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"A LITERATURE REVIEW ON MADHUMEHA WITH SPECIAL REFRENCE TO TYPE 2 DIABETES MELLITUS"

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ABSTRACT:

Madhumeha, commonly known as Type 2 Diabetes Mellitus in modern medical science, is a condition described in Ayurveda under the category of Vataj Prameha. This disease is characterised by the excessive passage of urine that is sweet, astringent in taste, slightly turbid, and pale in colour. Madhumeha can be correlated with diabetes mellitus in contemporary medicine. Today, it is often referred to as a silent killer due to its gradual onset and severe complications if left untreated. According to Ayurveda, Madhumeha can be effectively managed through dietary modifications, regular exercise, and appropriate medication. Ayurveda, the ancient Indian healthcare system, has been practised since the beginning of civilisation and offers holistic approaches for managing chronic diseases like Madhumeha. Lifestyle illnesses such as DM have become more serious and are increasing dramatically worldwide. Type-2 diabetes is responsible for about 80% of the cases. Clinical symptoms and prognosis of Madhumeha are similar to diabetes mellitus.

KEY WORDS:- Diabetes Mellitus, Madhumeha, Prameha, Vataj, Pittaj, Kaphaj.

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INTRODUCTION

Prameha is described as a group of disorders marked by increased frequency and volume of urination, often accompanied by turbid urine. According to the Acharyas, in Madhumeha, there is a vitiation of Vata-Kapha-dominant Tridosha, involving Meda (fat tissue), other Dhatus (body tissues), and Ojas (vital essence) as the Dushya (affected components), which are excreted through the Mutravaha Srotas (urinary channels). A similar condition in modern medical science is known as diabetes mellitus. Type 2 Diabetes Mellitus (T2DM) comprises a group of metabolic disorders characterised by persistent hyperglycaemia, excessive urination (polyuria), excessive thirst (polydipsia), increased hunger (polyphagia), weight loss, and fatigue. These symptoms result from disturbances in carbohydrate, fat, and protein metabolism due to a relative or absolute deficiency in insulin secretion and/or action.[1] Diabetes Mellitus has recently emerged as a major global health concern, often referred to as a “silent killer” due to its subtle onset and serious long-term effects. The World Health Organisation (WHO) has identified India as the country with the fastest-growing diabetic population. It is projected that between 1995 and 2025, the number of diabetic patients in India will increase by 195%. One of the main challenges with diabetes is its difficulty to detect in the early stages. However, adopting an Ayurvedic preventive approach from the outset can significantly reduce the risk of developing the condition or help manage it effectively if already diagnosed. Diabetes Mellitus is a medical condition characterised by elevated levels of glucose in the blood and urine, a state referred to as hyperglycaemia. The term "diabetes" originates from the Greek word meaning “to syphon through", while "mellitus" is derived from the Latin word meaning “sweetened with honey”, indicating the presence of sugar in the urine. This disorder is metabolic in nature and primarily results from the malfunctioning of the pancreas, which fails to produce adequate amounts of insulin, the hormone responsible for regulating blood sugar levels.[2]

AIM & OBJECTIVE

To study and review the concept of Prameha / Madhumeha Roga from different Ayurvedic literature.

MATERIAL AND METHOD:-

A material review of literature is presented here after thorough study of Ayurvedic classics, journals, the internet and the latest research papers published in its context and compiling references from Ayurvedic as well as modern medical texts and previous research work on this subject.

REVIEW OF LITERATURE [3]

परिभाषा (Definition)

प्रमेह (Prameha)

"प्रकर्षेण प्रभूतं प्रचुरं बारं बारं वा मेहितमूत्रत्यागं करोति यं मन्मरोगे सः प्रमेहः" — Madhava Nidana

Prameha refers to a group of disorders characterised by excessive and frequent urination, often turbid and sometimes unctuous in nature.

मधुमेह (Madhumeha)

Madhumeha is a specific type of Prameha in which the patient passes urine that is sweet in taste and honey-like in colour and consistency. It reflects the derangement of body metabolism leading to sweetness prevailing in the entire body system.

