



Role of *Indra Vati* in the management of Type II Diabetes mellitus (*Madhumeha*) - A Review Article

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Abstract-

Diabetes is a disease of global concern. With increased modernisation and materialism its incidence is increasing day by day. This might be because of the adaptation of more sedentary lifestyle by the people. Diabetes mellitus is a disease in which there is either complete lack of insulin or there is resistance to the action of insulin disturbing the metabolism of carbohydrate, fats and proteins. According to Aetiological factor, pathogenesis and clinical features Diabetes mellitus correlated with *Madhumeha* in *Ayurveda*. *Madhumeha* is a type of *Vataja Prameha* in which patient passes honey like sweet urine (Raised level of sugar in urine & Hyperglycemia). It is one of the *Santarpanotha Vyadhi*. *Guru, Snigdha, Pichhila Ahara, Pishtanna*, excessive milk and milk products, lack of exercises are mentioned as the cause of *Madhumeha*. In today's context

excessive intake of all the fast food like pizza, burger etc which are *Guru* as well as made of refined wheat flour (*Pishtanna*), *Paneer*, cheese (milk products), and sweets made of jaggery or other substances comes under the *Aharaj Nidana* of *Prameha/Madhumeha*. Similarly, sedentary lifestyle comes under the *Viharaja Nidana*. Modern science also recognises these factors as a cause of diabetes mellitus. Though Type 2 DM was earlier common in middle aged population but nowadays even a younger group of people are found to have Type 2 DM. Due to wide spectrum of disease, lack of effective medicine, need of time is to go for cost effective, safe and efficient treatment of *Madhumeha*. Keeping all above points in mind the *Indra vati* has been selected to know the effect in treating *Madhumeha* (Diabetes Mellitus). *Indra vati* consists of 4 main contents, which are *Rasa sindoora*, *Vanga Bhasma*, *Arjun* and *Shalmali*.

Keywords– Diabetes Mellitus, *Madhumeha*, *Indra vati*.

INTRODUCTION-

Diabetes Mellitus (DM) is one of the lifestyle related and non communicable diseases. As a psychosomatic disease and due to most dangerous complications, DM has grabbed the attention of health community all over the world. Diabetes mellitus (DM) is a clinical syndrome characterised by hyperglycaemia due to absolute or relative deficiency of insulin¹. Several distinct types of Diabetes Mellitus are caused by a complex interaction of genetics and environmental factors. Factors contributing to hyperglycaemia include reduced insulin secretion, decreased glucose utilization and increase glucose production. Diabetes Mellitus can be classified into two broad categories: Type I DM and Type II DM. Type I DM is a result of absolute deficiency of insulin while Type II DM is a heterogeneous group of disorders characterised by variable insulin resistance, impaired insulin secretion and increased glucose production². Diabetes Mellitus usually presents with symptoms like polyuria, polydypsia and polyphagia.

Prameha or *Madhumeha* is the disease described in the *Ayurvedic* literature that correlates to the modern day Diabetes mellitus. In *Ayurveda* '*Madhumeha*' is considered as disease of vitiated *Vata* and *Kapha dosha* and *Agnimandya* is present in *Madhumeha*. *Aacharya Charaka* has used term "*bahudrava shleshma tatha avabadha meda*" in the description of *Prameha* and *Dushyas* involved in it are mainly *Meda*, *Mamsa*, *Kleda*, *Shukra*, *Shonita*, *Vasa*, *Majja* etc. are all *Kapha Vargiya* which indicates it is a multi system disorder. The prodromal features of *Prameha* are excess *Mala* in tooth, palate and tongue, burning sensation of hands and feet, oiliness in the body, excess thirst, sweet sensation in mouth according to *Madhavnidana* while additional features like sweetness in urine, foul breathe are mentioned in *Sushruta Samhita*.. Similarly *Aacharya Charaka* has mentioned gathering of ants towards the site of urination as one of the prodromal features of *Prameha*. According to *Sushruta* a patient with all or half premonitory signs and slight or marked increase in urine output should be considered as a patient of *Prameha*. Many of these

features can also be seen in patient with diabetes mellitus in complicated or non-complicated stages. Since there are many similarities in etiology and manifestations of *Madhumeha* and diabetes, So we can correlate *Madhumeha* with diabetes mellitus.

