

PREVENTING DIABETES THROUGH AYURVEDIC WAY: NEED OF HOUR

Nakanekar Amit

Kohli K. R.

R. A. Podar Ayurveda Medical College Worli, Mumbai, Maharashtra, India

ABSTRACT

Ayurveda is a science of life. It is eternal way towards healthy life. It emphasizes mainly on lifestyle maintenance to avoid various disorders. This is divided as *Ayurvedic dincharya* (~daily routine acc. to *Ayurveda*.) and *ritu charya* (~ Changes in routine as per seasonal variation). A pandemic of diabetes is affecting almost every part of world. It has also become very common in India especially urban India. *Ayurveda* can play great role in prevention of this disorder. This article mainly emphasis on need for prevention of Type2 DM and role of *Ayurveda* in it.

Keywords: *Ayurveda*, Diabetes, Prevention of type2 DM

INTRODUCTION

It is now well known that there is a pandemic of Type 2 Diabetes in the world particularly in developing countries. This fact has several implications for the health care system in the developing countries because this condition is associated with metabolic and vascular complications which in turn increases the mortality and health care costs and compromises the quality and life expectancy of the society.

As per the recent report by international diabetic federation following are the observations regarding diabetes¹

- Diabetes is the fourth leading cause of global death by disease.
- Each year 3.8 million deaths are attributable to diabetes. An even greater number die from cardiovascular disease made worse by diabetes-related lipid disorders and hypertension.
- Diabetes is a common cause of kidney failure in developed countries and is responsible for the huge cost of dialysis.

- Diabetic retinopathy is the leading cause of vision loss in adults of working age (20 to 65 years) in industrialized countries.

- Atleast 50% of all people with diabetes is unaware of their condition. In some countries this figure may reach 80%.

- Upto 80% of type 2 diabetes is preventable by adopting a healthy diet and increasing physical activity.

Hence we can say that diabetes is the single most important metabolic disease and is widely recognized as one of the leading causes of death and disability worldwide.^{2,3}

The rapid increase in prevalence of diabetes is related to rapid lifestyle and socioeconomic changes⁴. Diabetes causes profound alternations in both micro and macro vascular system affecting nearly every organ of the body^{5,6}. As per the recent diabetes india 2013 conference which was held in Kochi in every 8 seconds a diabetic dies and in that same 8 seconds 2 persons become diabetic. This also magnifies the risk for vascular diseases several fold and

thus one of the major causes of morbidity and mortality worldwide.^{7,8}

Presently over 170 million individuals are affected by diabetes and these numbers are predicted to increase further in the future and the most dramatic increase is expected to occur in India⁹. According to WHO by the year 2030 India would have around 80 million diabetic patients and would contribute 20% of the world's diabetic population⁹. Various migrant studies shows that south Asians are more prone to diabetic^{10,11} Recent studies with in the Indian subcontinent shows that in urban India prevalence rates of diabetes are fast approaching those seen in more affluent migrant Indians^{12,13} This explains the need for primary prevention of Type 2 DM

CONCEPTUAL PART

The marked escalation in diabetes is attributed to rapid changes in lifestyle & economic progress of India. It is thus paradox that we are in a way, "victims of our own success". In 1971 a study conducted by Tripathy et al shows that prevalence rate of DM was 1.2%²⁰ which went to 12.1% in 2000. shows study conducted by V.Mohan et al^{11,12}. Presently 35% of Indians live in urban areas in contrast to the 15% in 1950's. This is accompanied by dramatic reduction in physical activity consequent to the change of jobs that are associated with manual labour to more of sedentary. These rapid transitions have major implications on the profile of the disease patterns in India with particular reference to non communicable diseases like diabetes, Hypertension, and coronary artery disease.

This is also evident that more than 50% of the diabetic complications are already in progress at the time of diagnosis of Type 2 DM. Which indicate that at the time of

diagnosis of Type 2 DM other diabetic complications are already travelled their 50 % path of pathological changes. In advanced countries where mortality from coronary Artery Disease (CAD) is decreasing in general population, It has not decreased in diabetic subjects. Life expectancy of a diabetic is 5 to 10 years shorter. The best means of primary prevention of CAD is primary prevention of diabetes. Hence prevention of Type2 DM is becoming a major concern¹⁴.

