

REVIEW ARTICLE

Diabetes Mellitus: Myths and Reality

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Abstract:

Individual and group behavior towards health and disease is determined by cognitive and affective dimensions of knowledge, belief, value, and a sense of self-efficacy. Diabetes mellitus (DM) is a lifestyle related painless morbidity that entails complex behavior of an individual 'living with disease'. The myths and knowledge about DM and its complication have a strong influence in the life of individuals suffering from diabetes by their way of seeking treatment during illness. Understanding the social determinants of DM calls for research on the myths and misconceptions related to this chronic disease furthering plan on educational targets for this population and their caregivers. In the downstream effect of this lifelong disease many factors affect prognosis including education, occupation, attitudes, values, beliefs, and perceptions of need of optimum management, which are shaped over time by cultural and social exposures.

Keyword: Myths, Diabetes, Misconception, Complication

Preamble:

Diabetes mellitus (DM) is a hereditary disorder which runs in families and millions of people are suffering from this disease globally particularly in China and India. Moreover as the disease is a painless disorder so the patients harbor the

pathology without knowing about the problem he/she may be facing till end organ damage due to chronic illness. In many cases the patients are diagnosed through opportunistic screening; for example, during antenatal care, pre anesthetic checkup or repeated infections, etc. Considering the increasing burden of diabetes and other Non Communicable Disease (NCD) Government of India has launched a programme called National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular disease and Stroke (NPCDCS) [1]. Counseling and health education of the diabetic patients is not given much importance by the physicians in their busy schedule. Apart from therapeutic interventions the patients do not get elaborate advice regarding lifestyle modification including diet which has been accepted as benchmark of management of diabetes in whole world. In this loophole of management of this chronic lifelong disease, patients move from pillar to post and land up in contradictory opinions regarding non-pharmaceutical management of diabetes.

Manifestation and Complications:

Diabetes per se is painless unless complications set in. A person suffering from this disease if not

diagnosed by screening will only be diagnosed with one of the downstream end organ damages. Classical textbook teaching of bunch of symptoms of thirst, polyuria, nocturia and rapid weight loss are prominent in type 1 DM, but are often absent in patients with type 2 DM. In fact, many of the diabetics are asymptomatic or have non-specific complaints such as chronic fatigue and malaise; otherwise accidentally detected without complications. Yet, occasionally patients present to emergency with marked symptoms and metabolic decompensation due to high glucose and lack of insulin for longer days without any intervention in between. Thus hyperglycaemia is a very common biochemical abnormality that needs to be followed up for whole life once detected at any point of time in life whether in disease or health [2]. Cochrane collaboration has reported in its review that aggressive management in the target of keeping the patient normoglycemic have not proved to prevent any complication in patients related to diabetes; normoglycemia has been found to only delay ophthalmic complications. However, the beneficial effect has to be balanced against the significantly increased risk of dangerously low blood sugar levels that can occur in both types of diabetes and which can lead to brain injury amongst other issues. While prescribing pharmaceutical management rigorous counseling regarding disadvantage of drugs are rarely by exception explained to the patients and caregivers [3].

Myths Regarding Risk Factor of DM:

Myths with respect to any disease among any community members reflect their basic health awareness, outlook and health care seeking behavior. In the era of explosion of knowledge, the understanding of the myths and misconceptions

about diabetes mellitus is important by providing updated information along with excellent care and health education not only to the patients and their caregivers but also to healthy individuals and health care providers [4].

As confirmed by American Diabetes Association (ADA) being overweight or obese, will eventually develop type 2 DM is one of the commonest myths among populations worldwide. Being overweight is a risk factor for developing this disease, but other more important non-modifiable risk factors such as family history, ethnicity and age play a major role. Unfortunately, due to reasons better known to them, too many people disregard the other risk factors for diabetes and think that overweight and/or obesity are the most important risk factors for diabetes. Most overweight people never develop type 2 DM, and many people with type 2 DM are at a normal weight or only moderately overweight [5].

