

EFFICACY OF *VIRECHANA KARMA* IN THE MANAGEMENT OF DIABETES MELLITUS TYPE 2

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Abstract— According to the official World Health Organization (WHO) data, India tops the list of countries with the highest number of diabetics. In 2014, 8.5% of adults aged 18 years and older had diabetes. In 2015, diabetes was the direct cause of 1.6 million deaths. Diabetes, particularly type 2 is associated with various cardiovascular diseases and it is the major cause of non-traumatic blindness and renal failure. Nowadays, there are a lot of options available to treat type 2 diabetes with the help of various anti-hyperglycemic medications, such as sulfonylureas, metformin etc. Although, these drugs have ability to reduce blood sugar level but has many adverse effects. On the other hand, Ayurveda, a science of life, has ability to treat Diabetes in holistic way. In Ayurveda, Diabetes Mellitus can be correlated with “Madhumeha” which is one of the vatic types of Prameha caused by vitiation of Vata due to Avarana of Pitta and Kapha. Ayurvedic approach to DM Type 2 management can provide a better option in preventing disease without causing any side effects. Panchakarma is a unique approach of Ayurveda which helps in revitalizing tissues, removing the root cause of disease. Virechana is the second procedure in the sequence of Panchakarma, mainly aimed at removing Pitta Dosha along with other doshas. Virechana stimulates liver which is the source of all metabolic functions of the body. So it can be hypothesized that in the early stage of insulin resistance or decreased insulin secretion, it can have drastic positive effects in the patients of DM Type 2.

Index Terms— World Health Organization, Diabetes, Ayurveda, Prameha, Avarana.

Running Title— Role of Virechana in DM Type 2

I. INTRODUCTION

Type 2 diabetes mellitus, or adult onset diabetes, is the most common form of diabetes. Diabetes mellitus is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both¹. Diabetes mellitus, commonly referred to as diabetes was first identified as a disease associated with "sweet urine," and excessive muscle loss in the ancient world². Diabetes is caused by a problem in the way the body makes or uses insulin. Insulin is needed to move glucose into cells, where it is stored and later used for energy³. With type 2 diabetes, body fat, liver, and muscle cells do not respond correctly to insulin. This is called insulin resistance. As a result, blood sugar does not get into these cells to be stored for energy which is a vital component for neural and vascular tissue health. When sugar cannot enter cells, high levels of sugar build up in the blood causing hyperglycemia. Type 2 diabetes usually occurs slowly over time. Most people with the disease are overweight when they are diagnosed. Family history and genes play a role in type 2 diabetes. Low activity level, poor diet, and excess body weight around the waist increase your chance of getting the disease.⁴ Chronic hyperglycemia of diabetes is associated with long-term damage, dysfunction and failure of various organs, especially the eyes, kidneys, nerves, heart, and blood vessels⁵. A diagnosis of type 2 diabetes can be made from simple blood tests including a hemoglobin A1c test of 6.5 or greater, random sugar test of 200 mg/dl or greater, fasting blood sugar of over 126 mg/dl, an oral glucose tolerance test of 200 mg/dl or greater, or any combination of the above⁶. According to recent classification, Diabetes can be classified into 5 types⁷:

Table 1: Recent Classification of Diabetes

Cluster 1: Severe autoimmune diabetes (SAID)	Autoimmune diabetes is generally diabetes that is classified traditionally as type 1 diabetes where the body's immune system attacks the pancreatic beta cells and stops the production and release of insulin hormone
Cluster 2: Severe insulin-deficient diabetes (SIDD)	The second cluster was patients who showed insulin deficiency and were GADA negative. These patients benefitted most from Metformin and had lower usage of insulin compared to cluster 1 despite being clinically similar to them in many ways.
Cluster 3: Severe insulin-resistant diabetes (SIRD)	These patients had a high degree of insulin resistance and a high HOMA2-IR index. They were likely to have higher BMIs and were overweight or obese
Cluster 4: Mild obesity-related diabetes (MOD)	These patients typically had high BMIs meaning they were obese or overweight but they did not show insulin resistance.
Cluster 5: Mild age-related diabetes (MARD)	They were usually older adults and their metabolic profiles were not as bad as the others.

However the former classification suggests four types of Diabetes Mellitus namely⁸-

1. Type 1 diabetes
2. Type 2 diabetes
3. Other specific types – Genetic defect of beta cell, Genetic defects in insulin etc.
4. Gestational diabetes in which Diabetes mellitus type 2 has its own importance.

