

Prevention and Management of Diabetes Mellitus in Children through Ayurveda: A Critical Review

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ABSTRACT

Unhealthy lifestyle choices of children in present scenario are the main causative factors for early onset of obesity and diabetes mellitus. Type 2 diabetes mellitus historically considered a serious chronic medical condition only for older individuals, now has increased prevalence in children and adolescent. The estimated overall incidence of type 2 diabetes mellitus is 22 cases per one lakh youth every year. *Madhumeha* can be prevented with appropriate use of ayurvedic preventive measures such as *dincharya*, *ritucharya*, *aharvidhi vidhan*, *vihara* along with controlled therapeutic measures and longevity can be increased. This paper presents the guidelines for children to adopt a healthy lifestyle through *ayurveda* to prevent diabetes mellitus.

Keywords: Childhood diabetes mellitus, Lifestyle, *Madhumeha*, *Ayurveda*, *Ahara*, *Vihara*.

INTRODUCTION

Lifestyle may be defined as the way in which a person lives. In India, now a day's lifestyle of people has underwent drastic changes due to modernization and more dependency on technologies which leads to sedentary lifestyle and unhealthy dietary habits such as fast food consumption etc. The number of diabetics is

expected to rise from 15 million in 1995 to 57 million by 2025 ranking India the highest no. of diabetics in the world¹. There are two types of diabetes mellitus. Type 1 Diabetes (juvenile onset diabetes) is characterized by gross insulinopenia and dependence on exogenous insulin for prevention of ketoacidosis. It occurs

predominantly in childhood but can occur in any age. Type 2 Diabetes (adult onset diabetes) is usually not insulin dependent and not complicated by ketoacidosis. Type 2 diabetes is

MADHUMEHA IN CHILDREN

Diabetes mellitus has been mentioned in ayurveda as *madhumeha*. Hereditary inheritance and dietetics are two factors that are generally responsible for causing *prameha* and patients are classified accordingly as *sahaja pramehi* (inborn) and *apathyanimittaja* (related to dietary and lifestyle factors) *pramehi*. **Sahaja pramehi-Prameha** has been mentioned as a kulaja vikara i.e. It has tendency of inheritance. The overindulgence of *madhur* rasa by mother during pregnancy is responsible for inducing *prameha* in the child. *Chakrapani* has also narrated that the chief cause of defect in *bija* (spermatozoa or ovum) is *apathya sevana* by parents. The genetic predisposition and dietetic factors both play a

rare in childhood but due to lifestyle changes and obesity it may also be seen in adolescent age.

combined role in manifestation of *sahaj prameha* or *madhumeha*, although it may occur independently. **Apathyanimittaja pramehi** occurs due to indulgence of *kapha dosha- meda dhatu vardhak ahara vihara*. Some common etiological factors are *asyasukham* (sedentary habits), *swapnasukham* (sleeping in day time), *aanupa mamsa sevanam* (meat preparation of aquatic animals), *Nava anna, nava pana* (freshly grown grains, fresh beverages), different preparations of *guda* (prepared using sugarcane). The etiology of *madhumeha* in childhood has not been mentioned separately in ayurvedic classics. It is the same as described for adults [2].

<i>Ahara</i> (excessive intake of)	<i>Vihar</i> (excessive indulgence in)
<ul style="list-style-type: none"> • <i>Guru</i> (heavy) <i>dravya</i> • <i>Snigdha</i> (unctuous) <i>dravya</i> • <i>Amla</i> (sour) <i>dravya</i> • <i>Lavana rasa</i> (salty food items) • <i>Nava anna, nava pana</i> (freshly grown grains, fresh beverages) 	<ul style="list-style-type: none"> • <i>Nidra</i> (sleep) • <i>Asya sukham</i> (sedentary habits) • <i>Tyakta vyayama</i> (no outdoor plays) • <i>Tyakta chinta</i> • <i>Samsodhana akurvata</i> (avoiding purification processes)

Unhealthy Lifestyle choices of children of modern era- Children learn by what we do, not by what we say. The unhealthy lifestyle choices of parents have been adopted by children of today's era. Excessive use of technologies like mobile, tablet, computer, television etc. made children sedentary. In earlier time, children used to spend more time in playing outdoor games while in present era children play video games more on computers and mobiles. These sedentary habits along with increased intake of fast food and fried food items made them obese

and more prone to early onset of diabetes mellitus type 2.

Management and prevention of type 2 diabetes mellitus on the basis of ayurvedic fundamentals

Nidanparivarjan (Avoidance of causative factors) - *Ahara*- Excessive intake of *madhura* and *snigdha* *ahar*, *navaannapana*, *anoopmansarasa* [meat preparations of aquatic animals], different preparations of *guda*

[prepared using sugarcane] should be avoided. *Vihara*- excessive indulgence in *nidra*(sleep), *swapnasukham*, *asyasukham* (sedentary habits) should be avoided.

