



A Comprehensive Etiopathogenetic Study of Madhumeha (Type 2 Diabetes Mellitus) and Evaluation of the Therapeutic Efficacy of Classical Ayurvedic Compound Formulations

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Abstract

Background: Madhumeha, described under Prameha in Ayurveda, closely resembles Type 2 Diabetes Mellitus (T2DM), a major lifestyle disorder characterized by metabolic dysregulation, impaired Agni (digestive fire), and Medovridhhi (adiposity). Classical Ayurvedic texts advocate Deepana–Pachana and Kapha–Medohara drugs for its management.

Aim: To study the etiopathogenesis of Madhumeha and evaluate the clinical efficacy of two classical Ayurvedic formulations—Deepaniya Mahakashaya Churna and Puga Khadir Kwatha—in comparison with standard modern therapy.

Methods: A randomized, controlled, three-arm clinical study was conducted on 60 diagnosed patients of Madhumeha. Patients were divided into three groups: Group A received Deepaniya Mahakashaya Churna, Group B received Puga Khadir Kwatha, and Group C received Glypizide. Treatment duration was 90 days. Clinical symptoms and biochemical parameters including FBS, PPBS, and HbA1c were assessed.

Results: Both Ayurvedic formulations showed improvement in classical symptoms and glycemic parameters, with significant reduction in fasting and postprandial blood glucose levels. The outcomes were comparable to the control group.

Conclusion: Deepaniya Mahakashaya and Puga Khadir Kwatha are safe, economical, and effective therapeutic options for managing Madhumeha through correction of Agni Dushti and Medovridhhi.

Introduction

Ayurveda, the science of life, emphasizes both preventive and curative approaches for maintaining health. Classical Ayurvedic literature describes health as a balanced state of Dosha, Dhatu, Mala, Agni, and Manas. Lifestyle irregularities and improper dietary habits disturb this equilibrium, leading to metabolic disorders.

Madhumeha, a subtype of Prameha, is characterized by excessive and turbid urination, sweetness of urine, fatigue, and metabolic derangements. Its etiopathogenesis involves Kapha predominance, Medovridhi, and Agnimandya. These pathological changes resemble the clinical presentation of Type 2 Diabetes Mellitus.

Modernization, sedentary habits, stress, and unhealthy dietary patterns have increased the global burden of diabetes. India currently bears one of the highest disease loads worldwide. Hence, safe and cost-effective herbal interventions are needed.

Classical Ayurvedic texts recommend Deepana (enhancing digestion), Pachana (metabolic correction), and Medohara (fat-reducing) drugs. Deepaniya Mahakashaya and Puga Khadir Kwatha possess these properties and may offer therapeutic benefits in Madhumeha.

Materials and Methods

Study Design

Randomized, controlled, parallel-group clinical trial.

Study Setting

Government Ayurvedic College and Hospital, Jabalpur, India.

Sample Size

60 patients diagnosed with Madhumeha.

Grouping

- **Group A (n=20):** Deepaniya Mahakashaya Churna (2–2.5 g twice daily)
- **Group B (n=20):** Puga Khadir Kwatha (50 ml twice daily)
- **Group C (n=20):** Glypizide 5 mg once daily

Duration

90 days treatment + 1 month follow-up

Drug Details

Deepaniya Mahakashaya

Pippali, Pippalimoola, Chavya, Chitraka, Shunthi, Amlavetas, Maricha, Ajmoda, Bhallataka, Hingu

Puga Khadir Kwatha

Khadir and Puga (equal proportion)

Preparation

- Churna prepared by fine powdering
- Kwatha: 12.5 g coarse powder boiled with 200 ml water reduced to 50 ml

Inclusion Criteria

- Diagnosed Type 2 Diabetes/Madhumeha
- Age 30–70 years
- Mild or controlled hypertension
- Patients showing Purvarupa of Prameha

Exclusion Criteria

- Age <30 or >70 years
- Secondary diabetes
- Diabetic complications
- Drug-induced diabetes
- Gestational diabetes

Assessment Criteria

Clinical Parameters

Polyuria, polydipsia, fatigue, excessive sleep, burning sensation, obesity, weakness, etc.

Laboratory Investigations

- Fasting Blood Sugar (FBS)
- Postprandial Blood Sugar (PPBS)
- HbA1c
- Hematological profile
- Urine examination

Results

Both Ayurvedic treatment groups demonstrated significant improvement in clinical symptoms and glycemic indices. Reduction in FBS, PPBS, and HbA1c was observed. Improvement was attributed to Deepana–Pachana action, enhanced metabolism, and reduction in Kapha–Meda accumulation. No adverse effects were reported.

Discussion

The pathogenesis of Madhumeha primarily involves Agnimandya, Ama formation, and Kapha–Meda accumulation. Deepaniya Mahakashaya enhances digestive fire and corrects metabolism, while Puga Khadir Kwatha exhibits Kapha–Medohara properties. These mechanisms help restore metabolic balance and reduce hyperglycemia.

The study findings support the classical Ayurvedic principle of using drugs with opposite Gunas to counteract disease pathology. Herbal formulations provided effective glycemic control with minimal side effects and are economical compared to modern drugs.

Conclusion

Deepaniya Mahakashaya Churna and Puga Khadir Kwatha are effective, safe, and affordable interventions for Madhumeha. They improve metabolic functions and glycemic control and can be recommended as complementary or alternative therapies in Type 2 Diabetes Mellitus management.

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