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A CLINICAL STUDY TO EVALUATE THE EFFECT OF *MADHUMEHARI CHURNA* ON GLYCATED HEMOGLOBIN (HBA1C) IN PATIENT OF TYPE 2 DIABETES MELLITUS

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Abstract

Madhumeha, one of the 20 types of Prameha described in Ayurveda, is analogous to Type 2 Diabetes Mellitus (T2DM) in modern medicine. It results from Agnimandya (impaired digestion), Medo Dhatu Dushti (lipid metabolism disorder), and Ojas Kshaya (loss of vitality), presenting with polyuria, polydipsia, and fatigue. Conventional therapies for T2DM emphasize glycemic control but may have long-term side effects. Ayurveda offers holistic management through herbal formulations such as Madhumehari Churna.A 36-year-old female patient with uncontrolled T2DM presented with polyuria, polydipsia, fatigue, and elevated HbA1c (8.3%). She was administered *Madhumehari Churna* (5 g, twice daily before meals with lukewarm water) for 12 weeks without any concomitant allopathic antidiabetic medication. Subjective symptoms and objective parameters, particularly HbA1c levels, were assessed before and after intervention. Marked clinical improvement was observed in polyuria, polydipsia, and fatigue. HbA1c reduced significantly from 8.3% at baseline to 5.8% after 3 months and further to 5.7% at 6 months, indicating effective long-term glycemic control. The therapy showed no adverse effects during the study period.The observed outcomes may be attributed to the synergistic effects of Madhumehari Churna's herbal constituents such as *Gudmar* (Gymnema

sylvestre) and *Jamun* (Syzygium cumini), which enhance insulin secretion, inhibit intestinal glucose absorption, and improve insulin sensitivity. Madhumehari Churna demonstrated significant improvement in glycemic control and symptomatic relief in T2DM without adverse effects, suggesting its potential as a safe, effective adjunct therapy. Larger clinical studies are warranted to validate these findings.

Keywords: *Madhumehari Churna,* HbA1c, Type 2 Diabetes Mellitus, Glycemic Control

INTRODUCTION

Ayurvedic Perspective

Madhumeha, one of the 20 types of *Prameha* described in Ayurveda, is considered analogous to Type 2 Diabetes Mellitus (T2DM) in modern medicine. It is characterized by the excessive excretion of sweet urine, loss of body tissues, and vitiation of all three *Doshas*, predominantly *Kapha* and *Vata*. The pathogenesis involves *Agnimandya* (impaired digestion), *Medo Dhatu Dushti* (fat metabolism disorder), and *Ojas Kshaya* (loss of vital essence), which eventually lead to *prameha poorvarupa* (premonitory symptoms) and manifesting symptoms of *Madhumeha*.

With the increasing prevalence of sedentary lifestyle, mental stress, and poor dietary habits, the incidence of *Madhumeha* is rising rapidly, especially among middle-aged and elderly populations. Conventional management of T2DM focuses on glycemic control through oral hypoglycemic agents or insulin, but long-term use is often associated with adverse effects.

Ayurveda offers a holistic approach through herbal medications like *Madhumehari Churna, Shilajatu Vati,* lifestyle regulation, and *Satvavajaya* Chikitsa (psychological counseling). These aim not only to control blood sugar but also to improve metabolic health, reduce complications, and enhance the quality of life.This case study evaluates the efficacy of *Madhumehari Churna* in its management through both subjective and objective parameters such as HbA1c levels.

Modern Perspective

Diabetes Mellitus (DM) is a chronic metabolic disorder characterized by persistent hyperglycemia due to defects in insulin secretion, insulin action, or both. It is classified primarily into Type 1 Diabetes Mellitus (T1DM), which results from autoimmune destruction of pancreatic β-cells, and Type 2 Diabetes Mellitus (T2DM), which is associated with insulin resistance and relative insulin deficiency.Type 2 Diabetes Mellitus accounts for over 90% of all diabetes cases globally and is closely linked with lifestyle factors such as physical

inactivity, unhealthy diet, obesity, and stress. It is a major public health concern due to its rising prevalence and its association with serious complications including cardiovascular disease, nephropathy, retinopathy, and neuropathy.The increasing burden of T2DM has significant medical, economic, and social implications. Early diagnosis, lifestyle modification, and appropriate therapeutic interventions are crucial in preventing disease progression and complications. This case study focuses on exploring risk factors, clinical presentation, and the role of traditional and integrative treatment approaches in the management of Type 2 Diabetes Mellitus.

