



MANAGEMENT OF MADHUMEHA WITH ASANA & METHI SEEDS, A REVIEW

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ABSTRACT

Madhumeha is a type of *Vataja Prameha*. Also called as *Ojomeha*. The ailment is taking on the population since recent decades. The cause may be a restive lifestyle, indulgence in the *kaphakaraka* and *Vata karaka nidana*, wrong food habits and busy schedules with abnormal-stressed lifestyle, changed eating habits and their patterns, inadequate sleep and non-observance of daily regime, seasonal regime, night regime etc. All these *nidana* lead to the viciation of *Vata Kapha* which further viciate *Oja* and lead to excessive urination. There is already wide description about the *sthula* and *krish pramehi* and the mode of treatment is based upon the same. *Brihana* line of treatment was said for *krisha* while *Samshodhana karma* was indicated for *Sthula* one. The *Asan* and *Methi* are among the several drugs used for the purpose. This study will help to findout the possible mode of action of the two drugs in the said condition.

KEYWORDS: *Madhumeha*, Diabetes mellitus, *Ojomeha*, *Asana*, *Methika*, *Trigonella foenum-graecum*, *Pterocarpus marsupium*.

INTRODUCTION

Prameha is classified as *Vataja*, *Pittaja* and *Kaphaj* types^[1] and further into twenty types. The *Vataj Prameha* is further classified into four subtypes, among which *Madumeha* is also one.^[2] The *nidana* drags the *Ojas* to the *Vasti* along with other *doshas* and *dhatu*s leading to excessive urination.^[3]

AIMS AND OBJECTIVES

To study Literary aspects of *Madhumeha* and the possible mode of action of drug *Asan* and *Methika* in its management.

Disease Description: The disease is explained well in *Brihut trayi* as well as the later texts.

NIDANA (ETIOLOGY)

Etiological factor can be classified according to the type ie. *Sahaja* and *Apathyanimittaja*.^[4]

1) Sahaja

Charaka has clearly narrated that *Madhumeha* is a *Kulaja Vikara* which results due to the defect in the *Beeja*.^[5] *Charaka* narrated that *Sahaja* type of diseases can occur due to defect in *Beeja*, *Beejabhaga* or *Beejabhagavayava*^[6] (Ch. Sha. 4/30) *Charaka* narrated that indulgence in excessive use of *Madhura Rasa* by mother at the time of pregnancy causes *Madhumeha* and *Sthaulya*.^[7] (Ch. Sha. 8/21).

2) Apathyanimittaja

Ahara

Dadhi Gramya, *Anupa*, *Audaka Mamsa Payaha Navannapana*
Guda Vikrita^[8] *Guru*, *Snigdha*, *Amla*, *Lavana*^[9]

Vihara

Asya Sukham Swapna Sukham^[10] *Diwaswapna*
Avyayayama Alasya^[11] *Sanshodhana Akurvata*m.

Manasa

Chinta^[12]

Samprapti of Prameha

According to *Sushruta*, the excessive indulgence in the etiological factors related to *Prameha* results into *Aparipakva Vata*, *Pitta*, *Kapha* and *Meda*, which further proceed downward through the *Mutravaha Srotasa* to get localized at *Basti Mukha* and thus leading to disease *Prameha*^[13] *Sushruta* also asserted that, if all the *Pramehas* are treated improperly or ignored get terminated into *Madhumeha*.^[14] *Vagbhata* narrated pathogenesis of *Madhumeha* very concisely. He indicated two types of pathogenesis i.e. *Dahtukshayatmaka* and *Avaranatmaka*.^[15] Further, *Vagbhata* interpreted that in all types of *Prameha*, the *Dosha* and *Dushya* remain same but still the difference in *Mutra Pravritti* is due to specific type of *Samyoga* between specific *Dosha* and *Anukula Dushya*.^[16]

Charaka has explained that the vitiated Vata dosha drags dhatus to mutrashaya and produces Vataja prameha^[17]

Madhumeha due to Shuddha Vata

Charaka says that due to kshaya of *Kapha* and *Pitta*, *Vata* gets provoked and causes the excretion of *Dhatus* (like *Vasa*, *Majja*, *Oja* and *Lasika*) through urinary tract resulting into *Madhumeha*.^[18]

