between 1973 and 1987 revealed an interesting pattern that provides confirmatory evidence on the changing pattern of cardiovascular diseases in the country. A progressive increase in CHD is associated with a decline in the number of cases of rheumatic heart diseases. Almost half of all patients with angiographically confirmed CHD were below the age of 50 years and only 17% were above the age of 60 years (Doghmi et al., 1989).

Studies conducted on the risk factor profile and related lifestyle patterns reveal levels generally similar to those in industrialized communities. Although the evidence based on a few isolated observations does not provide firm conclusions on the exact role of the individual coronary risk factors in the region, a high prevalence of smoking (over 70%) has been consistently reported among sufferers of acute myocardial infarction. Hypertension is found in 22-47% of cases and diabetes in over 30%. Most patients had at least one coronary risk factor.

Hypertension

Hypertension has long been recognized as a risk factor of CVD. Several studies have examined blood pressure levels in EMR populations. Using the WHO criteria of 160/95, the prevalence rates have been reported to range between 10% to over 17% of the adult population (Alwan et al., 1982; Faruqui, 1983). Although these surveys have generally used the same standardized methodology, the age groups studied varied from one place to another. This factor is at least partly responsible for the variation in prevalence rates. For example, although hypertension (160/95) was detected in 12% of the Iraqi sample studied and over 17% in one of the Pakistani surveys, the age groups studied were 15 years and over in the first and 30 years and over in the second.

Based on these figures, there are over 7 million hypertensives in Pakistan alone (Pakistan Medical Research Council, 1980). Moreover, the prevalence of hypertension appears to increase in the EMR, parallel to affluence. Studies carried out in Egypt since 1959 confirm this rising trend (Badawi, 1987). A national hypertension project has recently been initiated in Egypt to study the prevalence of hypertension in samples of the Egyptian adult population; preliminary results reported indicate that about 30% of the subjects examined have a blood pressure of over 140/90 (Ibrahim, unpublished).

As indicated above, urbanization is a progressive trend in the region. Data from studies conducted on both urban and rural population groups confirm higher prevalence in the urban populations. It is also reported that the rise of blood pressure with age is more marked for the urban compared with the rural population in Pakistan (Alwan et al., 1982 and Faruqui, 1983).

Detection rate and the level of awareness among hypertensive persons are generally low. In the report from Iraq, only 19% of hypertensives were aware of their high blood pressure prior to the survey. Similarly, in Pakistan, for every known case of hypertension, there are three undetected cases. Hypertension, like diabetes, may remain asymptomatic for years and is only detected when one of its devastating consequences occurs.*

In conclusion, from the data available, evidence suggests that in many countries of the region, the present epidemiological and clinical patterns of hypertension do not appear to differ markedly from those in developed countries. While studies to

provide further knowledge on the role of ethnic, geographic and socioeconomic factors are needed, countries of the region should, at present, acknowledge the emergence of hypertensive disease and its consequences like CHD and cerebrovascular disease and initiate action for their control.

Diabetes Mellitus

During the last decade, data on the epidemiology and clinical characteristics of the two types diabetes have been reported from several countries of the region. Using varying diagnostic criteria, non-insulin dependent diabetes has been detected in 5%, 4.8% and 4.3% of Saudi Arabian, Iraqi and Egyptian population samples respectively (Al-Kasab et al., 1979; Fatani et al., 1987; and Arab, 1992). Ten percent of Tunisians and 14% of Omanis in the age range 30-64 years have been estimated to have diabetes. As with hypertension, the Egyptian data demonstrate distinct geographical differences with the highest prevalence in urban areas and the lowest among rural and desert populations.

The survey from Oman, which used the WHO diagnostic criteria, revealed the highest prevalence documented in the region; 9.8% of the population sample, 20 years and over, was found to have glucose values consistent with the diagnosis of diabetes (Asfour, unpublished). The intermediate category of impaired glucose tolerance (IGT), which may be associated with increased susceptibility to macrovascular complications, affects an additional proportion. In the Omani survey, IGT was found to affect 10.9% of the sample studied, thus the overall prevalence of glucose tolerance abnormalities (Diabetes and IGT) exceeds 20%.

The first report on the epidemiology of insulin dependent diabetes came from Kuwait and showed an incidence in the 0-14 and 0-19 years age groups of 3.96 and 5.6 per 100 000 respectively (Taha et al., 1983). Higher incidence rates have been subsequently reported elsewhere (El-Amin, 1989 and Salman et al., 1991). A report on childhood diabetes in Saudi Arabia, based on hospital records, suggests incidence peaks around 4-6 years and 11-14 years of age. In Sudan, the prevalence of this type of diabetes was determined in 43,000 school children 7-14 years of age. The overall crude prevalence rate was 0.95 per 1000. The incidence of diabetic children 0-14 years of age was reported to be 5.9 per 100,000 in 1987 increasing to 10.1 per 100,000 in 1990 (El-Amin, 1989).

Thus, available data indicate differences in the frequency of insulin dependent diabetes and may also suggest an

increasing trend in recent years. More extensive investigation of the epidemiology of this disease in the EMR is clearly needed.

