



“AYURVEDIC PERSPECTIVE OF *PRAMEHA* (DIABETES MELLITUS) AND MODERN MANAGEMENT: AN INTEGRATIVE REVIEW”

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ABSTRACT

Introduction: Diabetes mellitus is a chronic metabolic disorder characterized by hyperglycemia due to defects in insulin secretion, insulin action, or both. It is one of the fastest-growing lifestyle disorders worldwide. Ayurveda describes *Prameha* as a broad group of urinary disorders, with *Madhumeha* closely resembling type 2 diabetes mellitus (T2DM). This review aims to integrate Ayurvedic concepts of *Prameha* with modern understanding and evaluate complementary management strategies. **Methods:** A comprehensive review was conducted using Ayurvedic classics (*Charaka Samhita*, *Sushruta Samhita*, *Ashtanga Hridaya*), PubMed, Scopus, and Web of Science. Studies included were original research, reviews, and clinical trials (2000–2024) focusing on diabetes, *Prameha*, and integrative medicine. Exclusion criteria were case reports and non-peer-reviewed works. **Results:** Ayurveda describes *Prameha* as a *Santarpanajanya Vyadhi* (disease of overnutrition), primarily due to *Kapha dosha* aggravation, *Medo dhatu dushti* (fat tissue derangement), and *Ojas kshaya* (depletion of vital essence). Clinical features such as polyuria, turbidity of urine, and metabolic abnormalities correlate with diabetes mellitus. Ayurvedic management emphasizes *Nidana parivarjana* (removal of causative factors), *Shodhana* (detoxification, mainly Panchakarma), *Shamana* (pacifying therapies with herbs like *Guduchi*, *Amalaki*, *Meshashringi*, and *Shilajit*), and *Rasayana* (rejuvenation therapy). Modern medicine focuses on pharmacological therapies (insulin, metformin, SGLT2 inhibitors, GLP-1 receptor agonists), lifestyle interventions, and preventive strategies. Recent evidence supports the antidiabetic effects of several Ayurvedic herbs. **Discussion:** Ayurvedic concepts of *Prameha* and *Madhumeha* parallel modern understanding of insulin resistance, obesity, and metabolic syndrome. Integrative approaches, combining lifestyle correction, yoga, and selected Ayurvedic formulations with modern therapeutics, may enhance glyceric control, reduce complications, and improve quality of life. However, robust clinical trials are required for global acceptance. **Conclusion:** *Prameha* reflects an ancient understanding of diabetes mellitus. An integrative approach utilizing Ayurveda and modern medicine could provide effective, holistic, and sustainable solutions for diabetes management.

KEYWORDS: Ayurveda, Diabetes mellitus, *Madhumeha*, *Prameha*, *Rasayana*

INTRODUCTION

Diabetes mellitus is one of the most significant global health challenges, affecting over 500 million people worldwide.^[1] The disease is characterized by hyperglycemia, leading to complications in cardiovascular, renal, neurological, and ocular systems.^[2-3] The burden of diabetes is projected to increase further due to sedentary lifestyles, obesity, and unhealthy diets.^[4]

In Ayurveda, diabetes mellitus is described under the spectrum of *Prameha*, a group of 20 urinary disorders categorized by the quality and quantity of urine.^[5-6] Among these, *Madhumeha*—urine resembling honey in taste and appearance—is considered analogous to diabetes mellitus, particularly type 2 diabetes (T2DM).^[7] Ayurveda views *Prameha* as a metabolic disease caused by an imbalance of *Kapha dosha*, derangement of *Medo dhatu*, and depletion of *Ojas*.^[8] The aim of this article is to provide a comprehensive review of *Prameha* from the Ayurvedic perspective, correlate it with modern biomedical understanding, and explore integrative strategies for effective management.^[10]

MATERIALS AND METHODS

- **Databases searched:** PubMed, Scopus, Web of Science, AYUSH Research Portal.
- **Keywords:** “Prameha,” “Ayurveda and diabetes,” “Madhumeha,” “Ayurvedic management of diabetes,” “Integrative diabetes care.”^[11]
- **Inclusion criteria:** Original studies, reviews, clinical trials (2000–2024) focusing on Ayurveda and diabetes mellitus.^[12]
- **Exclusion criteria:** Case reports, editorial opinions, and non-peer-reviewed literature.^[13]
- **Ayurvedic sources:** *Charaka Samhita*, *Sushruta Samhita*, *Ashtanga Hridaya*, and later works like *Bhavaprakasha*.^[14]

The data were thematically analyzed to correlate Ayurvedic perspectives with modern evidence-based management.^[15]

OBSERVATION AND RESULTS

1. Ayurvedic Concept of *Prameha*

Prameha is derived from *Pra* (excessive) and *Meha* (urination), indicating diseases characterized by abnormal urine output. It includes 20 subtypes based on urine characteristics, categorized under *Kapha pradhana*, *Pitta pradhana*, and *Vata pradhana*

varieties. Among them, *Madhumeha* is considered most severe and incurable if neglected.

2. Etiological Factors (*Nidana*)

- Excessive intake of sweet, fatty, and heavy foods (*Madhura, Snigdha, Guru ahara*).
- Sedentary lifestyle (*Asyasukha, Swapnasukha*).
- Genetic predisposition (*Sahaja Prameha*).
- Psychological factors like stress and irregular routines.

These correspond with modern risk factors such as high-calorie diet, obesity, lack of exercise, family history, and stress.

