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### A Comparative Clinical Case Study of Metformin and Chandraprabha Vati in the Management of Type 2 Diabetes Mellitus

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#### Abstract

**Background:** Type 2 Diabetes Mellitus (T2DM) is a chronic metabolic disorder characterized by persistent hyperglycemia due to insulin resistance and impaired insulin secretion. In Ayurveda, diabetes is described under *Prameha*, particularly *Madhumeha*. Metformin is a first-line oral hypoglycemic drug, whereas Chandraprabha Vati is a classical Ayurvedic formulation indicated in *Prameha*.

**Objective:** To compare the clinical efficacy of Metformin 500 mg and Chandraprabha Vati in patients with Type 2 Diabetes Mellitus.

**Materials and Methods:** 60 Diagnosed cases of T2DM were selected and divided into two groups. Grouping of patient done as per randomization. 30 patients in Group A received Metformin 500 mg twice daily, and 30 patients in Group B received Chandraprabha Vati 500 mg twice daily for 60 days. Subjective and objective parameters were assessed before and after treatment.

**Results:** Both groups showed improvement in glycemic parameters. Metformin showed a

quicker reduction in blood glucose levels, while Chandraprabha Vati showed gradual and sustained improvement with better relief in associated symptoms.

**Conclusion:** Chandraprabha Vati demonstrated comparable efficacy to Metformin in mild to moderate Type 2 Diabetes Mellitus and may be considered a safe alternative or adjunct therapy.

#### Keywords:

Type 2 Diabetes Mellitus, Madhumeha, Metformin, Chandraprabha Vati, Prameha, Case study

#### Introduction

Type 2 Diabetes Mellitus is one of the most prevalent lifestyle disorders worldwide, associated with obesity, sedentary lifestyle, faulty dietary habits, and stress. It leads to long-term complications affecting multiple organ systems if not adequately controlled.

Ayurveda describes diabetes under *Prameha*, a disease caused by *Kapha*, *Meda*, and *Kleda Dushti*, eventually leading to *Madhumeha*, a

*Vata-Pradhana* condition. Ayurvedic management emphasizes correction of *Agni*, reduction of *Kleda*, and normalization of *Srotas*.

Metformin reduces hepatic glucose production and improves insulin sensitivity, while Chandraprabha Vati possesses *Deepana*, *Pachana*, *Lekhana*, *Mutrala*, and *Medohara* properties. This study attempts a comparative evaluation of these two interventions.

## Materials and Methods

### Study Design

Comparative clinical case study

### Study Setting

OPD-based observational study

### Intervention Chart (Treatment Protocol)

Group	Drug Name	Dose	Anupana	Frequency	Duration
Group A	Metformin	500 mg	Water	Twice daily after meals	60 days
Group B	Chandraprabha Vati	500 mg	Lukewarm water	Twice daily after meals	60 days

### Assessment Criteria Chart

#### Subjective Parameters

Sr. No.	Symptom
1	Prabhut mutrata
2	Avil mutrata
3	Pipasa adhikya
4	Ati kshuda
5	Ati nidra
6	Alsya
7	Kar pad suptata
8	Kar pad daha
9	Klama

### Selection of Patients

60 patients diagnosed with Type 2 Diabetes Mellitus were selected randomly after obtaining written informed consent.

### Inclusion Criteria

- Age: 35–60 years
- Diagnosed Type 2 Diabetes Mellitus
- FBS >126 mg/dL
- PPBS >200 mg/dL
- Mild to moderate disease

### Exclusion Criteria

- Type 1 Diabetes Mellitus
- Chronic diabetic complications
- Pregnancy and lactation
- Severe systemic illness
- Immunocompromised patient

## Objective Parameters

Sr. No.	Parameter
1	Blood Sugar (fasting and post prandial)
2	Urine Sugar (fasting and post prandial)
3	Weight
4	Body mass Index
5	Mid arm circumference
6	Abdominal circumference

## Assessment Schedule Chart

Assessment Time
Before treatment (BT - 0 <sup>th</sup> day)
After treatment (AT – 60 <sup>th</sup> day)