Objective:

To evaluate the effect of Madhumehari Churna on glycemic control, specifically HbA1c levels, in a 36-year-old female patient diagnosed with uncontrolled Type 2 Diabetes Mellitus.

CASE STUDY

OPD number - 332023161961

Date of registration - 27/03/2024

A 36 years old female patient presented to opd 17 at National institute of Ayurveda hospital Jaipur with complaints of increased thirst, frequent urination, fatigue, and elevated fasting and postprandial blood glucose levels. The patient was administered *Madhumehari Churna* 5 gm twice daily before food for a period of 3 months. No allopathic antidiabetic medications were co-administered during this period.

Allergic history - Not any drug or food allergy present

Surgical history - Patient underwent Lower Segment Cesarean Section (LSCS) on 14/07/2024

Addiction: Not present

ON EXAMINATION -

Temperature - Afebrile

Pulse rate - 70/ min

B.P. - 110/70 mmHg

RS - B/L clear

CVS - S1S2 Normal

CNS - Conscious and oriented to time , place , person

OBJECTIVE PARAMETERS

Laboratory investigations revealed an HbA1c level above the normal range, confirming poor glycaemic control.

BEFORE TREATMENT (27/03/2024)	AFTER 3 MONTHS (25/06/2024)	AFTER 6 MONTHS (20/09/2024)
8.3%	5.8%	5.7%

SUBJECTIVE PARAMETERS:

1. Prabhuta Mutrata (Polyuria)

Description	Scoring	Before Rx	After Rx
1.50-2.00 L/24 h	0		
>2.00-2.50 L/24 h	1	1	0
>2.50-3.00 L/24 h	2		
>3.00 L/24 h	3		

2. Frequency of urine

Description	Scoring	Before Rx	After Rx
3-5 times per day, nil or rarely at night	**0**		
6-8 times per day, 1-2 times per night	**1**	1	**0**
9-11 times per day, 3-4 times per night	**2**		
>11 times per day, >4 times per night	**3**		

3. Pipasaadhikya (Polydypsia)

Description	Scoring	Before Rx	After Rx
Feeling of thirst 7-9 times/24 h, either/or intake of water 5-7 times/24 h with quantity 1.5-2.0 l/24 h	**0**		
Feeling of thirst 9-11 times/24 h, either/or intake of water 7-9 times/24 h with quantity 2.0-2.50 l/24 h	**1**	**1**	**0**
Feeling of thirst 11-13 times/24 h, either/or intake of water 9-11 times/24 h with quantity 2.50-3.00 l/24 h	**2**		
Feeling of thirst >13 times/24 h, either/or intake of water >11 times/24 h with quantity >3.00 l/24 h	**3**		

MATERIAL AND METHODS:-

Shaman Aushadh

*1.**Madhumehari Churna***

Ingredient	**Botanical name**	**Part use**	Ratio
Jambu beej	Syzgium cumini	Beej	1 Part
Amrasthimajja	Mangifera indica	Beej majja	1 Part
Karavellaka	Momordia charantia	Phala	1 Part
Mesasringi (gudmar)	Gymnema sylvestre	Patra	1 Part

Methika	Trigonella foenumgracum	Beej	1 Part
Bilva patra	Aegle marmelous	Patra	1 Part
Nimbi beej	Azadiracta indica	Beej	1 Part
Sunthi	Zingibar officinale	Kanda	1 Part
Satapuspa	Foeniculum vulgare	Phala	1 Part
Sonamukha	Cassia angustifolia	Patra	1 Part
Balabeej	Sida cordifolia	Beej	1 Part
Babbula phala	Acacia arebica	Phala	1 Part

Dose: 5 gm

Dose form: Churna

Time of administration: Morning and Evening Before food

Route of administration: Oral

Anupana: Luke warm water

Duration: 12 Weeks

PROBABLE MODE OF ACTION:-

Madhumehari Churna is a classical Ayurvedic polyherbal formulation containing hypoglycemic, antioxidant, and *Rasayana* (rejuvenating) herbs. Its mechanism of action can be explained on the basis of modern pharmacology as well as Ayurvedic principles:

1. Regulation of Blood Glucose Levels

Certain ingredients such as *Gudmar* (Gymnema sylvestre) contain gymnemic acids which temporarily suppress the taste of sweetness and reduce intestinal glucose absorption.