Avritapathata (Avaranjanya) Madhumeha

Kapha and *Pitta* get provoked and vitiates *Meda* and *Mamsa*. All are in excess quantity. They in turn cause obstruction to the normal pathway of *Vata*. This obstructed *Vata* get provoked and draws out the *Apara Oja* from all over the body and carries it towards *Basti* causing *Madhumeha*.^[19]

Kala Prabhavaja Madhumeha

It is said that when all types of *Prameha* are ignored or not treated properly, they get transformed into *Madhumeha*. We can say that this is the last stage or further progression of *Kaphaja* and *Pittaja Prameha*.^[20]

PURVARUPA

Jatil Kesha, *madhurasyata*, *karpadyo suptata daha*, *mukh talu kanth shosha*, *pipasa*, *alasya*, *nidra*, *tandra*.^[21]

RUPA

Madhumeha patient excretes urine having *Kashaya* and *Madhura* taste, *Panduta* in colour and of *Ruksa* quality.^[22]

GENERAL SYMPTOMATOLOGY

(1) *Prabhutamutrata* (2) *Avilamutrata*^[23]

Associated signs and symptoms

Sahaja Pramehi: *Krishna Ruksha Alpashi Bhrisha Pipasa Parisaranshila*.

Apathyanimittaja: *Sthula Bahuashi Snigdha Shayyasanswapnasheela*.^[24]

Chikitsa

Nidana parivarjan is advised in *Prameha rog*.^[25]

TREATMENT ACCORDING TO BODY CONSTITUTION

Krishaprimehi

The one who is *Krishna* and *durbala* should be given *Brimhana Chikitsa*.^[26] For *Krish pramehi*, *Acharya Sushruta* advices *Aushadsiddha anna-pana* and *vamana-virechan* etc *kriya*.^[27] *Astanga Hrudaya* advices the *ahara* and *aushadha yog* which don't increase the *mutra* and *meda dhatu*.^[28]

Sthulaprimehi

For one who is *sthula* and *balwan*, *Sanshodhana* line of treatment is followed.^[29] The line of treatment is *Rukshan* as well and other treatment advised for *Sthula* persons.^[30]

Apatarpan Chikitsa is also advocated for *Sthula Pramehi*.^[31,32]

With understanding of above quotations, it is clear that in *Krishna* patient such foods should be used which are going to increase the strength of patient without increasing the vitiation and after proper strength gaining mild purificative measures can be used along with herbal medicine. In *Sthula* patient we have to apply *apatarpana Chikitsa* along with powerful purificative measures.

DRUG DESCRIPTION

Asana

Asana consists of heart-wood of *Pterocarpus marsupium* Roxb. (Fam. Leguminosae), a moderate to large sized, deciduous tree, upto 30 m high and 2.5 m in girth, with straight clear bole, found mostly throughout Gujarat, Madhya Pradesh Bihar and Orissa.^[33]

Synonyms

Sanskrit : *Bijaka, Pitasara, Asanaka, Bijasar*; Assamese : *Aajar*; Bengali : *Piyasala, Pitasala* English : *Indian Kino Tree*; Gujrati : *Biyo Hindi* : *Vijayasara, Bija*; Kannada : *Bijasara, Asana*; Kashmiri : *Lal Chandeur*; Malayalam : *Venga*; Marathi : *Bibala*; Oriya : *Piashala*; Punjabi : *Chandan Lal, Channanlal*; Tamil : *Vengai*; Telugu : *Yegi, Vegisa*; Urdu : *Bijasar*^[34]

Properties and action

Rasa: *Katu, Tikta, Kashaya*; *Guna*: *Laghu, Ruksha*; *Virya*: *Ushna*; *Vipaka*: *Katu*; *Karma*: *Kushtaghna, Rasayana, Kaphapittashamaka, Galadoshaghna, Keshya, Tvaccya, Stambhana, Raktasodhana*^[35]

Samprapti Vighatan

There can be avarana pathology so *katu, tikta, Kashaya rasa ruksha guna* can act over the *avaraka* like *Kapha* while the *avrita dosha vata* can be passified with *ushna virya*.