3. Pathogenesis (*Samprapti*)

- *Kapha dosha* aggravation → metabolic sluggishness.
- *Medo dhatu dushti* (fat tissue pathology) → insulin resistance and obesity.
- *Meda vaha srotas dushti* → impaired glucose and fat metabolism.
- *Ojas kshaya* → reduced immunity and tissue vitality.

This resonates with modern understanding of insulin resistance, β -cell dysfunction, and chronic inflammation.

4. Clinical Features

- Frequent urination (*Prabhuta Mutrata*).
- Turbidity and unctuous urine (*Avila, Snigdha Mutra*).
- Weakness, polyphagia, polydipsia, and gradual tissue depletion.
- Long-term complications resembling neuropathy, nephropathy, and retinopathy are mentioned in Ayurvedic texts as *Upadravas*.

5. Ayurvedic Management

a. *Nidana Parivarjana* (Avoidance of causative factors): Emphasis on dietary regulation, avoiding excessive sweet, oily foods, and maintaining active lifestyle.

b. *Shodhana* (Detoxification): Panchakarma therapies like *Vamana* (emesis), *Virechana* (purgation), and *Basti* (medicated enemas) to eliminate doshas.

c. *Shamana* (Pacification): Herbal formulations such as:

- ***Guduchi* (*Tinospora cordifolia*):** hypoglycemic, antioxidant.

- **Meshashringi** (*Gymnema sylvestre*): reduces sugar absorption, regenerates pancreatic β -cells.
 - **Shilajit**: enhances metabolism and insulin sensitivity.
 - **Amalaki** (*Emblica officinalis*): antioxidant, rejuvenative.
- d. Rasayana (Rejuvenation):** Long-term therapies to strengthen *Ojas* and prevent complications.
- e. Pathya (Diet & Lifestyle):**
- High-fiber, low-glycemic diet.
 - Regular exercise (*Vyayama*).
 - Yoga and meditation for stress management.

6. Modern Management of Diabetes

Modern therapeutics focuses on:

- **Lifestyle modification:** diet, physical activity, weight management.
- **Pharmacological interventions:**
 - *Metformin* (first-line agent).
 - Sulfonylureas, DPP-4 inhibitors, SGLT2 inhibitors, GLP-1 receptor agonists.
 - Insulin therapy in advanced cases.
- **Complication management:** regular monitoring for cardiovascular, renal, and neurological complications.

7. Integrative Approaches

Several clinical studies support combining Ayurvedic and modern interventions:

- Ayurvedic herbal formulations as adjuvants to metformin improve glycemic control and reduce oxidative stress.
- Yoga enhances insulin sensitivity and lowers HbA1c.
- Mind-body interventions improve stress resilience, which is often impaired in diabetes.

DISCUSSION

Ayurvedic conceptualization of *Prameha* provides a holistic framework for understanding diabetes. The pathogenesis described in Ayurveda—*Kapha aggravation, Medo dhatu dushti, Ojas depletion*—matches modern findings of insulin resistance, obesity, and immune dysregulation. The emphasis on lifestyle, diet, and mental balance reflects a preventive approach, which modern medicine increasingly advocates.^[16]

Pharmacological overlaps exist: for instance, *Meshashringi* has been shown to lower postprandial

glucose and regenerate pancreatic β -cells, while *Guduchi* and *Amalaki* reduce oxidative stress. These correspond with mechanisms of modern drugs targeting insulin resistance, oxidative stress, and β -cell preservation.^[17]

Modern management is highly effective in controlling hyperglycemia but is associated with side effects, high costs, and patient compliance issues. Ayurvedic interventions, especially Rasayana therapy and herbal medicines, may provide safe, long-term adjuncts with preventive benefits. However, standardization of formulations, dose optimization, and quality control remain major challenges.^[18]

Integrative models combining modern pharmacology with Ayurveda's holistic lifestyle recommendations offer a promising path. For instance, Panchakarma may be explored for its detoxifying effects, and yoga-meditation as adjuncts to pharmacotherapy. Bridging Ayurvedic biomarkers (*Agni, Ojas, Ama*) with modern clinical markers (HbA1c, cytokines, gut microbiota diversity) may strengthen the evidence base^[19]

The main challenge is the lack of large-scale, multicentric randomized controlled trials (RCTs) to validate Ayurvedic approaches. Collaborative research is essential for global acceptance and integration of Ayurveda into diabetes care.^[20]

CONCLUSION

Prameha, as described in Ayurveda, reflects an ancient understanding of diabetes mellitus, especially type 2 diabetes. It emphasizes the role of faulty lifestyle, excessive nutrition, and poor mental health in disease causation, paralleling modern risk factors. The Ayurvedic approach integrates *Nidana parivarjana, Shodhana, Shamana, and Rasayana* therapies with diet and lifestyle corrections, offering a comprehensive preventive and therapeutic model.

Modern medicine, with its pharmacological and technological advancements, provides rapid glycemic control and complication management. However, it often falls short in addressing long-term lifestyle corrections and holistic wellness. Ayurveda fills this gap by focusing on strengthening immunity (*Ojas*), improving metabolism (*Agni*), and detoxifying the body (*Shodhana*).

Integrating Ayurvedic and modern approaches may offer the most effective and sustainable model for diabetes management. Such integrative care could

improve outcomes, reduce side effects, and empower patients to take active roles in self-care. Future research should focus on well-designed clinical trials to validate Ayurvedic formulations, lifestyle practices, and their synergistic role with modern therapies.

Thus, embracing Ayurveda's holistic vision alongside modern biomedical advances may help mitigate the growing global burden of diabetes mellitus.

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