NIDANA (Causative Factors)

"आस्यसुखं स्वप्नसुखं दधीनि ग्राम्यौदकानूपरसाः पयांसि।

नवान्नपानं गुडवैकृतं च प्रमेहहेतुः कफकृत् च सर्वम्॥" — Charaka Chikitsa 6/4

Causative factors contributing to the development of Prameha include:

- Asya Sukham: Sedentary lifestyle, prolonged sitting, indulgence in luxury.
- Svapna Sukham: Excessive and improper sleep habits.
- Excess consumption of curd (Dadhi).
- Consumption of meat from domesticated, aquatic, and marsh-dwelling animals (Gramya, Audaka, Anupa Rasa).
- Overuse of milk and dairy products.
- Navanna & Paanam: Intake of newly harvested grains and freshly fermented alcoholic beverages.
- Guda Vaikritam: Jaggery-based preparations and excessive sweets.

All dietary and lifestyle practices that enhance Kapha Dosha, along with Sahaja (hereditary) factors, are responsible for the pathogenesis of Prameha.

PURVARUPA (Prodromal Symptoms)

"दन्तादीनां मलाढ्यत्वं प्राग्रूपं पाणिपादयोः।

दाहचिक्किता देहे तृष्णा स्वाद्वान्यं च जायते॥" — Madhava Nidana 33/5

The premonitory symptoms of Prameha/Madhumeha include:

- Accumulation of waste over the teeth (dental plaques).
- Burning sensation in hands and feet.
- Excessive smoothness and oiliness of the skin.
- Persistent thirst (Trishna).
- Sweet taste in the mouth (Madhura Aswad).

RUPA (Clinical Features)

- Avila Prabhuta Mutrata – Passage of large quantities of turbid urine.
- Polyuria – Increased frequency of urination.
- Polyphagia – Excessive hunger or appetite.
- Polydipsia – Excessive thirst.
- Turbidity in urine.
- Debility – Generalized weakness and fatigue.
- Weight loss.
- Non-healing ulcers.
- Visual disturbances.
- Inflammation of the glans penis (in male patients).

In elderly diabetic patients, the presentation may differ from the classical symptoms such as polyphagia, polyuria, polydipsia, and weight loss. Instead, they may present with:

- Anorexia
- Failure to thrive
- Loss of motivation
- Fatigue
- Impaired concentration

CLASSIFICATION:- [4,5]

I. Based on Etiology (Nidana)

Prameha is classified into two main types according to its origin:

Sahaja Prameha (Hereditary):

This type is caused due to Matru-Pitru Beeja Dosha, i.e., chromosomal or genetic defects inherited from parents.

Apathya Nimittaja Prameha (Acquired):

This form results from the consumption of unwholesome food and indulgence in improper lifestyle habits, such as lack of physical activity, overeating, or excessive consumption of sweet and heavy foods.

II. Based on Physical Constitution and Nutritional Status

Apatharpana Uthaja Prameha:

This refers to lean-type diabetes, arising in individuals with tissue depletion and malnourishment.

Santharpana Uthaja Prameha:

This represents obese-type diabetes, occurring in individuals with excessive nourishment and accumulation of body tissues, particularly Meda (fat).

III. Based on Dosha Predominance

Prameha is further classified into twenty types, based on the predominance of the Doshas:

- Vataja Prameha – 4 types
- Pittaja Prameha – 6 types
- Kaphaja Prameha – 10 types

Out of these, Madhumeha, which closely resembles Diabetes Mellitus, is categorized under Vataja Prameha and is considered one of the most severe forms.

SAMPRAPTI GHATAKAS:- [6]

(Contributory Factors in Pathogenesis)

Verse Reference – Charaka Chikitsa 6/8:

"कफः स पित्तः पवनश्च दोषा

मेदोऽस्रशुक्रम्बुवसालसीकाः।

मज्जा रसौजः ममांसतश्च

द्वेष्याः प्रमेहिणां विशेषतो मेहाः॥"

The following components are involved in the samprapti (pathogenesis) of Madhumeha/Prameha:

1. Dosha :

- Vata
- Pitta
- Kapha

2. Dushya (Affected Body Elements):

- Meda (fat tissue)
- Mamsa (muscle tissue)
- Kleda (body fluid)
- Rakta (blood)
- Vasa (muscle fat)
- Majja (bone marrow)
- Lasika (lymph)
- Rasa (nutritive plasma)
- Ojas (vital immunity)