WHO estimates that globally 422 million adults aged over 18 years were living with diabetes in 2014. The global prevalence of diabetes has grown from 4.7% in 1980 to 8.5% in 2014, during which time prevalence has increased or at best remained unchanged in every country.³ According to IDF Atlas 2017, 425 million over age 20-79 years are diabetics and 629 million individuals will have diabetes by the year 2045.

Though many studies have been carried out for this burning problem, still there is need of evaluation of certain drugs clinically on various scientific parameters which could be safe, effective, cheap & readily available in the management of *Madhumeha*.

Rationale/Justification:

Despite the immense investment in drugs and therapeutics for the management of *Madhumeha*, its prevalence is increasing at an alarming rate. *Madhumeha* does not come alone; it brings with itself the various metabolic complications of hyperglycaemia both acute and chronic affecting every organ from head to toe. Once an individual is diagnosed with *Madhumeha* the dosage of medicine is ever increasing and ultimately insulin has to be given for glycaemic control. As *Madhumeha* is often associated with obesity, dyslipidaemia, hypertension, insulin resistance, known as metabolic syndrome, an

intervention capable of handling all these associated conditions is necessary.

In *Ayurveda* '*Madhumeha*' is considered as disease of vitiated *Vata* and *Kapha dosha* and *Dushyas* involved in it are mainly *meda, mamsa, kleda, shukra, shonita, vasa, majja* etc. *Agnimandya* is present in *Madhumeha*. So ideally in *Shamana chikitsa* such drugs should be used in its treatment which possess *Agni deepana* properties and should pacify the effects of aggravated *dosha* like *Katu, Tikta, Kashaya, Ruksha Dravyas*.

The drug *Indra vati* is having mainly the above said properties. The ingredients of these drugs are easily available, easy to administer in patients and cost effective.

Aims and Objectives:

- To explore an Ayurvedic oral Hypoglycaemic Formulation, which is safe, economical, easily accessible to the patients and also devoid of side effects.

Materials and Methods:

- Ayurvedic textbooks were referred to collect the relevant materials.
- The index, non-index medical journals were referred to collect relevant information.

Symptoms of Hyperglycemia⁴:

- Polydipsia (Thirst, dry mouth)
- Polyuria
- Hyperphagia, predilection for sweet foods
- Nocturia
- Tiredness, fatigue, lethargy

- Noticeable change in weight (usually weight loss)
- Blurring of vision
- Pruritus vulvae, balanitis (genital candidiasis)
- Nausea, headache
- Mood change, irritability, difficulty in concentrating, apathy

Clinical Feature of *Madhumeha* (Diabetes Mellitus) by *Ayurveda* -

- The clinical entity in which patient voids the urine having concordance with *Madhu* i.e. of *Kashaya* and *Madhura* taste, *Ruksha* (dry) texture and honey like colour and body acquires sweetness called *Madhumeha*⁵.
- In *Madhumeha* which is incurable and caused by the aggravation of *Vata*, the patient passes urine, sweet and astringent in taste, pale in colour and unctuous⁶.

Pathogenesis (*Samprapti*)-

Samprapti of '*Madhumeha*' is best described by *Acharya Vagbhata*. *Vagbhata* has divided it into two types according to *Samprapti*⁷.

- A. *Dhatukshayaja Madhumeha*
- B. *Aavaranjanya Madhumeha*

In *Aavaranjanya /Santarpanajanya Madhumeha* due to excessive indulgence of *Guru*, *Snigdha*, *Amla*, *Lavan Ahara*, *Kapha* and *Pitta* are vitiated. They block the natural pathway of *Vata*. Therefore aggravated *Vata* vitiates the *Dushya* like *Kapha*, *Meda*, *Mamsa* and the vital body components are excreted through urine. And *Oja* which is supreme part of all *Dhatus* is excreted ultimately.

