

THERAPEUTIC APPROACH TO *STHoola* AND *KRISA PRAMEHA*

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ABSTRACT

The world wide prevalence of Diabetic mellitus has risen dramatically over the past two decades from an estimated 30 million cases in 1985 to 285 million in 2010. Based on current trends the International Diabetes Federation projects that 438 million individuals will be having diabetes by the year 2030. The prevalence of type 2 Diabetic mellitus is rising more rapidly, because of reduced activity level and obesity. As per WHO report, currently half a billion people (12% of world's population) are considered obese. Here an attempt has been made to review therapeutic approach in the management of *prameha* as it is one among the major lifestyle disorder.

Keywords: Diabetic mellitus; *Krisa prameha*; *Sthoola prameha*

INTRODUCTION

The word "*prameha*" derived from the root "*mih sechane*" meaning watering i.e. dilution of *dhatus* in the body not only urine. In general *prameha* is considered as *madhumeha*.

- *Prameho madhumeha sabdavacha jneya*¹
- *Madhumeha sabdenayam sarva premeha-nukthaan*²

Sedentary lifestyle (*swapna sukham, mandol-saha...*), high carbohydrate and fat diet (*dadhi, guda, navannam*), family history, stress and obesity leads to *madhumeha*. *Acharya Susruta* clarifies that all *prameha*, if not treated properly, leads to *madhumeha* and it is *asadhya*. *Sarva eva pramehasthu kalenaprathikarinah mad-*

*humehatwamayanthi tadha asadhya bhavanthi*³. In *Susrutha Samhita* *prameha* is classified into *sahaja* and *apathya nimittaja*. *Sahaja prameha* is congenital as well as hereditary. They are lean, rough, eats less quantity and excessively thirsty. *Apathyanimittaja* are obese, glutton, unctuous and indulged in sedentary habits and sleep⁴. Similar classification can be found in *Bhela Samhitha* as *prakruthi prabhaavam* and *narasya swakrutham*. *Sahaja pramehi* is *krisa* and *apathya nimittaja pramehi* is *sthoola*. Hence *sthoola prameha* include the early stage of diabetes mellitus type-2 and *krisa prameha* as its later stage and type-1 diabetes mellitus.

- *Sthoola pramehi balavanihaika krisasthathanya paridurbalascha*

*Sambrimhanam tatra krisasya kaaryam samsodhanam doshabaladhikasya*⁵

In general *sthoola pramehi* are strong and *krisa pramehi* are weak and hence *sodhana chikitsa* and *brimhana chikitsa* are advised respectively.

The purpose of this article is to enlighten the details about management of *sthoola prameha* and *krisa prameha*.

1. *Sthoola prameha chikitsa*

Keeping in view that *kapha*, *meda* and *kleda* as causative for *prameha*, in the beginning, depletion therapies should be administered.⁶

- ...*sthoolam apatarpanayukthabhi*.⁷

Atra, apatarpayateeti apatarpanam langhanam, apatarpanaani vyayamasodhanaani tiktakatu-kaadikaani dalhanaa

For *snehapana*, as *poorvakarma* for *vamana* and *virechana priyangwadi ghrita* and for *asthapana basti surasadi kashaya* is advised by *Acharya*.⁸ *Medas* is abundant in the body of *sthoola pramehi*. Hence *swedana* is contraindicated⁹ and *theekshna sodhana* is indicated. They are *durvirechya* also.¹⁰

Different types of *vyayamas* mentioned by *Acharya*¹¹. *Dalhana* said *vyayamo angaanaam vividhaprakar ayaamah*.

1. *Chatra paadatra rahita munivarthana yojanam satham yaayaat*: 100 yojana walk with out umbrella and footwear, adhering to the life of ascetic.
2. *Salilaasayaan khanet*: Digging reservoir of water.
3. *Gosakrut mootravrutti gobhihi saha bhramet (mrugaihi saha vaset)*: Walking along with cows.

4. *Rookshagaadhamudvarttanam*: Hard, dry massage.
5. *Nisi Jaagarai*: Keeping awake at night.
6. *Yatchaaanyat sleshmamedoghnan bahirantashcha taddhitam*: Activities which are *kaphamedo hara*.
7. *Siloschravritti* Profession of sculpture.
8. *Brahmaranthramuddharet* Carry chariot of *Brahman*.
9. *Krishi*: Cultivate land.
10. *Snanajalavasekai*: Bath, sprinkling of water over body.
11. *Niyudha, kreedaa, gajaturagarathah*: Wrestling, sports, riding elephant, horse, chariot.
12. *Sasthropasthre*: Archery.