3. Srotas (Body Channels): Mootravaha Srotas (urinary system)

4. Srotodushti (Channel Dysfunction): Atipravritti – Excessive flow of urine and fluids

5. Agni (Digestive & Metabolic Fire): Dhatvagni Dushti – Impaired tissue-level metabolism

6. Udbhava Sthana (Site of Origin): Koshtha (abdominal cavity – primarily digestive organs)

7. Vyaktasthana (Site of Manifestation): Mootravaha Srotas (urinary tract)

RISK FACTORS:-

- Family history
- Obesity (BMI > 27kg/ m2)
- Age > 45 years
- Hypertension (B.P. > 140/ 90 mm of Hg)
- HDL < 35mg/ dl and/ or triglycerides levels > 250mg/ dlHabitual physical inactivity

COMPLICATIONS:-

In the advanced stages of Diabetes Mellitus, several complications may develop due to prolonged hyperglycemia and systemic deterioration. Common complications include:

- Burning sensation in the palms and soles – A manifestation of diabetic neuropathy, resulting from nerve damage.
- Recurrent boils and carbuncles – Occur due to impaired immunity and poor skin healing.
- Gangrene formation – Arising from reduced peripheral circulation and secondary infections.
- General debility – A feeling of overall weakness and reduced vitality.
- Diabetic retinopathy – Progressive damage to the retina, potentially leading to visual impairment or blindness.
- Diabetic nephropathy – Chronic kidney damage due to prolonged exposure to high blood glucose levels.
- Cardiovascular complications – Including conditions such as coronary artery disease, hypertension, and increased risk of stroke.

INVESTIGATIONS:-

The diagnosis and monitoring of Diabetes Mellitus require several laboratory investigations, including:

- Plasma Glucose Estimation:-
  1. Random Blood Sugar (RBS): Measures glucose level at any time of the day, regardless of meals.
  2. Fasting Blood Sugar (FBS): Assesses glucose level after at least 8 hours of fasting.

3. Postprandial Blood Sugar (PPBS): Measures glucose levels 2 hours after a meal.

- Urine Analysis:- Routine and Microscopic Examination: Helps detect the presence of glucose, protein, ketones, and signs of urinary tract infections.
- Glycosylated Hemoglobin (HbA1c):- Reflects the average blood glucose concentration over the previous 2–3 months, and is crucial for long-term glycemic control assessment.

Diagnostic Criteria for the Diagnosis of Diabetes Mellitus

The diagnosis of Diabetes Mellitus is established by evaluating blood glucose levels in conjunction with the presence of clinical symptoms. The key diagnostic parameters are as follows:

1. Fasting Plasma Glucose (FPG):

- Normal: Less than 110 mg/dl
- Impaired Fasting Glucose (IFG): Between 110 mg/dl and 125 mg/dl
- Diabetes Mellitus: 126 mg/dl or higher

2. Random Plasma Glucose:

- A random blood glucose level exceeding 200 mg/dl, along with typical symptoms of diabetes, confirms the diagnosis.

3. Two-Hour Postprandial Plasma Glucose (2-h PPPG):

- Normal: Less than 140 mg/dl
- Impaired Glucose Tolerance (IGT): Between 140 mg/dl and 199 mg/dl
- Diabetes Mellitus: 200 mg/dl or higher, with associated clinical symptoms

Diagnosis is confirmed by correlating clinical signs and symptoms with abnormal plasma glucose values, as per the above criteria.

MANAGEMENT APPROACH:- Prevention of Prameha

यैहेतुिभयवप्रभविन्त मेहामतेषुप्रमेहेषुन तेिनषेवयाः ।

वा िविहता यथैव जातमय रोगमय भवेिच्चिकत्सा ॥(Ch-Chi: 6/53)

The causative factors responsible for the onset of Prameha should be completely avoided. Prevention is considered the foremost step in the management of the disease.