## Results

### Group A – Metformin

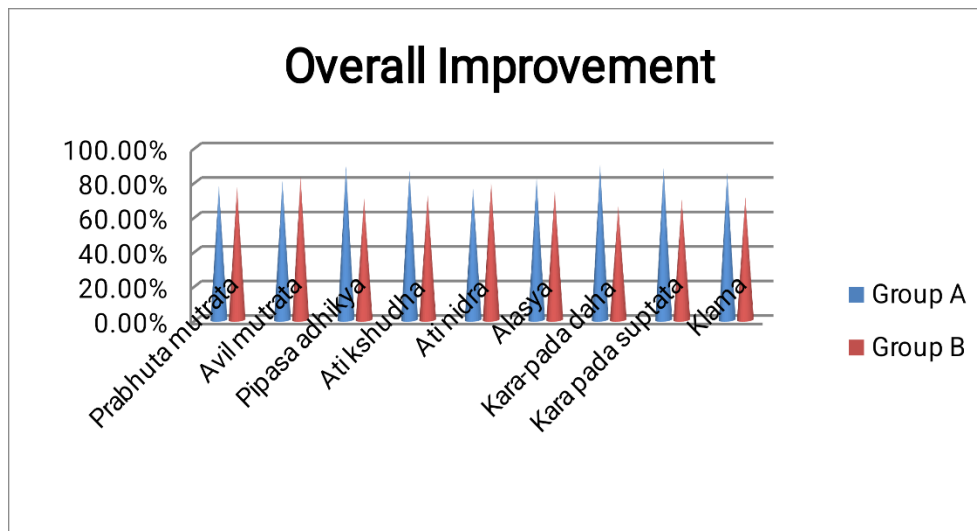
- Significant reduction in FBS and PPBS was observed in 60 days
- Polyuria and polydipsia reduced markedly
- Mild gastrointestinal discomfort was reported initially

### Group B – Chandraprabha Vati

- Gradual and consistent reduction in blood glucose levels in 60 days
- Significant improvement in fatigue, heaviness of body, and urinary frequency
- No adverse effects were reported

## Comparative Observation Chart

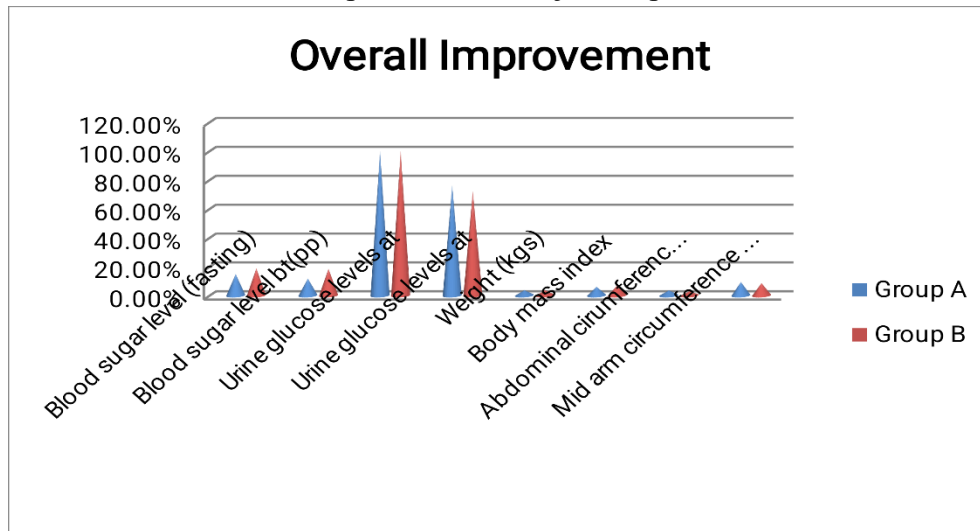
### Overall improvement in subjective parameters



(Based on % improvement comparison between Group A and Group B)

Parameter	Group A	Group B
PrabhutaMutrata	77.46%	76.92%
Avil Mutrata	80.30%	82.76%
PipasaAdhikya	88.89%	70.27%
Ati Kshudha	86.27%	72.41%
Ati Nidra	76.00%	79.17%
Alasya	81.97%	74.51%
Kara-pada Daha	89.74%	65.79%
Kara-pada Suptata	87.88%	69.57%
Klama	85.00%	70.91%

Overall improvement in objective parameters



Parameter	Group A	Group B
Blood Sugar (Fasting)	14.90%	18.77%
Blood Sugar (Post-Prandial)	11.74%	18.48%
Urine Glucose (Test 1)	100%	100%
Urine Glucose (Test 2)	76.19%	72.22%

Weight	3.70%	3.68%
Body Mass Index	6.00%	7.00%
Abdominal Circumference	3.56%	2.88%
Mid Arm Circumference	9.35%	8.57%

### Discussion

Metformin improves insulin sensitivity and reduces hepatic gluconeogenesis, leading to rapid glycemic control. Chandraprabha Vati contains ingredients like *Shilajatu*, *Guggulu*, *Triphala*, and *Trikatu*, which act on *Agni*, *Meda*, and *Kleda*.

From an Ayurvedic standpoint, Madhumeha is caused by *Kapha-Meda Dushti* followed by *Vata Prakopa*. Chandraprabha Vati corrects the underlying pathology by normalizing *Mutravaha Srotas*, improving metabolism, and reducing excessive urination.

The gradual but sustained improvement seen with Chandraprabha Vati suggests its usefulness in long-term management without adverse effects.

### Conclusion

Chandraprabha Vati showed comparable efficacy to Metformin in managing mild to moderate Type 2 Diabetes Mellitus, with better symptomatic relief and safety profile. Ayurvedic formulations may serve as effective alternative or adjunct therapies in diabetes management. Larger randomized controlled trials are required to establish definitive clinical evidence.

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