Fortunately in the natural history of diabetes, There is a long pre diabetes stage, during which adequate prevention strategies can help and delay the onset of diabetes. Surprisingly in spite of enormous progress in understanding of natural history of diabetes efforts taken for prevention of diabetes are still grossly inadequate.

Diagnosis of Pre diabetes is made by ADA (American Diabetes Association) 2000 criteria by presence of either

- 1) Impaired Fasting BSL between 100- 125 mg/dl while WHO has slightly modified the criteria 110-125mg/dl or
- 2) Impaired Glucose tolerance test 140-199 or presence of both at a time.

The FDA hasn't actually approved any medications for pre-diabetes, but doctors commonly prescribe two classes of medications (OHAs). The first class are Thiazolidinediones (TZDs) such as Pioglitazone (Actos) having anti- insulin resistance medication. But recently Pioglitazone is banned from 26 june 2013. because it causes CA pancreas and CCF.

The other class of drugs that seem to help are Biguanides, such as Metformin and Acarbose (voglibose) which controls raised blood sugar level. Medications such as

'statins' which reduces cholesterol are also under trial for prevention of diabetes. In spite of all these efforts Life style management showed most promising results. The Diabetes prevention programme outcome shows that there is 43 percent risk reduction in the lifestyle group, and 18 percent in those taking metformin compared with the placebo group in the long term 10 yrs follow up²⁵.

The most important thing is that OHA possess their side-effects like sudden hypoglycemia, G.I. upsets etc. Their major limitation is primary & secondary failure where patient doesn't respond to medicines. It compels the physician to increase the dose, change the medicine. Moreover these drugs correct only hyperglycemia & not the basic pathology. These drugs cannot prevent further progress of disease & in spite of good glycaemic control patient lands into life threatening complications¹⁵.

Hence global interest is increasing towards safe & effective preventive strategies which Ayurveda can provide.

Ayurveda principally aims at the prevention of the swasthya i.e. health of the healthy person and then to cure the the diseased.

प्रयोजनं चास्य स्वस्थस्य
स्वास्थ्यरक्षणम आतुरस्य विकार प्रशमन च ॥
(च. सू. ३०/२६)

Diabetes can be compared with *Prameha* in Ayurveda and Prediabetic state as *Poorva rupavastha* of *prameha*.

In the *medovaha strotas dushti lakshanas* (clinical signs) *Charaka* clearly mentions *prameha poorva roopas* are main *lakshanas* (clinical signs) of *medovaha strotas dushti*²¹. This signifies role of lipid

and *sthaulya* (obesity) management in the prevention of *prameha*.

Prameha is one of the diseases which has been given prime importance in Ayurvedic literature as it is included in 'Mahagadas' i.e. diseases difficult to treat¹⁶ Increased frequency & quantity along with turbidity of urine is the cardinal symptom of *Prameha (Prabhut avil mutrata)*¹⁷ *Charaka* highlighted the role of *bahu drava Shleshma*¹⁸ and other vital elements like *meda, mansa, kleda* and finally *oja* are involved in *samprapti* of *madhumeha*¹⁹. Use of Pioglitazone causes Excessive water accumulation of water because of CCF is the basic and it is the cause of death in diabetic patients this reason was sufficient for FDA to ban the use of pioglitazone in India. This incidence is once again confirming the observations made by *Charaka*.

Traditionally, *Prameha* is a rich man's disease. Particularly because the person who enjoys the pleasures of life without any physical effort & who consumes nutritious food is more prone to the disease. But changing form of lifestyle of the middle & lower socio-economic class people makes them the prey of this disease. Same condition is mentioned by Dr. V Mohan as, "victims of our own success".

Various herbs are mentioned in the Ayurvedic literature are found useful for reduction in blood sugar, decrease in insulin resistance, improvement in beta cell activity, various anti inflammatory pathways are also found effective in reducing the early inflammation which is initial state in pre diabetes. Various herbs like *Guduchi (Tinospora cordifolia)*, *Kirat (Swertia chirayta)* are found effective in reducing early inflammation and insulin resistance.

Most importantly it is almost clear that diabetes is a disease with multi factorial origin and multi targated herbal drugs which are comparatively safer than modern drugs are to be used in management of pre diabetes and prevention of diabetes. *Ayurveda* has mentioned multiple etiological factors in the pathogenesis of *prameha*²⁷.