A. Preventive Measures

Dietary Modifications:

1. Regular consumption of certain foods is considered beneficial in the prevention of diabetes (Madhumeha), including:

- Yava (barley), Mudga (green gram), pumpkin, cucumber
- Old rice, bitter gourd, drumstick
- Methi (fenugreek), Patola (snake gourd), Bimbi, watermelon
- Buttermilk, Triphala, and similar light, astringent, and bitter substances
- Dinacharya (Daily Routine) and Ritucharya (Seasonal Regimen):Maintaining a disciplined lifestyle and adapting to seasonal changes promotes metabolic balance.
- Carbohydrate Control:Reducing the intake of refined carbohydrates helps in regulating blood glucose levels.

2. Regular Physical Activity:Daily exercise such as brisk walking, swimming, or yoga for at least 30 minutes, 4–5 days per week, is strongly advised.
3. Use of Rasayana (Rejuvenative) Therapies:Rasayana formulations like Amalaki Rasayana support immune strength and metabolic health.
4. Dietary Restrictions:Limit intake of sugar and sugar-based products, fried items, and dairy products.
5. Avoidance of Heavy and Rich Foods:Refrain from consuming alcohol, cakes, excessive oil, ghee (clarified butter), milk, sugarcane derivatives, and meat from aquatic or domesticated animals.
6. Avoid Daytime Sleeping:Daytime sleep increases Kapha and should be avoided to prevent metabolic derangement.

B. Medical Management

1. Nidana Parivarjana (Avoidance of Causative Factors):

The first and foremost step in treating Prameha is eliminating the root causes:Avoid foods high in fat, sugar, and carbohydrates Refrain from tubers, sweets, dairy, fried foods, soft drinks, and sugary fruits

2. Specific Line of Treatment (Chikitsa Sutra)

मथूलः प्रमेही बलवानिहैकः कृशमतथैकः पररदुबवलश्च । संबृंहणं तत्र कृशमय कायंसंशोधनं दोषबलाधिकमय ॥ (Ch. Chi. 6/15).

In the management of Prameha, patients are categorized based on body type and strength. For obese and strong individuals, purification (Samshodhana) therapies are advised, while lean and weak patients should be treated with palliative (Shamana) therapies.

Treatment Based on Body Constitution:

Obese Diabetic Patients (Sthoola Pramehi): Undergo Samshodhana Chikitsa (bio-purificatory therapies), including:

- Vamana (therapeutic emesis)
- Virechana (therapeutic purgation)
- Basti (medicated enema) These are administered after proper assessment of the patient's strength and condition.

Lean or Weak Diabetic Patients (Krisha Pramehi): Managed with Shamana Chikitsa (palliative therapy) focusing on strengthening the body and stabilizing metabolism.

DRUGS:- [7,8,9]

A wide range of Ayurvedic drugs and formulations are available for the management of Prameha (Diabetes Mellitus). Most of these medicinal substances possess bitter (Tikta) or astringent (Kashaya) tastes, which are beneficial in correcting fat and carbohydrate metabolism disorders.

Commonly Recommended Drugs:

- Shilajatu –Considered one of the primary choices in the management of Madhumeha, Shilajatu supports metabolism and enhances the body's natural detoxification processes.
- Guggulu –Particularly useful in obese individuals due to its well-documented hypocholesterolemic effect. It helps reduce excess fat and supports healthy lipid profiles.
- Haritaki (Terminalia chebula) and Amalaki (Emblica officinalis) –Both are Rasayana (rejuvenative) drugs and contribute to improving digestion, elimination of toxins, and strengthening immunity. Amalaki, rich in Vitamin C, also helps in glucose regulation.

These drugs not only help manage blood sugar levels but also address associated Kapha and Medo-dhatu (fat tissue) vitiation commonly seen in diabetic individuals. Their regular and guided use under a physician's supervision can provide significant long-term benefits in managing Prameha.

Single Drug Formulations

- Guduchi Swarasa (Tinospora cordifolia)– Administer 10 ml twice daily mixed with honey.(Ashtanga Hridaya Chikitsa 12/6)
- Amalaki Churna (Phyllanthus emblica)–Take 6 grams twice daily with honey.(Ashtanga Hridaya Uttara Tantra 40/48)
- Karavellaka Phala Churna (Momordica charantia)– Consume 3 grams twice daily with water.(Dravyaguna Vijnana, P.V. Sharma, Vol. II, p. 685)

Compound Preparations

- Tablet Chandraprabha –500 mg, to be taken twice daily with either water or milk.(Sharangadhara Samhita, Madhyama Khanda)
- Tablet Vasant Kusumakara Rasa –125 mg, to be administered twice daily along with honey.(Rasaratna Samuccaya, Rasayana Vajikarana Adhikara)
- Nisamalaki Vati –Administer 500 mg three times a day, along with Triphala Kashaya.
- (Ashtanga Hridaya, Prameha Chikitsa)
- Tablet Suvarna Malini Vasant Rasa (Ayurveda Sar Sangraha) –125 mg, to be taken once daily.