Myths Regarding Classification of DM:

This also leads us to the other myth regarding classification of the disease. It is observed that type 1 DM most commonly develops before the age of 30, but an autoimmune beta cell destructive process can develop at any age. It is estimated that between 5-10 percent of individuals who develop DM after age 30 years have type 1 DM. Although type 2 DM more typically develops with increasing age, it is now being diagnosed more frequently in children and young adults, particularly in obese adolescents. Maturity-Onset Diabetes of the Young (MODY) is a subtype of DM characterized by autosomal dominant inheritance, early onset of hyperglycemia (usually <25 years), and impairment in insulin secretion. Hence age is currently not in consensus to be a vital criterion for classification [6].

Myths about Diet and DM:

'Eating too much sugar causes diabetes' or 'People with diabetes can't eat sweets or chocolate' or 'eating too much fruit is good for person with diabetes' or 'consumption of bitter food is good for person with diabetes' are some of myths regarding lifestyle factors leading to diabetes reported by ADA [3]. But interestingly the person with diabetes should keep an eucaloric diet to maintain good general health and reduce or increase calorie intake when they are overweight or underweight respectively are rarely explained to the patients by the doctor during initial diagnosis and onset of management of disease. A North Indian study reported that 26.7 percent of study population believes that 'There is no role of diet/lifestyle measures in cure of diabetes' and 7.2 percent reported that 'Diabetes occurs only in old age' [7]. Nutritional counseling assesses health needs of the diets as an ongoing process preferably by the Physicians as the most trusted friend with an attempt to help maintain the dietary changes which lacks this in their regular clinical practice which needs urgent attention [8].

It is evident that type 1 diabetes is caused by genetics and unknown factors that trigger the onset of the disease; type 2 DM is caused by hereditary factors and lifestyle risk correlates. So a diet high in calories from any source contributes to weight gain and being overweight does increase risk for developing type 2 DM, both these are unrelated facts. Though literature reported that consumption of sugary drinks is linked to type 2 DM, yet diabetic and "dietetic" diets generally offer no special benefit in health. Most of the 'blank calories' from soft drinks leads to persistently higher blood glucose levels, are usually more expensive and can also have a laxative effect if they contain sugar alcohols. If taken as part of a

healthy eucaloric meal plan, or combined with exercise, even sweets and desserts can be eaten by people with diabetes occasionally [3]. But a global balance of taste and satiety regarding diet of persons with diabetes is given due respect. The patients are usually provided a readymade diet chart instead of tailor made diet plan that suits its economy, religious beliefs, ethnicity, availability of low glycemic foods, etc. In absence of proper scientific training of health care providers in their curriculum, nutrition has become an orphan chapter not taught by any specialty so the dietary advice from health care providers becomes more empirical than expected.

Myths about Complications of DM:

There is also a common myth that 'once a person develops a complication from DM there is nothing that can be done'. The fact is that most important aspect of management of DM remains with the mitigation of end-organ damages which usually presented to health care providers in the early diagnosis and prompt intervention of spectrum of natural history of disease. The patients and their care givers are rarely provided scientific information such as conventional classification of acute and chronic complications (vascular and nonvascular complications). The vascular complications of DM are further subdivided into microvascular [retinopathy, neuropathy, nephropathy] and macrovascular complications [Coronary Heart Disease (CHD), Peripheral Arterial Disease (PAD), Cerebrovascular Disease (CVD)]. Nonvascular complications include problems such as gastroparesis, infections, and skin changes. Further the patient or their care givers are rarely explained that these complications usually become evident after a decade of untreated hyperglycemia [6]. Since type 2 DM often has a

long asymptomatic period of hyperglycemia, many individuals present with complications at the time of diagnosis of any long standing illnesses. What many people with diabetes are not aware of is that much can be done to prevent worsening of these problems once they begin to appear. For example, as long as it is detected early through regular yearly eye exams, diabetes eye disease can often be effectively treated with laser surgery, good blood sugar and blood pressure control to preserve vision for many years to come. If diabetes kidney disease is found early where small amounts of protein begin to spill into the urine, pharmaceutical management and blood sugar control with blood pressure stabilization can be used to preserve kidney function and avoid end stage renal disease. If people start complaining parasthesia in their lower limb, learning how to take care of one's feet and early, rapid treatment of any problems is usually successful to prevent amputations. Finally, even after the development of cardio vascular diseases, in many instances healthy foods, regular supervised exercise, normoglycemia, normotension with prevention of dyslipidemia, avoidance of smoking and alcohol can all prevent future complication [9].