The basic metabolic defect in type 2 DM is either delayed insulin secretion or the peripheral tissues are unable to respond to insulin. Type 2 DM has got complex aetiology but much less is known about its pathogenesis. A number of factors have been implicated though, they are:

1. Genetic Factors - There is approximately 80% chance of developing diabetes in the other identical twin if one twin has the disease.
2. Constitutional Factors – Certain environmental factors such as obesity, hypertension, and level of physical activity play contributory role and modulate the phenotyping of the disease.
3. Insulin Resistance - One of the most prominent metabolic features of type 2 DM is the lack of responsiveness of peripheral tissues to insulin⁹.

Treatment for type 2 Diabetes Mellitus includes orally administered anti-hyperglycaemic agents (OHAs) can be used either alone or in combination with other OHAs or insulin. The selection of drug is based on the requirement, fasting and postprandial blood glucose level and type of diabetes. These OHA's causes drastic side effects like Sulphonylureas causes headache and hypoglycemia. Similarly Biaguanides, commonest drug used nowadays causes Anorexia, Metallic taste and lactic acidosis. So there is a need of such type of treatment which do not cause any subsequent side effects rather it prevents the disease.

In Ayurveda, DM type 2 can be correlated with *Madhumeha*. According to classic Ayurvedic texts, DM and all *Pramehas* (urinary disorders) start with the derangement of *kapha* that spreads throughout the body and mixes with fat (*Meda*) that is similar in physical properties to *kapha* (mucus). *Kapha* mixed with fat passes into the urinary system, thereby interfering with normal urine excretion. Vitiating *pitta*, *vata*, and other

body fluids (*malas*) may also be involved in this blockade. This blockade is believed to be the cause of frequent urination observed in DM.

Madhumeha is a disease in which urine of the patient is sweet like honey and quantitatively increased as well as astringent, pale and rough (*ruksha guna*) in quality and the whole body of *Madhumehi* becomes sweet¹⁰. *Madhumeha* may not be described precisely in Ayurveda, but it points in the direction of the current knowledge we have about the disease with respect to neurological damage and insulin (*Ojas*) malfunctioning at the production (degeneration of islets of Langerhans in the pancreas) or at the utilization levels. The involvement of tissues (*dushyas*) leading to blood vessels, kidney, eye, and nerve damage is also described in Ayurveda as major complications. DM is described not only as a condition of *Madhumeha* (sugar loss in urine), but also as a condition of *Ojomeha* (immunity and hormone loss) in Ayurveda for the purpose of treatment. Ayurvedic therapies generally provide relief without any adverse effects even after prolonged administration. Following are the body constituents that are mainly involved in the pathogenesis to precipitate the disease *Madhumeha*. On the basis of various references, the *Samprapti Ghataka* of *Madhumeha* are described as follows –

Dosha: *Kapha: Bahu and Abaddha – in Avaranajanya Madhumeha.*
Kshina – in Kshayajanya Madhumeha
Pitta: Vriddha – in Avaranajanya Madhumeha
Kshina – in Kshayajanya Madhumeha
Vata: Avrita – in Avaranajanya Madhumeha
Vriddha – in Kshayajanya Madhumeha
Dushya: *Rasa, Rakta, Mamsa, Meda, Majja, Vasa, Shukra, Oja, Lasika, Kleda¹¹ and Sweda¹²*
Srotasa: *Mutravaha, Udakavaha, Medovaha*
Srotodushti: *Sanga, Atipravritti*
Agni: *Vaishamya* of all Agnis (or *Dhatvagnimandya*)
Adhithana: *Basti*
Ama: *Medogata (Ama produced due to Jatharagni mandya and Dhatvagnimandya)*
 Due to the presence of excessive *meda* in the body, *Madhumeha* patients are *Durvirechya*¹³, so *teekshna virechana*

has been prescribed for them. Other than that, Acharya Sushruta has also mentioned the importance of *Makshika*¹⁴ (*Swarna makshika* and *Rajata makshika*) and *Tuvaraka tail*¹⁵ in the treatment of *Madhumeha*.