- Tablet Arogyavardhini –500 mg, to be administered twice daily.
- Trivanga Bhasma –100 mg, to be taken twice daily.

Yogic Practices

Certain yogic postures are believed to help stimulate pancreatic function and enhance its performance. These practices can be beneficial in managing Diabetes Mellitus. However, it is crucial that they are performed under the supervision of a qualified yoga therapist. The duration and intensity of each posture should be tailored to the individual by the therapist.

Recommended Yogic Asanas:

Kati Chakrasana, Tadasana, Pavanamuktasana, Gomukhasana,

Shalabhasana, Vakrasana, Shashankasana, Dhanurasana,

Mayurasana, Paschimottanasana, Ushtrasana, etc.

Pranayama Techniques:

Bhastrika, Bhramari, Surya Bhedana Pranayama

Cleansing (Shodhana) Practices:

Kunjal Kriya, Shankhaprakshalana, Vastra Dhauti

Rasayana Chikitsa (Rejuvenation Therapy)

- Acharya Sushruta and Acharya Vagbhata have advocated the use of Shilajatu as a Rasayana (rejuvenative) therapy in the management of Madhumeha (Diabetes).
- In addition to Shilajatu, Acharya Sushruta has recommended the use of Swarna Makshika for treating Madhumeha.
- According to Vagbhata, Shilajatu possesses strong rejuvenative properties and is highly effective even in chronic or seemingly incurable cases of Madhumeha.

DISCUSSION

Madhumeha, categorised under Vataj Prameha, is primarily a disorder of the Mutravaha Srotasa with Kapha predominance. It closely resembles the modern condition known as diabetes mellitus. Although diabetes is often perceived as a modern health issue, it is not a newly emerged disease. Its prevalence has increased significantly in recent times, largely due to sedentary lifestyles and rising rates of obesity. Madhumeha can be effectively prevented by adopting appropriate lifestyle changes, regulating diet, and managing body weight. In the present study, a specially designed Ayurvedic dietary and lifestyle regimen demonstrated the potential to help maintain the glycaemic levels in patients with Madhumeha (diabetes

mellitus). The rapid increase in diabetes cases is closely linked to a growing trend of physical inactivity and poor dietary habits. However, Ayurveda offers a holistic approach for prevention through various measures such as Aharavidhi (dietary principles), Dincharya (daily regimen), Ritucharya (seasonal regimen), and specific therapeutic interventions. By implementing these Ayurvedic principles—through a balanced diet, routine, physical activity, and appropriate medications—Madhumeha (diabetes mellitus) can be managed effectively and even prevented in many cases.

CONCLUSION

Madhumeha (Diabetes Mellitus) can be conservatively managed through appropriate modifications in diet, physical activity, medication, and lifestyle. These factors play a crucial role in the successful management of Type 2 diabetes and are deeply rooted in the traditional Indian system of medicine—Ayurveda. A disease similar to Madhumeha has been described in modern medicine as diabetes mellitus, which has now become one of the most prominent silent killers worldwide. Ayurveda mentions numerous medicinal herbs and formulations that have shown effectiveness in managing diabetes. Recent research has further validated the efficacy of these Ayurvedic herbal remedies, demonstrating that they are generally safe for long-term use. However, their effectiveness is usually limited to cases of mild to moderate diabetes and may reduce over prolonged use. To effectively treat a patient with Madhumeha, a physician must possess comprehensive knowledge of its various aspects—such as Nidana (aetiology), Roopa (symptoms), Poorvaroopa (prodromal symptoms), Samprapti (pathogenesis), Chikitsa Yoga (treatment formulations), Sadhyasadhyata (prognosis), and Arishtalakshana (fatal signs)—as described in the Samhitas, Nighantus, and other classical Ayurvedic texts.

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