

Commentary

New vistas in treating diabetes - Insight into a holistic approach

Diabetes mellitus (DM) is the single most important metabolic disorder that affects nearly every organ system in the body. Diabetes is escalating as an epidemic with the emergence of type 2 diabetes in children and young people. In India, presently about 30 million people are diabetic which will rise to about 60 million by 2017. Much more alarming is the growing incidences of gestational diabetes in our country, of which 60 per cent are known to develop diabetes later in life. These statistics are of great public health concern, because people with diabetes are 25 times more likely to develop blindness, 17 times more likely to develop kidney disease, 30-40 times more likely to undergo amputation, two to four times more likely to develop myocardial infarction and twice as likely to suffer a stroke than non-diabetics. Increasing per capita income, socio-economic status, life expectancy and urbanization are the signs of growth and development but the associated changes in lifestyle, dietary habits, sedentary habits and mental turbulent states contribute more to diabetes and its complications. The added burden of declining cognitive capabilities is still making a huge toll on the human resource utilization.

The present day life style contributes to the alarming rise in the occurrence of this disease. Lifestyle modifications inclusive of dietary modification, regular physical activity and weight reduction are indicated for prevention of diabetes. Accordingly, a holistic health care approach (instead of a conventional drug-based approach alone) for the treatment is highly warranted; development of a mind body medicine or an inclusive approach of mind-body interactions is the need of the hour. An array of mind-body therapies are being used presently as adjuncts to conventional treatment for a number of common clinical conditions such as asthma, post traumatic stress disorder, addiction treatment, stress

management anxiety, Obsessive Compulsive Disorder (OCD) and various cardiovascular dysfunctions¹.

Yoga, an ancient system of life style helps to achieve an overall harmonious state of being and is one such mind body medicine approach which is highly appreciated, researched and recommended as a holistic practice towards normal better health, adjuvant in various disease conditions and for life fulfillment. Studies have shown that life style modification through yoga practice along with conventional treatment has an added beneficial effect on the outcome of the disease. The result of one survey showed that 48 per cent of DM patients volunteer for yoga and other allied alternative therapies². Dyslipidemia and other altered metabolic states in diabetics contribute to the unfavourable cardiac risk factors. Even though both physical exercise and yoga practices are known to bring down the fasting blood sugar, lipid profile, oxidative stress and improving antioxidant status, yoga additionally is known to improve the psychological outcome that helps to manage stress, reduces anxiety, negative affect and enhance the positive affect and mental Poise^{3,4}. Health benefits of yoga are thus curative as well as preventive. Though Yoga can be practiced as a therapy, it is not a panacea for all diseases and can be used in conjunction with conventional medical treatment. Like in terminally ill cancer patients, yoga can help to minimize the pain and agony and thus improve overall quality of life but is not a solution for curing the disease itself.

In this context a recent study by Kyizom *et al* published in this journal⁵ has reported the beneficial effect of yoga therapy when incorporated along with the conventional medical therapy. The blood glucose levels were effectively controlled when both the modalities of interventions (conventional treatment along with yoga therapy) were combined. Earlier studies also indicated

better glycaemic control and stable autonomic functions in Type 2 diabetes in response to yoga therapy^{4,6-9}. These studies suggest that *Yoga-asanas* and *pranayama* may aid in rejuvenating/regenerating cells of pancreas, thus help in better utilization glucose in the peripheral tissues, liver and adipose tissues. Additionally, patients receiving add on yoga therapy have shown significant improvement in the latency and the amplitude of N200, P300 when compared to patients receiving conventional treatment without yoga therapy. DM affects adversely the cerebral blood flow, metabolism and alteration in higher functions in diabetic patients. However, Kyizom *et al*⁵ have shown, mere 45 days of yogic practices together with conventional treatment can be effective in improving the neurocognitive functions. May be through combination therapy, we can perhaps effectively control diabetes, in addition, enhance the cognitive functions and improve overall quality of life.

The study 5 has some limitations. No correlation has been made between the improvement of cognitive variables with stress levels and educational status in the study population. The age range of patients is between 35-60 yr with a history of the disease between 2-10 yr. In order to get a similar and better outcome of the treatment, it is necessary to obtain data from diabetes between 35- 50 yr and 51-60 with a history of the disease between 2-5 yr instead of 2-10 yr. Also, it would be ideal and mandatory to conduct the yoga practice regimen collectively for every patient on a daily basis at least for six days in a week under supervision. Such training can help patients attending yoga sessions to continue the practice at home even after the study is completed. The patients can also interact with other patients as well with the yoga instructor. Such a regimen would definitely provide better results in the management of life quality in DM.

Practice of yoga and meditation is known to induce hypometabolic state with parasympathetic predominance, suggesting that yogic practices *per se* would create a conducive internal atmosphere from the cellular to system level¹⁰⁻¹². This would help to manage the stress and anxiety effectively in addition to its positive regulatory role on other systems. Considering its health there is a need to integrate yoga in the conventional treatment regimen as an adjunct/add on therapy for an effective treatment of DM. This paper⁵

provides a convincing evidence for the effectiveness of combination therapy over conventional treatment in enhancing cognitive functions in diabetes. More studies need to be carried out along this line, in order to increase awareness among public.

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References

1. Astin JA, Shapiro SL, Eisenberg DM, Forsys KL. Mind-body medicine: state of the science, implications for practice. *J Ann Board Farm Med* 2003; 16 : 131-47
2. Donal Garrow and lenoard E Edge 'Association between complementary and alternative medicine use, preventive care practices, and use of conventional medical services among adults with diabetes'. *Diabetes Care* 2006; 29 : 15-9.
3. Kosuri M, Sridhar GR. Yoga practice in diabetes improves physical and psychological outcomes. *Metab Syndr Relat Disord* 2009; 7 : 515-7.
4. Gordon LA, Morrison EY, McGrowder DA, Young R, Fraser YT, Zamora EM, *et al*. Effect of exercise therapy on lipid profile and oxidative stress indicators in patients with type 2 diabetes. *BMC Complement Altern Med* 2008; 13 : 8-21.
5. Kyizom T, Singh S, Singh KP, Tandon OP, Kumar R. Effect of *pranayama & yoga-asana* on cognitive brain functions in type 2 diabetes-P3 event related evoked potential (ERP). *Indian J Med Res* 2010; 131 : 636-40.
6. Singh S, Malhotra V, Singh KP, Madhu SV, Tandon OP. Role of yoga in modifying certain cardiovascular functions in type 2 diabetic patients. *J Assoc Physicians India* 2004; 52 : 203-6.
7. Malhotra V, Singh S, Singh KP, Gupta P, Sharma SB, Madhu SV, *et al*. Study of yoga-asanas in assessment of pulmonary functions in NIDDM patients. *Indian J Physiol Pharmacol* 2002; 46 : 313-20.
8. Aljasir B, Bryson M, Al-shehri B. Yoga practice for the management of Type II Diabetes Mellitus in adults: A systematic review. *Evid Based Complement Alternat Med* 2008; May 7.
9. Sahay BK. Role of yoga in diabetes. *J Assoc Physician India* 2007; 55 : 121-6.
10. Khalsa SS. Yoga as therapeutic intervention . A bibliometric analysis of published research studies. *Indian J Physiol Pharmacol* 2004; 48 : 259-68.
11. Parshad O. Role of yoga in stress management. *West Indian Med J* 2005; 11 : 711-7.
12. Gupta N, Khera S, Vempati RP, Sharma R, Bijlani RL. Effect of yoga based lifestyle intervention on state and trait anxiety. *Indian J Physiol Pharmacol* 2006; 50 : 41-7.