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

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 apathyanismittaja (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 combined role in manifestation of sahaj prameha or madhumeha, although it may occur independently. Apathyanimittaja pramehi occurs due to indulgence of kapha dosha-medah dhatu vardhak ahara vihara. Some common etiological factors are asyasukham (sedentary habits), swapnasukham (sleeping in day time), anupa 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].

<table>
<thead>
<tr>
<th>Ahara (excessive intake of)</th>
<th>Vihar (excessive indulgence in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guru (heavy) dravya</td>
<td>Nidra (sleep)</td>
</tr>
<tr>
<td>Snigdh (unctuous) dravya</td>
<td>Asya sukham (sedentary habits)</td>
</tr>
<tr>
<td>Amla (sour) dravya</td>
<td>Tyakta vyayama (no outdoor plays)</td>
</tr>
<tr>
<td>Lavana rasa (salty food items)</td>
<td>Tyakta chinta</td>
</tr>
<tr>
<td>Nava anna, nava pana (freshly grown grains, fresh beverages)</td>
<td>Samsodhana akurvatam (avoiding purification processes)</td>
</tr>
</tbody>
</table>

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 snigdhaahar, 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 orjeernalakshanapekshah 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.

**Matrapurvak ahara (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 tern 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:

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

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. Suryanamskar 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 myrobalan), 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