Clinical aspects of diabetes were reported from several member states in the region. In a study involving a sample of 1,175 Iraqi diabetics, the majority were in the age group 40-59 years. Those presenting with the classical symptoms of diabetes accounted for less than 50% of patients. The rest were diagnosed because of atypical symptoms or complaints related to the development of complications. More than 20% were totally asymptomatic and were detected through routine examination conducted for unrelated reasons (Alwan and Shamdeen, 1989).

The proportion of non-insulin dependent diabetics who suffer from obesity range between 75% in Iraq (Alwan and Shamdeen, 1989) to 46% in Sudan (Elmahdi et al., 1991). A substantial proportion of insulin dependent diabetes presents with ketoacidosis. This serious and potentially fatal condition has been reported to be present in 82% and 67% of diabetic children at the time of diagnosis in Sudan (El-Amin, 1989) and Saudi Arabia (Salman et al., 1991) respectively and is the presenting manifestation in about 30% of Iraqi diabetics.

While these data demonstrate the high susceptibility of EMR populations to diabetes, reports have also shown that diabetics develop long term complications such as CHD at a rate similar to that seen in Western countries. This means that up to 20% of non-insulin dependent diabetics have been found to have retinal complications at the time of first diagnosis and that most would develop them over subsequent decades. A substantial proportion of people with IDDM eventually develop end stage renal failure and the majority of the diabetic population will eventually develop a potentially lethal cardiovascular complication.

While diabetes and its complications are major causes of morbidity, disability and premature death, the essential health care requirements for these patients are generally inadequate in the region. Facilities for self care are scarce and there is, at present, a serious lack of initiatives for organized programmes to remedy the situation. In some countries, very alarming facts have been reported on the health care status of people with diabetes. People may have no easy access to even life-saving drugs like insulin. Mortality appears to be disturbingly high among children with diabetes. Available data suggest that maternal complications and perinatal complications in infants of diabetic mothers are remarkably high. Facilities and experience required for the management of long-term complications such as vision-

threatening retinopathy and end-stage renal failure are simply not available in many places and grossly inadequate in others. Health care institutions are often overwhelmed by the increasing demands related to the diagnosis and treatment of the various disorders associated with diabetes.

Potentials for prevention and control

Profound demographic, socioeconomic and behavioural transformations have taken place in the EMR over the last two decades and further changes are projected in coming years. The impact of these changes on health is considerable and the implications for the epidemiological profile of member countries have been dramatic. While infections and parasitic diseases remain a priority in many countries, new sets of health problems related to urbanization, emergence of westernized life-styles and progressive aging of populations are also being faced.

Action is urgently needed at the national level. Health policymakers must engage in undertaking an epidemiological and socioeconomic analysis of the major disease problems and consider cost-effective intervention strategies. The traditional deeply rooted commitment to protect children and young people from infections and nutritional deficiencies by providing timely immunization and promoting optimal feeding must be continued.

Prevention of hypertension and cardiovascular diseases can be remarkably successful. Success has been demonstrated by several programmes in developed countries; significant reductions occurred for all the risk factors and substantial declines in CVD mortality have been recorded. Most of this improvement appears to be due to primary prevention of the disease (WHO/EURO, 1988 a, b).

Several recent WHO reports deal extensively with the strategies and practical approaches in the prevention of the epidemic of CHD and other atherosclerotic diseases. Top priorities with proven success in several developed countries include control of smoking and formulation of national food and nutrition policies. To prevent adult CVD, intervention should be based on preventive efforts in childhood and youth and focus on controlling the unhealthy behavioural risks and lifestyle characteristics such as smoking, eating patterns, lack of physical activity, and the like. Since attitudes and behaviours that influence future health are established during childhood and adolescent life, schools have a great potential to promote health.

Exercise has been shown to have a protective effect against diabetes as well. There is evidence to indicate a substantially higher diabetes prevalence among the least active, versus the most active. Intervention studies have demonstrated a beneficial effect of physical activity in improving insulin sensitivity and glucose tolerance.

An atherogenic and thrombogenic diet is an underlying cause of CVD. Obesity is associated with increased risk of diabetes in both sexes and in many ethnic groups. Evidence has accumulated to suggest that increased dietary intake of saturated fats and decreased intake of dietary fibre does, not only contribute to atherosclerosis, but can also result in abnormal glucose tolerance. Westernization of the diet appears to worsen glucose tolerance and there is evidence to suggest that return to a traditional diet is associated with a dramatic improvement of glucose tolerance.

Smoking predisposes to CVD, chronic lung disease and cancer. At least 30% of the estimated future cancer burden is potentially preventable by tobacco control.

In view of the above, intervention against non-communicable diseases in the region is not only needed but is also feasible. The main approach of such intervention is through health promotion, disease prevention and risk reduction. An integrated programme for the prevention of chronic noncommunicable diseases should be established. This programme can be built to prevent and correct behavioural risk factors associated with socioeconomic development and modernization. It will focus on three major elements; these are :

- Exercise promotion;
- Dietary modification; and
- Smoking prevention.

A variety of intervention approaches will be used ranging from health education to regulations, taxation, subsidies, and information programmes. Efforts to implement this programme and to promote healthy lifestyles should be encouraged. Prevention of noncommunicable diseases such as CVD, cancer and diabetes is more cost-effective when it can be incorporated into personal lifestyles rather than added on as a clinical intervention (Weinstein, 1990).

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