Epidemiology of Diabetes in India: Three Decades of Research

A Ramachandran

Director, Diabetes Research Centre, Royapuram, Chennai - 600 013.

36

Today, India has a primary position in the global diabetes epidemiology map as it is the home of nearly 33 million diabetic subjects which is the highest number in the world. This is both, due to a rising prevalence of the disease and the large population in the country. Therefore epidemiology of diabetes in India has gained great significance both in estimating the burden of the disease and also in finding out the risk factors with an ultimate goal of prevention of the disease.

In 1970s, the first national epidemiological survey conducted by the ICMR noted that the prevalence of diabetes was around 3.0% in the urban areas and this was considered to be not a major problem in the country.

At the same time reports from different parts of the world showed that migrant Asian Indians had a higher prevalence of diabetes than other ethnic groups which was attributed to environmental influences such as affluence which unmasked a genetic tendency for diabetes. The interest within India was kindled by these reports and a subsequent series of studies from different parts of the country have shown a steady increase in the prevalence of diabetes over the past 30 years. This increase in mainly contributed by the urban population which has undergone significant changes in the lifestyle pattern.

The preclinical stages of diabetes, impaired fasting glucose (IFG) and impaired glucose tolerance (IGT) are also steadily increasing. It indicates the potential for a future increase in diabetes as these conditions deteriorate when the environmental factors are adverse.

The major risk factors associated with diabetes are positive family history, age, obesity, especially upper body adiposity, physical inactivity and insulin resistance. Urban environment increases obesity, physical inactivity and causes unhealthy diet habits all of which lead to increased insulin resistance. Indians have a racial predisposition and a high familial aggregation of diabetes, the effect of which is precipitated by the above environmental factors. Studies have shown the direct impact of urbanization. Rural areas which have undergone socio-economical transition in the last two decades show nearly a three fold increase in the prevalence of diabetes. A recent study in Southern India showed that the prevalence had increased from 2.1% to 6.3%.

A series of studies have indicated that Indians have several peculiar features such as low risk thresholds for susceptibility for diabetes. These include a young age at onset, low normal range for body adiposity < 23.0 kg/m^2, presence of central adiposity despite having normal and high insulin resistance.

Indian have a high genetic susceptibility for diabetes and the above factors act adversely in such individuals. National studies have shown similar trends in different parts of the country.

Recently there has been a rise in childhood obesity also. Childhood obesity is a forerunner of obesity-related disorders in adulthood. Prevalence of type 2 diabetes in children and in young adults has been increasing.

Research in the last three decades in Indians have thrown light not only on the epidemic nature of the disease but have also shown indicators for primary prevention of diabetes which can be done mainly by modifying the lifestyle.

REFERENCES

1. King H, Aubert RE, Herman WH. Global burden of diabetes 1995-2025; Prevalence, numerical estimates, and projection. *Diabetes Care* 1998;21:1414-1431.
2. Ramachandran A, Snehalatha C, Vijay V. Burden of type 2 diabetes and its complications - The Indian scenario. *Current Sciences* 2002;83:1471-1476.
3. Ramachandran A, Snehalatha C, Baskar ADS, et al. Temporal changes in prevalence of diabetes and impaired glucose tolerance associated with life-style transition occurring in rural population in India. *Diabetologia* 2004;47:860-865.