In case of *Dhatukshayajanya/ Apatarpanajanya Madhumeha*, *Vataprakopaka Ahara-Vihara* leads to aggravation and vitiation of *Vata*. Therefore in this type *Vata* is becomes more harmful than the previous type. This aggravated *Vata* disturbs the normal metabolism of body and cause *Kshaya* of all vital *Dhatus*. In both these types *Apara oja* is excreted through urine. The first type of *Madhumeha* is considered to be *Asadhya* and no precise remedy has been suggested for it. But the later type has been told as *Krichhra Sadhya* and can managed with extensive treatment.

Besides this, one more process i.e. *Dhatvagnimandya* is important part of the *Samprapti*. As, in *Prameha* *Agni* is also disturbed due to various factors which disturb the balance of *Tridosha*. Therefore anything which is ingested is converted in *Ama*. So, the process of *Dhatuposhana* and *Dhatu-utpatti* is hampered. Again this *Agnimandya* is responsible for the *Dhatvagnimandya* of each *Dhatu*. In *Prameha*, especially *Medodhatvagnimandya* is observed. Therefore the treatment should be in path of restoration of *Agni* in its normal state and having *Kaphamedohara property*. It should also possess *Rasayana* and *Balya* effect as all *Dhatus* are involved and *Ojakshaya* is seen in the disease. Also in the *Madhumeha* (Diabetes Mellitus) there are degenerative changes in the body especially in the islets cells of pancreas which resembles *Dhatu Kshaya* in *Ayurveda*.

As per *Ayurveda* according to the potency of particular feature of etiology, *Dosha* (innate pathogenic factors) and *Dushyas* (substratum of pathology), response occurs in the form of

non-manifestation or otherwise of the disorders. When these three factors do not combine together or if combined after a long time or in weakened state, disorder will not be there, or it will manifest lately, or in a mild form or without all the said symptoms.

Drug Review:

Selection of drug is milestone in any research project because success of the project is

totally depends on that. In *Ayurveda*, the action of drugs is determined on the basis of pharmacodynamics properties such as *rasa*, *guna*, *veerya* and *vipaka* along with certain unexplained specific properties called *Prabhava (karma)*. These drugs in combination act as antagonist to the main morbid factors i.e. aggravated *dosha* and *dushya* to cause *Samprapti Vighatana* so as to allay the symptoms of the disease.

Indra Vati (Rasendra saar sangrah Prameha 2-3):

मृतं सूतं मृतं वङ्गमर्जुनस्य त्वचान्वितम् ।
तुल्यांशं मर्दयेत् खल्ले शाल्मल्या मूलजैद्रवैः ॥
दिनान्ते वटिका कार्या माषमात्रा प्रमेहहा ।
एषा इन्द्रवटी नाम्ना मधुमेहप्रशान्तिकृत् ॥

Table No. 1. Contents of Indra vati

S. No.	Constituents	Botanical Name/ Chemical Name	Parts Used	Quantity	Rasa	Guna	Veerya	Vipaka
1.	Rasa Sindoor	Red sulphide of mercury	<i>bhasma</i>	1 Part	<i>Katu, Tikta</i>	<i>Laghu, Ushna, Tikshna</i>	<i>Ushna</i>	<i>Katu</i>
2.	Vanga bhasma	<i>Stannum</i>	<i>bhasma</i>	1 Part	<i>Tikta, Kashaya</i>	<i>Laghu, Sara, Ruksha</i>	<i>Sheeta</i>	<i>Madhura</i>
3.	Arjuna	<i>Terminalia Arjuna</i>	Bark	1 Part	<i>Kashaya</i>	<i>Laghu, Ruksha</i>	<i>Sheeta</i>	<i>Katu</i>
4.	Shalmali (moola swarasa) bhavna dravya	<i>Salmalia Malabarica</i>	Root	As per requirement	<i>Kashaya, Madhura</i>	<i>Guru, Grahi, Sheetal</i>	<i>Sheeta</i>	<i>Madhura</i>

Methods of Preparation:

All ingredients of **Indra Vati** should be taken as above mentioned ratio (*Rasendra saara samgraha Prameha 2-3*) and should be prepared as per the **Sharangadhara Vati Kalpana**.

Probable Mode of Action of Indra vati :

Indra vati are as total four drugs, majority of contents having *Tikta, Kashaya* and *Katu rasa*, *Laghu, Ruksha Guna*. Out of them three have *Sheeta veerya* and one drug has *Ushna veerya*. Two drugs have *Katu Vipaka*, and two drugs have *Madhura Vipaka*.