Hence *Ayurvedic* herbal medicine has a great future in prevention of Type 2 DM which is most important the in Indian context. Various *panchkarma* procedures like *Vaman*, *Udvartan* also plays important role in treating pre diabetes and preventing diabetes.

Imporatance of prediabetic condition is that it can be revert back to normal; and life time treatment is not needed. Every year around 20 -25% of pre diabetics gets converted to diabetes. Once diabetic is always diabetic.

Various *Ayurvedic* ways and their mechanism of action in the management of prediabetes-

1) *Bramhe muhurte*²⁸- *Ayurveda* mentions wake up on *brahma muhurta* and go out side village for *shauch karma*. Early morning breathing in fresh air acts as antioxidant..... Also to go outside the village person has to walk fast...if he has proper malaveg this also creates brisk walking which is very important LSM as per modern science Showed in DPP trial. It is more effective on impaired fastin BSL.

2) *Udvartan*- It is *kapha har* and causes *meda vilayan*²². *Meda vilayan* also reduces adiposity which decreases insulin resistance.

3) *Vaman*²⁹- It is *Kapha har* . The stomach is cleaned *agni dipan* also causes proper digestion and sugar is absorbed fastly. *Vaman* is more effective on impaired glucose tolerance.

4) *Vagbhata* clearly states that food which increases *Med* (High fat diet), *Mutra* (Diuretics), which is sweet, salty produces *prameh*²³. Now a days we also see that High fat & high fructose models are being used for induction of pre diabetes in animal studies....diuretics like thiazides are diabetogenic..exceesive salt intake increases BP & betablockers and diuretics which are used for its treatment are diabetogenic.

5) For preventing *prameha* *Vagbhata* has clearly mentioned walking for 100 *yojan*²⁴ (1 *yojan* approx 7.5 km). A daily brisk walk of 7.5 km (brisk is walking with speed of at least 5 km/hr) for 100 days (3 months) can reverse GTT to normal which was one of the finding in DPP study. (Diabetes Prevention Programme²⁵ and Da-Qing study²⁶

6) One classical quotation in *Kaphasya upakrama* mentioned by *Vagbhata* is very classical for preventing Type 2 DM. He says निःसुखत्व सुखाय च |³⁰ which means withdrawing of luxury to create happiness.

DISCUSSION

Considering this detailed conceptual part we can defiantly say that *Ayurveda* describes appropriate lifestyle and diet management called as *ahar* and *vihar* for the prevention of various metabolic disorders like Type2 DM.

Classical reference of *Havish Prashan* mentioned by *Chakrapani* in *nidan sthan* commentary of *Charaka* also demonstrates the high fat high fructose model for induction of insulin resistance in animal models.

These are only few examples given here. A detailed book also can be written in the same topic. But these examples can definitely solve the purpose of this article

which is preventing diabetes through Ayurvedic way is the need of the hour.

CONCLUSION

Ayurveda can definitely play the key role in primary prevention of Type2 Diabetes.

REFERENCES

- 1) Manual for primary prevention of type2 DM in INDIA. Published by M. V. Hospital for Diabetes & Diabetes Research Centre (WHO Collaborating Centre for Research, Education & Training in Diabetes) 4, Main Road, Royapuram Chennai 600 013, India.
- 2) Zimmet PZ. Diabetes epidemiology as a tool to trigger diabetes research & care. Diabetologia. 1999; 42:499-518.
- 3) Songer TJ, Zimmet P. Epidemiology of type2 DM: an international perspective. Pharmacoeconomics. 1995; suppl1:1-11.
- 4) King H, Rewers M, diabetes in adults is now a world problem. The WHO Ad Hoc Diabetes reporting group. Bull world health organ. 1991; 69:643-8.
- 5) Nathan DM long term complications of DM. N Engl J Med 1993; 328:1676-85.
- 6) Yuans S, Liu Y, Zhu L. vascular complications of DM. Clin & exp. pharco. & physiol. 1999; 26: 977-8.
- 7) Huxely R, Barzi F, Woodward M .Excess risk of CAD associated with DM in men & women, meta analysis of 37 prospective cohort studies. BMJ 2006; 332:73-8.
- 8) Roglic G, Unwin N, Bennett Ph, Mathers C, Tuomillehto J, Nag S, Connolly V , The burden of mortality attributable to DM realistic estimates for the year 2000. Diabetes care 2005; 28:2130-5.
- 9) Wild S, et tal Global prevalence of diabetes estimates for the year 2000 & projection for 2030. Diabetes Care 2004; 27:1047-53.
- 10) Mckegue PM, Shah B, Marmot MG .Relation of central obesity & insulin

resistance with high diabetes prevalence & cardiovascular risk in south Asians. Lancet. 1991; 337:382-6

