

Editorial

World Diabetes Day 2015: Healthy living & diabetes

Healthy living refers to adopting a lifestyle that promotes physical and mental fitness and facilitates prevention of lifestyle related diseases. Healthy living is at the core of any effort to prevent or treat diabetes, whether at the individual level or the community level. Essentially, healthy living includes consuming a healthy and balanced diet, being physically active, ensuring adequate sleep, minimizing stress and avoiding smoking, tobacco chewing and alcohol and brushing our teeth regularly.

At a community level, healthy living can effectively reduce the burden of diabetes and its complications. When we consider the huge burden of diabetes in our country today, the focus of all preventive strategies should be on healthy lifestyle interventions. The ICMR-INDIAB National Study reported that 62.4 million people had diabetes in 2011 and 77 million had pre-diabetes¹, and it is predicted that by 2035 diabetes may afflict up to 109 million persons in India, being rightly referred to as “diabetes capital of the world”. Adoption of a combined approach of increasing diabetes awareness, behavioural changes and promotion of healthy lifestyle can blunt this galloping trend.

At the level of the individual, healthy living not only helps prevent diabetes in those at risk but also facilitates good glycaemic control in those who are already diabetic. Abnormal lifestyle contributes to the problem in many patients diagnosed as diabetic and it is essential that advice on healthy living is started in them promptly at the time of diagnosis itself so that they can achieve better glycaemic, blood pressure and lipid targets.

There is enough evidence that lifestyle interventions are effective in the prevention and management of type 2 diabetes mellitus (T2DM)^{2,3}. Evidence from literature

also suggests that initial lifestyle interventions are cost-effective⁴ and can significantly reduce the incidence of diabetes in Asian Indians with impaired glucose tolerance (IGT) or with combined IGT + IFG⁵. Further, lifestyle intervention with diet and exercise in those with IGT can significantly decrease the incidence of diabetes and its complications while providing long-term beneficial effects for up to 20 years⁶.

Healthy eating is one of the two most important components of the healthy living campaign besides optimising physical activity and exercise levels. The UK Prospective Diabetes Study (UKPDS) demonstrated that a significant number of the patients could not only achieve good glycaemic control after initial nutrition intervention soon after diagnosis but some of them could maintain target blood glucose only on medical nutrition therapy for several years⁷. Medical nutrition therapy (MNT) with or without diabetes self management training has been shown to reduce HbA1c from 0.5 -2.6 per cent in patients with type 2 diabetes². Interventions included reduced energy intake and/or reduced carbohydrate/fat intake, carbohydrate counting, and basic nutrition and healthy food choices for improved glycaemic control.

Healthy food choice with the most beneficial metabolic profile is provided by a high-carbohydrate low-fat and fiber-rich diet which has been found to have a definite role in prevention of diabetes. High-carbohydrate diabetic diets are effective when relatively large amounts of unrefined carbohydrate and fiber are included such as legumes, unprocessed vegetables and fruits. Brown rice is preferred to polished white rice. Low carbohydrate diets usually tend to be high in fat and/or high protein and are, therefore, not to be preferred. Fat intake should occur mainly in the form

of monounsaturated fatty acids (MUFA) with a parallel decrease in saturated fatty acids (SFAs) and trans fatty acids (TFAs). Such a diet is particularly beneficial in patients with impaired glucose tolerance, diabetes and obesity⁸. It is also recommended that intake of sugar be restricted to less than 10 per cent of total daily energy intake⁹. Combining foods with high and low glycaemic indices, such as adding fiber-rich foods to a meal or snack can also help improve glycaemic and lipaemic profiles.