Active Principles

CONSTITUENTS – *Kino-tannic acid, Pyro-Catechin, Epicatechin, Alkaloids and resins*.^[36]

Pharmacological & Biological Activities

Glucose levels in rats with hyperglycemia induced by streptozotocin were determined after i.p. administration of marsupsin (1), pterosupin (2), and pterostilbene (3), three important phenolic constituents of the heartwood of *Pterocarpus marsupium*. Marsupsin and pterostilbene significantly lowered the blood glucose level of hyperglycemic rats, and the effect was comparable to that of 1,1-dimethylbiguanide (metformin).^[37]

The antidiabetic activity of various subfractions of the alcohol extract of the bark of *Pterocarpus marsupium* Roxb. was evaluated in alloxan-induced diabetic rats. The effect of these extracts on lipid profile and liver function tests were also assessed to evaluate their activity in controlling diabetes related metabolic alterations. The

parameters measured were plasma glucose, total protein, cholesterol, triglycerides, alkaline phosphatase, SGOT and SGPT. The results indicate the effective role of *Pterocarpus marsupium* on the above mentioned parameters indicating that *Pterocarpus marsupium* can also control the diabetes related metabolic alterations apart from controlling the glucose levels. Among the fractions tested the butanol subfraction was found to be more active in comparison with other subfractions. It can be concluded that the butanol subfraction of the alcohol extract of *Pterocarpus marsupium* exhibits significant antidiabetic activity and corrects the metabolic alterations in diabetic rats and this activity may resemble insulin-like properties.^[38]

The crude powder, ethanolic extract and aqueous, chloroform, hexane and n-butanol soluble fractions of ethanolic extract of heart wood of *P. marsupium* showed marked improvement on oral glucose tolerance post sucrose load in normal rats. All these fractions except aqueous fraction showed improvement on oral glucose tolerance post sucrose load on streptozotocin (STZ)-induced diabetic rats. The crude powder, ethanolic extract and hexane and n-butanol fractions showed marked decline in blood glucose level on STZ-induced diabetic rats. The ethanolic extract (100 mg/kg body weight) when given to STZ-induced diabetic rats for 10 consecutive days declined blood glucose, improved OGTT and increased their serum insulin levels. The ethanolic extract also showed marked improvement on oral glucose tolerance on high fat-low dosed STZ-induced diabetic rats and neonatally STZ treated rats. The ethanolic extract of *P. marsupium* also showed marked antidyslipidemic effects on high fat diet fed Syrian golden hamsters. Altered renal and hepatic function markers and serum insulin levels of high fat diet fed-low dosed STZ-treated diabetic rats were also found towards normalization when these animals were treated with ethanolic extract of *P. marsupium* for 28 consecutive days. The four out of five phenolic C-glycosides isolated from n-butanol fraction of ethanolic extract of *P. marsupium* enhanced glucose uptake by skeletal muscle cells (C2C12) in a dose dependent manner. It may primarily be concluded that phenolic-C-glycosides present in *P. marsupium* heart wood are the phytoconstituents responsible for the antihyperglycemic activity and validate the claim of antidiabetic activity of heart wood of *P. marsupium*.^[39]

Methi

Methi consists of seeds of *Trigonella foenum-graecum* Linn. (Fam. Fabaceae); an aromatic, 30-60 cm tall, annual herb, cultivated throughout the country.^[40]

Synonyms

Sanskrit: Methini; English: Fenugreek; Gujrati: Methi; Hindi: Methi; Kannada: Menthe, Mente; Malayalam: Uluva; Marathi: Methi; Punjabi: Methi; Tamil: Mendium, Ventaiyam; Telugu: Mentulu; Urdu: Methi.^[41]

Properties And Action

Rasa: Tikta; Guna: Snigdha; Virya: Ushna; Vipaka: Katu; Karma: Dipana, Kaphahara, Rucya, Vatahara.^[42]

Samprapti Vighatan

The *tikta rasa* and *katu vipaka* can act over the *avaraka dosha Kapha* while *ushna virya* and *snigdha guna* can passify the *avrita dosha Vata*.