Madhumeha is **dhatvagnimandyajanya** disorder and **abadha meda** is the main *dushya*, *dravit shleshma* is main *dosha*.

- So *Tikta* and *Katu rasa* predominant drugs will act on the *Aam* and will help to improve *dhatvagnimandya*. While *Kashaya ras* drugs acts on the *dravtva guna* of *shleshma* and *Abadhatva guna* of *meda*, .due to *Kashaya ras*, *dravtva* and *Abadhatva* will be reduced.
- *Ushna veerya* drugs helps to improve *dhatvagnimandya* while *Sheet veerya* drugs help to reduced *dravtva* and *sarnatvata* of *shleshma* and *meda*.
- *Ruksha* and *lagu guna* are help to Absorb or control the *drava guna* of *shleshma*.
- The **Rasayana** effect of some drugs (*Rasasindoor* and *Vanga bhasma*) in *Indra vati* helps in restoration of *Oja*. Even animal research works have shown the hypoglycemic effect of these constituents. So we can say that *Indra vati* can be useful in the management of diabetes mellitus.

Individual components of this compound *Rasasindoor*, *Vanga bhasma*, *Arjuna twak*

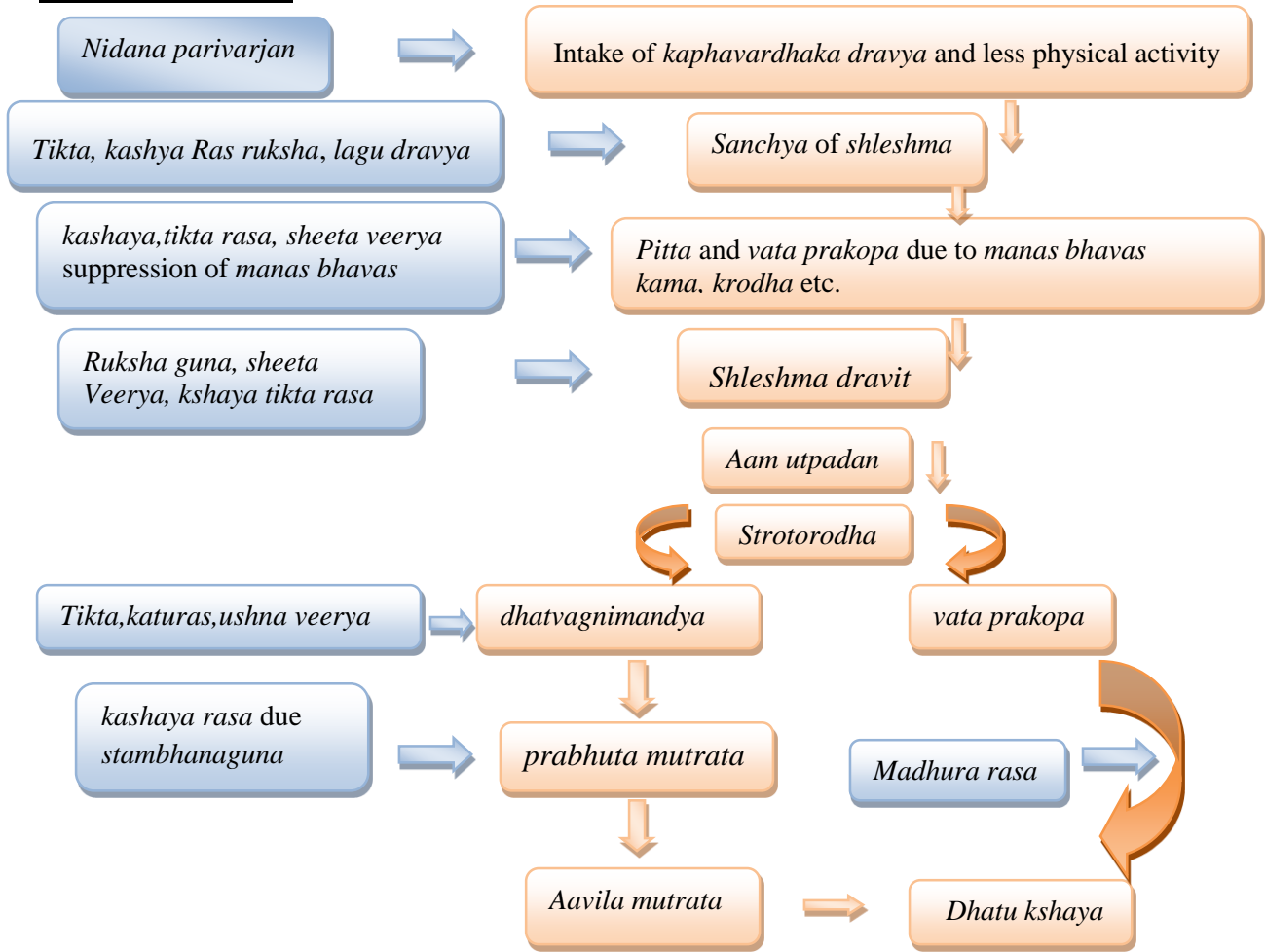
churna, and *Shalmali moola swarasa* have *Madhumehaghna* properties as in Ayurvedic literature (*Yogratnakar*, *Rasendra sara samgraha*, *Charak samhita chikitsa sthana*).