- 11) Pradipa R, Mohan V, .The changing cenario of the diabetes epidemic implications for India. Indian J. Med Res. 2002; 116:121-32
- 12) Ramchandran A, et al. Rising Prevalence of NIDDM in an Urban Population in India. Diabetologia 1997.; 40:232-7
- 13) Mohan V et al, Glucose intolerance (Diabetes & IGT) in a selected south Indian Population WSR to family history, Obesity & lifestyle Factors-The Chennai Urban Population Study (CUPS-14). J. of asso of Physians India 2003; 51:771-7.
- 14) Practical Diabetes Malitus; 4th Edition, Pradip Talwalkar. Page 221.
- 15) Practical Diabetes Malitus; 4th Edition, Pradip Talwalkar Page 70-96.
- 16) वातव्याधिः प्रमेहश्च कुष्ठमर्शो भगन्दरम् । अश्मरी मूढगर्भश्च तथैवोदरमष्टमम् । अष्टावते प्रकृत्यैव दुश्चिकित्सा महागदाः ॥ (सु. सू. ३३/४-५)
- 17) तत्राविलप्रभूतमूत्रलक्षणाः सर्व एव प्रमेहा भवन्ति । (सु. नि. ६/६)
- 18) बहुद्रवः श्लेष्मा दोषविशेषः ।
- 19) मेदश्च मांसं च शरीरजं च क्लेदं कफो बस्तिगतं प्रदूष्य । करोति मेहान् समुदीर्णमुष्णैस्तानेव पित्तं परिदूष्य चापि । क्षीणेषु दोषेष्वकृष्य बस्तौ धातुन् प्रमेहाननिलः करोति । दोषो हि बस्तिं समुपेत्य मूत्रं संदूष्य मेहाञ्जनयेद्यथास्वम् ॥" (च. चि. ६/५-६)
- 20) Tripathy BB, Panda NC, Teja SC et al. Epidaemiology of Diabets malitus.in urban and rural population of Orisa ,India, ibid A, 355 -162.
- 21) यानि नोन्दतानि प्रमेहाणिपुत्ररूपाणि च
- 22) उद्वतनम कफहरं मेदसा प्रावेलायनम।

23) तेषां मदीमूत्रकफावहम।
अन्नपानाक्रियाजात यत्प्रायस्त्प्रवतेकम।
स्वादुलवणाम्ललवणास्निग्धगुरुपोच्छलशौतल
म॥ अ.ह.नि. / -

24) खनद्वा
सालेलाशयान | ह

25) Diabetes Prevention Program Research Group. Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. N Engl J Med 2002; 346:393-403.

26) Pan X, Li g, Hu Y, Wang J, Yang W, An Z. Effects of diet and exercise in preventing NIDMM in people with impaired glucose tolerance. The Da Qing IGT and Diabetes Study. Diabetes Care 1997; 20: 537-544.

27) Ashtang Hridaya nidan sthan 10/1-4
Commentry by Vd. Ganesh Gadre page no. 190 Anmol publication reprint 2002 .

28) Ashtang Hridaya sutra sthan 2/
Commentry by Vd. Ganesh Gadre page no. 07, Anmol publication reprint 2002 .

29) Ashtang Hridaya sutra sthan 18/ 1
Commentry by Vd. Ganesh Gadre page no. 75, Anmol publication reprint 2002

CORRESPONDING AUTHOR

Dr. Amit Nakanekar

M.D. Ph.D (scholar)

R.A.Podar Ayu. Medical College
Worli Mumbai, Inida

Email: amitnakanekar@gmail.com

Source of support: Nil

Conflict of interest: None Declared