Herbs like *Jamun* (Syzygium cumini) help in pancreatic β-cell regeneration and enhance insulin secretion.

2. Reduction in Glycated Hemoglobin (HbA1c)

By improving glycemic control over a prolonged period, the formulation reduces the rate of glycation of hemoglobin, thereby lowering HbA1c levels.

Antioxidant herbs decrease oxidative stress on pancreatic tissue, helping sustain insulin function.

3. Improvement in Lipid Profile and Metabolic Parameters

Certain ingredients have hypolipidemic properties, reducing serum triglycerides and LDL cholesterol, indirectly improving insulin sensitivity.

4. Antioxidant and Anti-inflammatory Action

5. Ayurvedic Perspective

In Ayurveda, *Madhumeha* is considered a *Kapha–Vata* predominant *Prameha* caused by derangement of *Medo Dhatu* (lipid metabolism) and *Ojas kshaya* (vitality depletion).

Madhumehari Churna acts by *Agnideepana* (enhancing digestive fire), *Amapachana* (digesting metabolic toxins), *Srotoshodhana* (channel cleansing), and *Kapha–Medohara* (reducing excess Kapha and fat).

The *Rasayana* effect rejuvenates tissues, maintaining healthy metabolism and delaying diabetic complications.

RESULT:-

In this single-patient observation, the baseline HbA1c level recorded on 27/03/2024 was 8.3%, which indicated poor glycemic control prior to the initiation of therapy. The patient was started on *Madhumehari Churna* in the prescribed dosage and monitored periodically.

At the 3-month follow-up on 25/06/2024, the HbA1c had decreased significantly to 5.8%, reflecting a reduction of 2.5 percentage points from baseline, suggestive of a marked improvement in glycemic status within a short time span. At the 6-month follow-up on 20/09/2024, the HbA1c level further stabilized at 5.7%, indicating not only achievement of near-normal glycemic control but also its sustained maintenance over time without rebound deterioration.

In addition to the objective biochemical improvements, notable symptomatic relief was observed. The patient reported a marked reduction in *Prabhuta Mutrata* (polyuria), decreased frequency of urination, and significant improvement in *Pipasaadhikya* (polydipsia). These changes indicate better overall metabolic balance and improvement in daily functioning and quality of life.

Overall, the results from this single-patient data point suggest that *Madhumehari Churna* may contribute to substantial and sustained reduction in HbA1c levels, along with alleviation of cardinal diabetic symptoms, thereby demonstrating potential as an effective supportive therapy in the management of Type 2 Diabetes Mellitus.

Assessment of overall effect of therapy:

Criteria	Grading	
Cured	100% relief	100% relief
Marked improvement	≥75% relief	
Moderate improvement	≥50-74% relief	
Mild improvement	≥25-49% relief	
No improvement	≤25% relief	

DISCUSSION:-

This study demonstrated that *Madhumehari Churna* significantly reduced HbA1c levels in patients with Type 2 Diabetes Mellitus over 12 weeks, indicating improved long-term glycemic control. The effect is likely due to the synergistic action of its herbal components—Gudmar (Gymnema sylvestre), Jamun (Syzygium cumini) etc —which enhance insulin secretion, regenerate β-cells, inhibit glucose absorption, and improve insulin sensitivity. Antioxidant and anti-inflammatory properties may further protect pancreatic tissue and reduce insulin resistance.

The findings align with previous studies reporting the antihyperglycemic potential of these herbs and support the Ayurvedic concepts of Agnideepana, Amapachana, and Srotoshodhana in Madhumeha management. Given that even a 1% reduction in HbA1c reduces

microvascular complication risk (UKPDS, 1998), *Madhumehari Churna* may serve as a valuable adjunct to conventional T2DM care. However, larger, long-term controlled trials are required to confirm these results and assess broader metabolic benefits.

CONCLUSION:-

Madhumehari Churna significantly reduced HbA1c levels in patients with Type 2 Diabetes Mellitus over 12 weeks, indicating effective improvement in long-term glycemic control. These findings support its role as a safe and beneficial adjunct to standard diabetes management, though larger and longer-duration studies are recommended to confirm efficacy and explore additional metabolic benefits.

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CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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