Aharvidhi vidhan (manners of taking meal) - Type of *ahara* and method of intake of food affects food digestion and metabolism.

Aharvidhivisheshayatan(method of taking meal)- Food should be provided to child after the digestion of previous food or *jeernalakshanapekshah* i.e. when child feels hungry. This helps in maintain *jatharagni* of the child and *dhatwagni* will also work properly, so

all *dhatu* like *meda* etc. will be formed in proper way.

Matrapurvahara (appropriate quantity of food) - Child should be advised to take food in appropriate amount. Overeating must be avoided.

Nidra(Sleep)-Atinidra(excessive sleep) is the causative factor for obesity in term early onset of diabetes mellitus. *Madhumeha* is the *kapha dosha pradhan vyadhi* and *atinidra* vitiates *kapha dosha*.

Table showing normal sleep requirement in different pediatric age group on dosha prakriti basis-

S.no.	Age group	Sleep requirement		
		<i>Vata prakriti</i>	<i>Pitta prakriti</i>	<i>Kapha prakriti</i>
1.	New born	14-16 hours	16-20 hours	18-20 hours
	Infants[2-11 months]	12-14 hours	14-16 hours	16-18 hours
2.	Toddler[1-3 years]	10-12 hours	12-14 hours	14-16 hours
3.	Preschool[3-6 years]	8-10 hours	10-12 hours	12-14 hours
4.	School aged children[above 6 years]	7-8 hours	8-9 hours	9- 10 hours or more

Requirement of sleeping hours in different pediatric age group has been mentioned in modern view(AASM, 2006, Dr. Paderla Anitha et.al.) but the reference of sleeping hours requirement on the basis of fundamentals of *Ayurveda* is not found. So here the requirement of sleeping hours in different pediatric age group according to *dosha prakriti* is being proposed here on the basis of recommendations in modern view. The lower limit of the range is taken for *vata prakriti* child, the upper limit for *kapha prakriti* child and the middle range for *pitta prakriti* child on account of their varying sleep pattern.

Vyayam [exercise]- The obese children and adolescent with type 2 diabetes mellitus should be advised to play outdoor games and some yogic practices like *suryanamaskar*, *pranayam* and *asan* like *tadasan*, *salabhasan* etc.

Suryanamaskar is the best yoga practice for children .It is most important for the treatment of obesity .This practice has a unique influence

on the endocrine and nervous system helping to correct metabolic imbalance that cause and perpetuate obesity and thus helping in prevention of diabetes mellitus. Other important practice is *pranayam*. One of the basic preparations for *pranayam* is *nadi shodhan pranayam* or alternate nostril breathing which can be done by children easily .this type is found useful in diabetes as alternate nostril breathing has a calming effect on nervous system which reduces stress level helping in management and prevention of diabetes.

Guidelines for parents to prevent their child from diabetes mellitus

Dietetic regimen:

Oily and dried food articles like noodles, pizza, hamburger and hotdog buns, Frenchfries, pasta should be avoided.

The articles sweetened with sugar like chocolates, sweetcold drinks (soda) should not be taken.

Method of dieting:

Little water should be taken before meal.
Cold water and cold drinks should not be taken along with meal (especially just after meal)
There should be more fruits and vegetables in diet.
Fruits-*Bilva*[bael fruit] ,*Amalaki*(Indian gooseberry) ,*Bibhitaki* (beleric myroabalan) ,*Haritaki* (myrobalan), *Jambu*(jamun or black plum).
Vegetables-*Patol*(pointed gourd), *Shigru*(drumstick) *Trapusha* (cucumber) ,*Vartaka*(brinjal) ,*Grinjanaka*(carrot)

Liquids - Luke warm water in winter season while plane water [not cold] in summer season should be taken in evening time .Other liquids that are useful are warm water, butter milk, tilataila.
Physical activity- child should be promoted for physical activity that may be in the form of sports, morning walk or cycling. Sedentary habits should be strictly avoided.
Sleep- excessive sleep and day dreaming or nap [after lunch] should be avoided.

CONCLUSION

Lifestyle modification has very crucial role in the management and prevention of diabetes mellitus. Incidence of childhood diabetes mellitus type 2 has increased because of unhealthy lifestyle choices of children in present era. The guidelines provided in this article for

children to adopt a healthy lifestyle through *ayurveda* for better management and prevention of childhood diabetes mellitus have been found very helpful in our clinical practice. But evidence based experimental studies are required for its clinical establishment.

REFERENCES

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