Adequate physical activity helps in correcting obesity which is a major modifiable risk factor of diabetes mellitus. Exercise program should be gradual and after assessing cardiovascular status especially after 35 years. Physical activities independently enhance insulin sensitivity and glucose tolerance. Exercise increases the skeletal glucose transporter protein GLUT4, which is responsible for insulin independent glucose transport into the skeletal muscle. Slow walk for half an hour will result in an expenditure of 50 calorie. Following a session of exercise, there is an increase insulin sensitivity which returns to baseline after 72 hrs of cessation of exercise. Missing exercise for more than 72 hrs may increase the blood glucose by 80-100 mg in subjects on oral hypoglycemic agents. This underlies the importance of persistent and regular exercise.

Table 1: Caloric expenditure in a 60 kg individual performing various forms of exercise for 60 minutes

Type of exercise	Caloric expenditure
Aerobics	450+
Cycling(moderate)	450+
Jogging (5m / hr)	500+
Gardening, digging	500+
Skipping with rope	700+
Running	700+
Swimming (Active)	500+
Walking (3m/ hr)	280
Table tennis	290
Gardening	350
Tennis	350+

There is an important relation between overweight and diabetes mellitus. There are only few number of insulin receptors on the walls of cells in over weight individuals. Hence more insulin is required for cells to absorb glucose. This gives an overwork to beta cells to produce insu-

lin. Failure of production of insulin leads to diabetes mellitus. By weight reduction, the number of insulin receptor sites increases and this reduces the severity of hyperglycaemia. This phenomenon is depicted in Figure 1.¹²

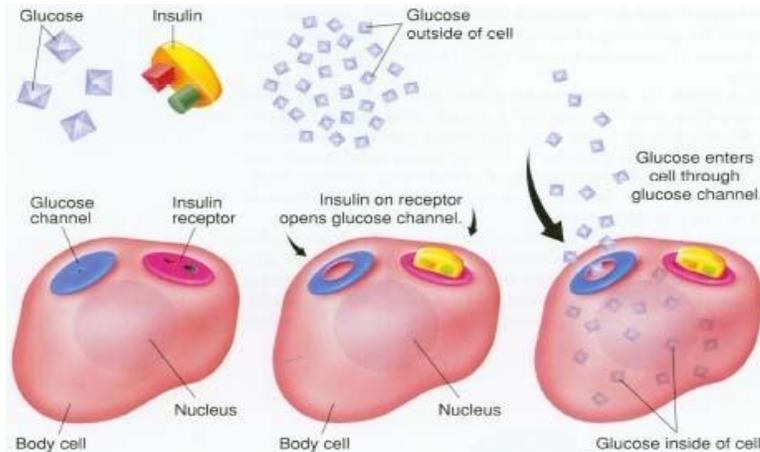


Figure 1: Behaviour of insulin receptors

As the birds are attracted towards the trees where nests lies, similarly *prameha* affects people who are leading sedentary life and who are voracious eaters. Immediately death comes in the form of *prameha* to those who are less enthusiastic, over unctuous and gluttons.¹³ This

shows the importance of exercise in management of *prameha*.

2. *Krisa prameha chikitsa*

*Tatra krusamannapanapratisamskrutaabhi kriya kriyaabhischikitset.*¹⁴ *Krisa pramehi* should be treated with food and drinks which

are *brimhana* but not *medomootrala*.¹⁵ If the patient of *prameha* who needs *samsodhana* therapy is not eligible for it, then he should be given *samana chikitsa*.¹⁶

Diet is the corner stone in management of diabetes. The objective of dietary therapy is the optimization of glycemic control and to provide a nutritious and balanced diet.

- The most important consideration should be given to

- (1) Calorie needs.
- (2) Proportion of calories from carbohydrates, fats and proteins.

Diabetic diet should have the ratio of 60:20:20 for carbohydrate, fat and proteins. The calorie requirements should be about 5% less than the actual requirements for the patient's height and ideal body weight. The dietary planning is based on the type of diabetes, weight of the patient, activity profile and the presence of co-morbid conditions.

