

Causes of Death amongst Diabetics

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A Global Overview

The determination of health in a population depends on

- a) The genetic predisposition.
- b) Environment including biometric, nutritional and economic factors.
- c) Adaptation to social development (migration, life style), attitude for health care and technical advancement (especially in the context of energy saving devices).

According to the World Bank, the burden of disease in the developed countries differs from that in the developing countries [1]. For example in India, communicable diseases affect 50.5% of the population compared to 9.7% in a developed country like United States. On the other hand non-communicable diseases predominate in the developed countries constituting 78.4% as against 40.4% in India.

Changes observed in a developing country like India, since 1940's indicate that the prevalence of diabetes has increased. This increase in burden of diabetes relates to a higher energy intake, especially an increase in body mass index (BMI). The resultant change is a double burden on health resources. The communicable diseases are pre-existing and the non-communicable diseases are being added on.

The WHO multinational study of vascular diseases in diabetics (age 35-54 years, data compiled from ten countries over 10 years) indicates that compared to Europeans, the mortality rates were lower for the Asian diabetics e.g. age adjusted Europe vs Asia 10.4 vs 7.1 per 1000 population [2].

It is not easy to secure precise data on causes of death in diabetics because of heterogeneity of diabetes, possible misclassification of the disease and due to the poor accounting of diabetes on death certificates.

The source of information being death certification, it is apparent that there is dichotomy between the underlying and the contributing causes of death [3]. The immediate cause of death is generally selected more frequently rather than the underlying cause resulting in their being ranked higher than the actual cause of disease. Thus the underlying cause like diabetes is underestimated. Analysis of various

reported series indicates that the presence of diabetes is not recorded in death certificates in upto 40-50% of instances [4].

The expression of data from different sources lacks uniformity. The data may not be age-adjusted. It may not take cognizance of causes of mortality in the total population nor the multivariate adjusted relative risk factors are taken into consideration.

Factors that affect the mortality rates and need an in depth analysis amongst the diabetics could be summarized as follows:

- i. Ethnicity including health attitude of the population towards a chronic disease and its management.
- ii. The degree of control of glycaemia, extent of medical care being utilized and the different methods of treatment being employed.
- iii. The presence of other risk factors contributing to morbidity and mortality in diabetics e.g. hypertension, hyperlipidaemia and smoking.

Since the advent of insulin, there has been a saving of many lives of the insulin dependent diabetics. Mortality due to acute metabolic events has been reduced significantly.

However, the same is not true for the non-insulin-dependent diabetics (NIDDs). The available treatment modalities have not altered the natural history of NIDDM nor have they contributed in reducing the related mortality.

Indian Overview

Participants

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|-------------------|------------------|
| U. Muhammad | (Madras) |
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Mortality data from diabetes clinics as well as hospital admissions (pooled information) obtained from different metropolitan cities, in recent years, in the country brought out the following findings:

Diabetes forms 2.5-10% of the total deaths in hospitals.

Of the diabetics, 5-10% are Type 1 (insulin-dependent diabetics, IDDs). The common causes of mortality in this group are as follows:

Diabetic Ketoacidosis (metabolic): 30%

Infections: 25-30% and

Renal Failure: 30-35%

In 5%, the diagnosis of diabetes was first made after being admitted for a fatal complication.

In the NIDDM group the major causes for mortality are as follows:

Cardiovascular (ischaemic heart disease, CAD): 40%.

Cerebrovascular disease (strokes, CVA): 20% and Renal Failure (CRF): 15%

The relation of duration of diabetes to mortality and the effect on life expectancy is workable in the NIDDMs.

The mean duration of diabetes in the various reported series was 8.7 ± 1.8 years.

The type of vascular involvement (CAD, CVA or CRF) was not related to the duration of diabetes.

The excess of mortality was in the decade 41-50 years and above 60 years.

The mean reduction in life expectancy was significantly more in women than in men (16.5 years vs 12.5 years).

Some of the conclusions arising from the above data are as follows:

The cause of death in a diabetic relates to the age and type of diabetes.

In young diabetics (IDDs), a reduction in loss of life is possible with the prevention of diabetic ketoacidosis as well as early and energetic management of infections.

In the adult diabetics (NIDDMs), vascular disease is the major cause for loss of life with minor variations at different centres in the country. Overall mortality in this group relates to glycaemic control. Identification of risk factors that induce or aggravate atherogenesis in our country requires further studies (triglycerides, hyperinsulinaemia, fibrinolytic activity or microalbuminuria, etc).

There is a scope for improving the documentation of data regarding causes of mortality due to diabetes in our country. Such an analysis can suggest measures which can reduce the unnecessary and early loss of life due to diabetes as well as measures for improvement in long term diabetic care.

References

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