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Current guidelines for treatment of type 2 diabetes: Are we pushing the limits of the evidence base?

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ABSTRACT

In India we face several peculiar challenges in management of diabetes which need to be addressed while the management pattern is advised for a person with diabetes. The burden of diabetes is large, and the phenotypic variations are many. Generally, Indians develop type 2 diabetes (T2DM) at a younger age and with lower body mass index (BMI) than in the western countries, many tend to have comorbidities due to delayed diagnosis or negligent treatment. Generally the public and the patients have poor awareness regarding the chronic nature of the disease, the risk of developing complications and also the need to have lifelong control of glycaemia. Cost of diabetes is a barrier for obtaining the desired treatment goals. Therefore, a physician treating diabetes in India needs to individualize the management regimen taking the patient's social and economic background as well.

1. Introduction

Our interests and focus include early diagnosis of diabetes, identifying the people with diabetes and hypertension and giving them the best treatments possible today, rather than aiming at tight control to meet the targets. Our priorities in clinical practice may differ from that in the western countries. In this discussion, there will be emphasis on the burden of diabetes today which is generally underestimated. Optimal control of diabetes is achieved only in small percentage of patients and we should aim to improve the situation.[1]

Our research team has conducted a series of epidemiological studies in urban and rural populations of India since 1985. As shown in Fig. 1 there has been a steady rise in the prevalence of diabetes both in urban and rural areas. In fact, every 5 years there has been almost a 30–40% increase in the prevalence from 5% in 1985 to 18.6% in 2006.[2] Some of these studies were conducted at the national level, but most of the studies have been done in southern part of India. In fact, the rural prevalence of T2DM has risen many folds in a short period of time.[3]

Even in the rural population, the prevalence has increased from 2.4% to 9.2%.[2] The future rise in prevalence of diabetes in India will be largely contributed by the increased prevalence of diabetes in the rural areas since nearly 70% of Indians live in rural areas. The prevalence of diabetes in the urban population rose by 35%, in 6 years (2000–2006), there had been a 45% rise in 3 years in the rural population (2003–2006) (Fig. 2). These changes can be mainly

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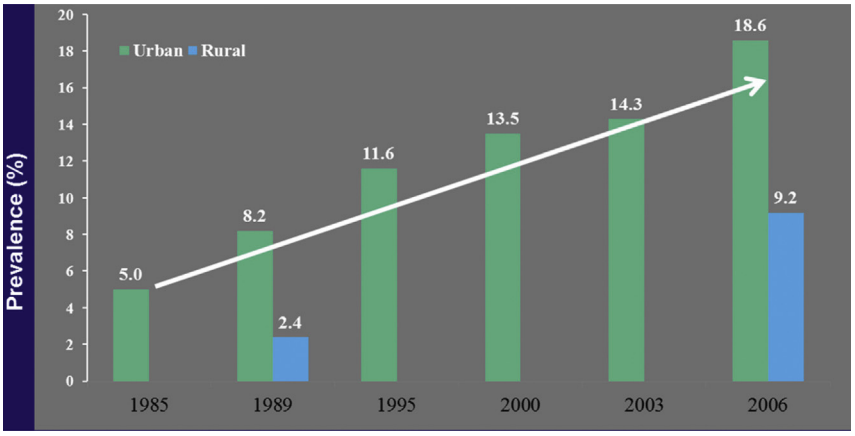

Fig. 1 – Secular trend in the prevalence of type 2 diabetes in Southern India (Reference no. -2,3).

attributed to rapid urbanization and associated changes in the lifestyle of rural populations.

Moreover, Indians develop diabetes at a relatively young age when compared with the western population. We noted that in 2001, the age at onset of 25% percent of people with diabetes in India was less than 44 years in urban area while the percentage had increased to 34.7% in 2006. A similar trend was observed in the rural population, where the prevalence increased from 27.3% to 34.8% within 3 years (Fig. 3). This poses a greater challenge because a longer exposure to hyperglycemia increases the lifetime risk of complications.

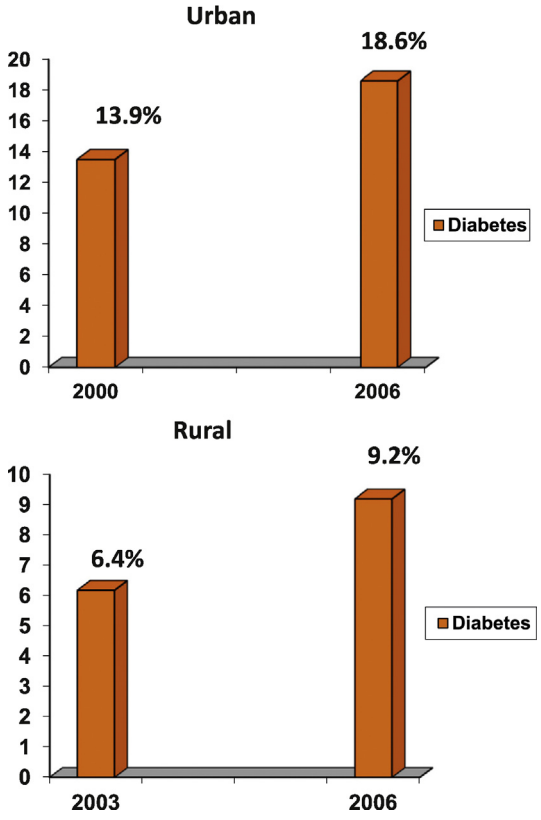

Fig. 2 – Trend of Prevalence of type 2 DM in Urban and Rural Population (Reference No. 2,3).

1.1. *Why the differences?*

Differences in prevalence of diabetes can be attributed to variations in phenotype, genotype, metabolic characteristics, and biochemical features. The DECODA study compared the risk factors for diabetes in Asian and European countries.[4]

It was found that European men and women had higher BMI compared to the Indian and Japanese populations. Taking into consideration the fact that BMI is one of the most powerful risk factor for T2DM, the prevalence of diabetes in the European population is expected to be higher than in the Asian populations.

Fig. 4.1 and 4.2 show the comparative prevalence of T2DM as described in the Diabetes Epidemiology Collaborative Analysis of Diagnosis Criteria in Asia (DECODA) study.[4] Even with a low prevalence of obesity, there was a higher prevalence of T2DM in the Indian population when compared with the other two populations indicating that Indians had lower risk threshold for T2DM.[5] Indians also have a lower age threshold for development of diabetes (Fig. 4.1 and 4.2). Additionally, for a given BMI, we have higher fat mass, central adiposity and a higher insulin resistance. This phenotype renders higher risk for diabetes in Indians.[5]

A major challenge in achieving good clinical outcome is due to unawareness among the patients regarding the complications and infections associated with diabetes. Patients required hospitalization due to severe complications.

1.2. *Economic burden of T2DM*

The treatment of diabetes is expensive.[6] The cost is increasing, poor patients spend upto 34 percent of their total income on diabetes care (Fig. 5). Many of them tend to neglect treatment because of the unaffordable cost.