II. DISCUSSION

Virechana is one of the *Panchakarma* therapies wherein purgation is induced by drugs and it specifically aims at the elimination of excessive *Pitta Dosha* along with *shleshma* and other *doshas* from the body. Vitiating *Dosha* is the basic factor in the manifestation and progress of any disease. *Panchakarma* therapy, specifically the *Samshodhana* like *Virechana*, is one of its kinds which aims at the elimination of vitiated *Doshas* from the body so that the disease could be prevented or if the pathology has already established, treated in the most effective manner. As per *Ayurveda* the, *Virechana* drug acts in *Pachyamana Awastha* i.e. the digestion of drug is in progress. *Virechana Karma* is the act of expelling *Doshas* through *Adhobhaga* i.e. *Guda*¹⁶. It is less stressful procedure, less possibility of complications and more acceptable to all classes of patients. It is considered the best treatment for morbid and increased *Pitta Doshas*¹⁷. *Virechana* is even a treatment for *Pitta Samsargaja Doshas*, *Kapha Samsrista Doshas* and also for *Pitta Sthanagata Kapha*. It is worth mentioning that *Virechana*, unlike the modern purgatives, is not merely an act to open the bowel, but is a complete therapeutic measure which has systemic as well as local effects. *Virechana* removes aggravated *Pitta* and clears all channels of body, *Jatharagni* gets kindled and lightness sets in¹⁸. *Virechana* drugs are having *Ushna*, *Sukshma*, *Vikashi*, *Teekshna*, *Vyavayi* and *Adhobhaga Prabhava* properties. These drugs consist of *Prithvi* and *Jala Mahabhootas* which are heavy in nature and thus help in expulsion of *Dosha* from *Adhobhaga*. They get absorbed and due to *Virya* it reaches to the *Hridaya* then the *Dhamanies* and thereafter it reaches to macro and micro-channels of the body.

In *Madhumeha*, the therapeutic efficacy of *Virechana karma* can be illustrated through two pathways;

- Firstly, *Virechana karma* removes *bahu drava shleshma* and *pitta* from *Vayu sthana* which leads to *Pradeepan* of *dhatwagni* which in turn results in maintenance of *Dosha-dhatu* equilibrium which is beneficiary for the formation of *Uttarottar dhatu* and their nourishment. Each and every cell gets nourished through *Rasa & Rakta dhatu* which enhances the production of essence of *dhatu Oja* in the body which is responsible for *vyadhikshamatva* (immunity). Decrement of *Oja* is the major casualty in *Madhumeha* which gets corrected through *Virechana*.

- Secondly, *Virechana* directly acts on Liver which is the main site of all enzymatic activities thereby increasing the metabolic activity. Thus *Virechana* corrects the mal-production of glucose in the liver and brings a state of equilibrium thereby suppressing the signs & symptoms of *Madhumeha* (DM Type 2).

Also it causes *Samprapti Vighatana* of the disease *Madhumeha*:

Virechana effect at Dosha level- *Virechana* is told as the best treatment of *Pitta* but it is also a treatment of *Kapha Dosha* esp. which is situated in *Pitta sthana*. *Kapha Dosha* has similar property to that of *Meda Dhatu & Kleda*, which is major *Dushya* involved in the pathology of *Madhumeha*.

Effect at Dhatu level- According to Acharya Charaka, all the *Poorvarupa* in *Prameha roga* is due to *Meda dhatu pradushti* and Acharya *Kashyapa* mentioned that *Shuddhi* of *Saptadhatu*s take place with the *Virechana karma*. Hence in majority of the *Dhatu pradoshaja Vikaras*, *Virechana karma* is more beneficial.

Effect at Ama and Agni- As it is a disorder arising due to vitiation of *Agni* mainly, *Dhatwagni*. *Virechana* removes *Avarana* of *Vayu* in *Kostha*. It also corrects the *Medo Dhatwagni*. Therefore, the formation of *Uttarottar dhatu* is increased, while the formation of *Meda & Kleda* is decreased.

Effect at Srotas level - *Mutravaha*, *Udakavaha*, *Medovaha Vaigunya* are involved in pathogenesis of *Madhumeha* which will be corrected by *Virechana*. So, by breaking pathology at *Srotas* level it pacifies the disease.

Effect as Aptarpaka Chikitsa- *Madhumeha* is a *Santarpanjanya Vyadhi*. *Virechana karma* is mentioned in the treatment of *Santarpanjanya Vyadhi*. It also flushes out excessive *Ambu Dhatu* which is one of the *dushyas* in *Madhumeha*.

III. CONCLUSION

Diabetes Mellitus Type 2 can be co related to *Prameha* and *Madhumeha* described within the topic "*Prameha*". This disease is clearly explained in *Ayurveda*. *Virechana karma* can be highly efficient in relieving sign & symptoms of DM Type 2 by acting at the root level of disease pathology. Thus *Virechana* can be used for the effective and safe management for cases of DM Type 2.

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