- The ideal body weight for a subject of 5ft 4" will be 55kg. The calorie requirement for a sedentary person of 55 kg is 2400 calories. After deducting 5% the actual requirement of diabetic subject of same height and weight will be 2280 cal.
- If the subject is *krisa pramehi* he can be given high calorie diet (~ 2400-2500 cal) till he attains the ideal body weight. ie. Diet should be *laghu, santharpanam* for *krisa pramehi*. More protein rich food like nuts, pulses, cereals (*godhooma*) and *yooshas* can be given. But *pramehi* with complication like diabetic nephropathy should take reduced quantity of protein.
- If the subject is *sthoola pramehi*, the calorie intake should be reduced to ~1600cal till he

attains the ideal body weight. ie Diet should be *guru* and *apatharpanam* for *sthoola pramehi* like salads, green leafy vegetable, which are filling in capacity.

Some of the food preparations advised are *mantha, kashaaya yavachorna leha* (powder and linctus of barley), *laghu bhakshyaa yarovudanam* (which is *rooksha*), *vatya* (barley porridge), *sakthu* (roasted corn flour) *aapooa* (pancakes) mixed with meat soup of *vishkira pratuta vihanga jangalamriga, mudgaadi yoosha, thikthasaka, puranasaalyodana*. Cooked *shashtika thrinadhanya* mixed with *danthiingudi athaseesarshapa taila*. *Anna* and *paana* prepared from *yava* and *godhooma* soaked in medicated decoction. Medicated *taila* is indicated in *vataja prameha*.¹⁷

The principal ingredient of diabetic diet is *yava*. *Yava* soaked in the decoction of *triphala* and kept overnight should be mixed with honey. This is a *tarpana/brihmana* diet. It can be taken regularly. Proanthocyanidins, a secondary plant metabolite and an antioxidant supports the protective role of barley in diabetes. Barley improves the insulin sensitivity. Various eatables prepared from *venu yava godhooma*. Green leaves of edible plants, outer covering of nuts and grains are good source of manganese which has a major role in synthesis of natural insulin. Starch present in cooked ragi flour hydrolyzed more slowly than starch present in cooked rice flour. Hence Ragi does not increase blood sugar level rapidly. Jambu contains glucoside 'jamboline' reduces pathological conversion of starch into glucose. Whole grain products such as whole wheat breads, brown unpolished rice, oats, and barley are having lower glycaemic and insulinaemic responses than highly processed refined grains.

In insulin dependent diabetic mellitus, the total energy input has to be increased to ensure weight recovery and growth.

- In non insulin dependent diabetic mellitus, the calories need to be restricted, to decrease the weight. The foods which promote vascular complication have to be avoided.

Fiber consumption and Diabetes

Soluble fibres are present in legumes (dried beans, lentils) and fruits (apples). It helps in controlling blood sugar by delaying gastric emptying, retarding the entry of glucose into blood stream and lessening the post prandial rise in blood sugar. It may lessen insulin requirements in type 1. It can prevent the sudden spikes of blood glucose as it slows the digestion of food.

Insoluble fibre is present in wheat bran, whole grain breads, cereals fruits and vegetables. Vegetables are the protective food which provides all vitamins and minerals essential for the body. Fibre rich diet prevents constipation also.

Researchers discussed the importance of incretin¹⁸, a good source of fiber that helps to improve insulin sensitivity. Incretin is released from neuro-endocrine cells of GI tract following food ingestion. It amplifies glucose stimulated insulin secretion and suppresses glucagon secretion. The cholesterol lowering effect of soluble fibers reduces the risk of cardio vascular diseases also.¹⁸ Accordingly, people who habitually taking roasted barley, dry corn-flour, *mudga* and *amalaki* do not suffer from *prameha* etc.¹⁹ The individual who follows such *ahara vihara* brings normal state of *dhatu*s in the body and leads a happy life. This shows the importance of diet in management of *prameha*.

CONCLUSION

Diabetes mellitus can be prevented by changing the lifestyle despite genetic background.

Acharyas also stressed the role of exercise in the treatment of *prameha*. In many of the empirical studies the reduction in weight predicts a decrease in incidence of diabetes. Each kilogram of weight loss is associated with reduction in occurrence of diabetes. Lifestyle changes are better than pharmacotherapy.

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Source of Support: Nil

Conflict Of Interest: None Declared

How to cite this URL: Remya R Nath: Therapeutic Approach To Sthoola And Krisa Prameha. International Ayurvedic Medical Journal {online} 2017 {cited November, 2017} Available from: http://www.iamj.in/posts/images/upload/4209_4215.pdf