Since Asians are considered to do less physical activity compared to their western counterparts, lifestyle modification involving physical activity interventions are of paramount importance for blood glucose control and cardiovascular protection in patients with T2DM⁸. A systematic review and meta-analysis of exercise (aerobic, resistance training or both) reported an HbA1c reduction of 0.7 per cent, independent of changes in body weight, in people with type 2 diabetes¹⁰. Prospective cohort studies have also shown that higher physical activity levels including aerobic as well as resistance exercises predicted lower long-term morbidity and mortality in people with type 2 diabetes¹¹. A combination of aerobic and resistance training exercises in individuals with T2DM can improve metabolic control while reducing the obesity and its related complications⁸. In the diabetic patient it is recommended to introduce physical activity gradually and setting individualized and specific goals. A total of 60 min of physical activity is recommended every day for healthy Indians in view of the high predisposition to develop T2DM and coronary artery disease (CAD). This can include at least 30 min of moderate-intensity aerobic activity, 15 min of work-related activity and 15 min of muscle-strengthening exercises (at least 3 times/week). People with prediabetes should modify their lifestyle and attempt to lose 5 to 10 per cent of body weight if overweight or obese and participate in moderate physical activity (e.g. walking) for at least 150 min/wk. Healthy lifestyle measures including diet and physical activity are equally important for non-obese patients with prediabetes and T2DM also⁸. Optimal sleep (7-8 h per night) has been shown to maintain metabolic health, aid in weight loss and increase insulin sensitivity while short-duration (< 5-6 h) or longer-duration (> 8-9 h) of sleep was associated with increased risk of diabetes^{12,13}. Hence, it is recommended that all individuals including those with

prediabetes and diabetes should have 6-8 h of sleep daily⁸.

Stress is another important contributor to diabetes and the overall cardiometabolic risk of Indians. Recent studies have shown that stress and endocrine stress responses could be associated with a higher risk of diabetes in Indians¹⁴. Besides this, a significant proportion of Indian diabetic patients particularly women also have associated biosocial stress, anxiety and depression^{15,16}. There is also a need for effective stress relieving approaches as part of an overall strategy of healthy living if we are to effectively contain the problem of diabetes and its complications.

Yoga has also been shown to reduce glycaemic parameters, improve insulin sensitivity, improve anthropometric measures, and enhance glucose utilization^{17,18}. Currently the role of yoga and fengreek in the prevention of diabetes is being evaluated in the Indian prevention of Diabetes Study by Research Society for the Study of Diabetes in India (RSSDI)⁸. In view of the resource constraints and diversity in lifestyles among Indian population, yoga appears to be a suitable cost-effective alternative to supplement to lifestyle intervention programmes that are close to population. Yogic practices can be combined with other forms of physical activity when it should be done for 30 min every day⁸.

One of the major challenges of lifestyle modification is that it can be difficult to achieve and maintain in the long-term once initial changes have been made⁶. Many of the healthy eating and healthy physical activity interventions have been shown to be successful only in clinical trial settings with labour intensive protocols involving constant reinforcement through multiple encounters on a continued basis^{19,20}. The real challenge is to translate this evidence to the real life situation with all financial and human resource limitations. Also, there is a lack of knowledge about the contribution of lifestyle measures in lowering blood glucose particularly when used in combination with drugs. In addition, attitudes, cultural differences and religious and social beliefs and imbalances in dietary patterns pose significant barriers in effective prevention and management of T2DM in South Asians²¹. There is an urgent need for reinforcing patient education and self management approaches to be able to sustain healthy living among diabetic and prediabetic patients. It is here that the role of the paramedical personnel/ diabetes educator becomes

critical in constantly interacting with the patient and reinforcing the benefits of healthy living⁸. These health care professionals should be trained to be able to effectively provide lifestyle interventions which are sustainable.

Some recent evidence suggests that India is among the fastest converting nations from IGT and Normal Glucose Tolerance (NGT) to type 2 diabetes²², and once prediabetes has occurred promotion of healthy living has to be fast and aggressive as otherwise there is a serious risk of missing the opportunity. Another study²³ has suggested that presence of prediabetes range dysglycaemia already represents a late phenomenon in conversion to diabetes and lifestyle interventions instituted before the onset of prediabetes may be more effective in preventing diabetes. In fact, there is an urgent need of promoting healthy living universally as an aggressive primary prevention strategy for diabetes and all other lifestyle related diseases instead of waiting for identifying a high risk individual to act. Healthy living for all is the key to contain the diabetes epidemic in our country.

Madhu S.V.

Department of Medicine &
Centre for Diabetes, Endocrinology & Metabolism
University College of Medical Sciences
& Guru Teg Bahadur Hospital
Delhi 110 095, India
drsvmadhu@gmail.com

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