Realities in the Life of Persons with Diabetes:

Research groups have noted that hyperglycemia has been involved in the mechanism of DM-associated cognitive dysfunction [10]. In the demographic transition, changing pattern of global population is slowly being skewed to the ageing population even in the developing world along with developed countries. Patients with type 2 DM remain at higher risk of developing dementia [11] for reasons of neurodegeneration and/ or microvascular changes [12], where both conditions may lower the threshold for more severe cognitive impairment. Studies from the

south East Asian region on knowledge of complications of DM demonstrated that knowledge of neurological complication among patients with diabetes ranged from 6-15 percent which was further lower among female counterparts [13-14]. Another multistate observational study from various regions of India demonstrated that an imperfect positive correlation existed between the prevalence of diabetes and dementia [15]. An alarming rise in dementia has set in, with an impending epidemic of diabetes. All the levels of prevention are needed to focus upon to prevent emergence and existence of both diabetes and dementia.

Genetic Basis of the Disease:

A major problem limiting our understanding of the genetic basis of type 2 DM is that many environmental and genetically based factors influence insulin sensitivity and insulin secretion. The primary genetic determinants for type 2 DM are abnormal genes or polymorphisms related to insulin resistance or impaired insulin secretion, and both are important in its pathogenesis. Let's suppose that the insulin resistance in type 2 DM is mainly due to intra abdominal fat accumulation and that is mainly under genetic control. One could conclude that the insulin resistance found in type 2 DM is genetic, but it would not represent a specific diabetes gene since most insulin-resistant obese people do not develop diabetes [16]. On the other hand, a mutation in the insulin receptor gene causing insulin resistance could be considered a diabetes-specific gene since, if severe enough, most people with the genetic defect would develop diabetes and most people without diabetes would not have this gene. There are two hypotheses one that threshold exists which, if exceeded by the cumulative adverse effects of genetic and acquired factors on insulin secretion

and insulin sensitivity, will lead to either IGT or type 2 DM. Another hypothesis is that defects in β -cell function are likely to be the most important genetic predisposing factors [17]. It is, as yet, unclear what percentage of absolute genetic risk can now be measured by combining all the known risk alleles, but it is unlikely to be of help in diagnosing DM or in predicting the onset of diabetes in an individual case [18].

What is To Be Done?

In the backdrop of excellent pharmaceutical interventions provided to patients with diabetes, state of art counseling and behavior change modifications should be introduced from primary health care level onwards. The pharmaceutical management has been streamlined according to ethnicity and age groups all over the world. Similarly we need to streamline the dietary management of diabetes to maintain the uniformity of this lifelong morbidity and reduce confusion. There is a saying that in the educational parlance “learning should follow de-learning”. This means

that any health care provider habituated in a typical approach to manage Diabetes has to be willing to remove “older” ideas from his/her mindset first, then only “new” concepts get through. This regular exercise of de learning-learning is better said than done. This is probably the first step of updating oneself [19]. In general curricular education of the third world of all level of health care provider viz., doctors, nurses, para medical staff of all systems of medicine should be sensitized during their training period and get opportunity to be updated through regular sessions. In a fast moving scientific scenario many new ideas regarding pathophysiology and management have propped up that has regularized management of diabetes. Further the term metabolic syndrome (Syndrome X) has been coined in this millennium where downstream pathologies have been clubbed. More researches are going on diabetes that needs to be incorporated in curricular and extracurricular capacity building by updating at all levels.

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