Active Principles

CONSTITUENTS – Proteins, fats, carbohydrates, calcium, phosphorus, iron, potassium, vitamins, Alkaloid, Sapogenins and Mucilage.^[43]

Pharmacological And Biological Activities

Trigonella foenum-graecum seed powder (TSP) has been reported to have hypoglycemic and hyperinsulinemic action. The objective of the study was to examine the antidiabetic and neuroprotective role of TSP in hyperglycemia-induced alterations in blood glucose, insulin levels and activities of membrane linked enzymes (Na+K+ATPase, Ca2+ATPase), antioxidant enzymes (superoxide dismutase, glutathione S-transferase), calcium (Ca2+) levels, lipid peroxidation, membrane fluidity and neurolipofuscin accumulation in the diabetic rat brain. Female Wistar rats weighing between 180 and 220 g were made diabetic by a single injection of alloxan monohydrate (15 mg/100 g body weight), diabetic rats were given 2 IU insulin, per day with 5% TSP in the diet for three weeks. A significant increase in lipid peroxidation was observed in diabetic brain. The increased lipid peroxidation following chronic hyperglycemia was accompanied with a significant increase in the neurolipofuscin deposition and Ca2+ levels with decreased activities of membrane linked ATPases and antioxidant enzymes in diabetic brain. A decrease in synaptosomal membrane fluidity may influence the activity of membrane linked enzymes in diabetes. The present study showed that TSP treatment can reverse the hyperglycemia induced changes to normal levels in diabetic rat brain. TSP administration amended effect of hyperglycemia on alterations in lipid peroxidation, restoring membrane fluidity, activities of membrane bound and antioxidant enzymes, thereby ameliorating the diabetic complications.^[44]

An anti-hyperglycemic compound named GII was purified from the water extract of the seeds of fenugreek (*T. foenum-graecum*) and shown to be different from trigonelline and nicotinic acid isolated earlier from the same plant. GII (50 mg/kg body weight, po) reduced blood glucose in glucose tolerance test (GTT) in the sub-diabetic and moderately diabetic rabbits and significantly reduced the area under the curve (AUC) of GTT. Treatment for 7 days of the sub-diabetic rabbits with GII (50 mg/kg body weight, po) improved glucose tolerance without reducing fasting blood glucose (FBG) which was nearly normal. The results suggest that there is no risk of hypoglycemia in near normal animals (may be humans also) with abnormal GTT. Treatment of the moderately

diabetic rabbits with GII (100 mg/kg body weight for 3 weeks) reduced FBG to nearly normal value and improved GTT. GII was more effective than the standard drug tolbutamide. Intermittent therapy given on days 1-5, 11-15, 26-30 and 56-60 to moderately diabetic rabbits leaving in between days without treatment brought down FBG to normal and AUC during GTT was normal. After 15 days treatment with GII (100 mg/kg body weight for 3 weeks) glycosylated hemoglobin came down and insulin increased to normal values in the sub-diabetic, moderately diabetic and severely diabetic rabbits. GII treatment (100 mg/kg body weight for 15 days) brought down all the altered serum lipids (TC, HDLC, TAG, PLs and FFAs) to normal levels. The results suggest that intermittent therapy, instead of daily therapy is possible and GII has good potential as an oral anti-diabetic drug with intermittent therapy.^[45]

The effects of ethanol extract of *Trigonella foenum-graecum* (Fenugreek) seeds on the blood glucose levels in alloxan-induced diabetic rats at different doses (2g/kg, 1g/kg, 0.5g/kg and 0.1g/kg) were studied. The hypoglycemic effect of extract was compared with that of the standard antidiabetic drug (glimepiride, 4mg/kg) single dose. The extract showed significant activity against the diabetic state induced by alloxan but the intensity of hypoglycemic effect varied from dose to dose. The most effective dose recognized was 1g/kg but that is still lower than the standard antidiabetic drug. No acute toxicity was observed for ethanol extract of *T. foenum-graecum* seed when it was administered orally at high dose level (3 g/kg body weight), which is higher than effective antihyperglycemic dose, and closely observed for 24 hrs for any mortality and next 10 days for any delayed toxic effects on gross behavioral activities. Phytochemical group tests were also accomplished and presence of alkaloids, steroids and carbohydrates were recognized in the extract.^[46]

CONCLUSION

The drugs *Asana* and *Methika* are used in the treatment of *Madhumeha*. Hence, they were studied for their pharmacological properties and actions. Present day research studies confirm the properties. *Madhumeha* has been rising in present day society very fast because now a day's society has indulgence in improper diet and regimens. There is the need of very effective treatment in *Madhumeha*. so, an attempt was made to do the pharmacological study on effect of *Asana* and *Methika* on *Madhumeha* which showed a good result principally. Further, clinical studies are required for complete evaluation.

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