- ✓ *Rasasindoor* is *yogavahi, balya, vrishya, rasayan* in property, *Ushna* in *Veerya* and *Katu* in *Vipak*. It is *Kaphaghna* in *dosha karmata* so it may be beneficial in controlling *Madhumeha*.
- ✓ *Vanga bhasma* is *tikta kashay* in *rasa, laghu, sara, ruksha* in nature, *Sheeta veerya, madhura* in *Vipak*. It has the properties like *chakshuya, balya* and *vrishya, vatahara* and *sarvameha nashan* activity. *Vanga bhasma* is already proved as an anti diabetic agent^{8,9,10}.
- ✓ *Arjuna twak churna* is *kashaya* in *rasa, laghu* and *ruksha* in *guna, sheeta* in *veerya* and *katu* in *vipak*. It has *Kapha pitta shamak* activity, *sthambhak* and *varna ropan* properties. May be by its *sthambhak* property it controls the *prabhuta avila mutrata* or frequent *urination*. May be the *vranoropan* property helps in diabetic wound healing, which is the complications of diabetes.
- **Bhavaprakash** has attributed the *medohar* property to *arjuna* and *arjuna* is one of the constituent it might have also contributed in controlling the lipid profile thereby lipid metabolism. Thus controlling the lipid metabolism the drug as whole might have prevented the neoglucogenesis and thus regulated the diabetes.
- ✓ The *bhavna* drug *shalmali moola swarasa*, which is *kashaya madhura* in

rasa, guru, grahi and *sheetal* in *guna*, *sheeta veerya* and *madhura* in *vipak*. It has *stambhan* and *grahi* properties and

Vata Pitta shamak in nature. As *Madhumeha* itself is a *vataja meha*, may be beneficial in *Madhumeha*.

Samprapti vightana



Conclusion:

Thus the drug appeared successful in breaking the *dosha- dushya sammurchana*. *Dipana* and *pachana* effect of *katu* and *tikta rasa* would have acted upon *dhatvagnimandya* and **Rasayana** effect of *Rasasindoor* and *Vanga bhasma* in *Indra vati* helps in restoration of *Oja* and helped in normalising the body metabolism.

Diabetes Mellitus is a common chronic metabolic disease associated with substantial risk for morbidity and premature mortality. Medical therapy is just a part of the diabetes management and not a whole treatment. There are so many drugs available in modern medical science for the treatment of Diabetes Mellitus (*Madhumeha*) but they are

associated with adverse effects but Ayurvedic principles of management can help the patient to have better control of blood sugar with no adverse effects and makes free the dependency on medicine. So, *Indra vati* mentioned in *Rasendra saar sangrah* could play this role and can show it's

hypoglycemic effect. It is composed of *Rasa sindoora*, *Vanga Bhasma*, *Arjun* and *Shalmali*. Further, various researches have already been conducted in favour of their hypoglycemic effect. So we can use this medicine for the treatment of *Madhumeha* (Diabetes mellitus).

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