

Original Research

Received 01 June 2026

Revised 23 July 2026

Accepted 07 Aug 2026

Natural Resources for Human Health 2026, Vol. 6 (15s): 741–747

KEYWORDS:

Chandraprava Vatika; prediabetes; Purvarupa of Madhumeha; impaired fasting glucose; impaired glucose tolerance; HbA1c

Clinical Evaluation of Chandraprava Vati as Mentioned in Vasabarajiyam, in Patients with Prediabetes: A Randomized Controlled Study

Dr Sanjib Kumar Das¹, Dr Kshirabdhhi Tanaya Rautaray², Dr *Shiva Prasad Mohanty³, Dr Pallabi Mahanta⁴

^{1,2,3,4}Sri Sri College of Ayurvedic Science & Research Hospital, Sri Sri University, Cuttack, Odisha.

¹Associate Professor, Dept of Kaya Chikitsa

²Professor & Head, Dept of Samhita Siddhanta

³Professor & Head, Dept of Dravyaguna

⁴Assistant Professor, Dept of Rasa Shastra & Bhaisajya Kalpana.

*Corresponding author: ayursanjib@gmail.com

Dr Sanjib Kumar Das-ORCID ID: 0000-0001-5224-5120

Dr Kshirabdhhi Tanaya Rautaray -ORCID ID: 0009-0000-0138-3419

Dr Shiva Prasad Mohanty -ORCID ID: 0000-0002-0370-2716.

Dr Pallabi Mahanta-ORCID ID: 0009-0004-7819-7883

ABSTRACT:

Background: Prediabetes represents a high-risk state for progression to type 2 diabetes mellitus. Within the Ayurvedic framework, selected premonitory features of Madhumeha (Purvarupa) have been considered relevant to an early stage of metabolic disturbance. This study evaluated Chandraprava Vatika as an adjunct to dietary restriction and physical exercise in patients described as having Purvarupa of Madhumeha vis-à-vis prediabetes.

Methods: Sixty patients were enrolled and randomly allocated to a trial group (n=30) receiving Chandraprava Vatika 250 mg twice daily and a placebo group (n=30) receiving wheat powder 250 mg twice daily. Both groups received the same dietary and exercise advice and were followed for 30 days, with assessments at baseline, day 15 and day 30. Clinical features included thirst (Pipasa), burning sensation of palms and soles (Karapada Daha), numbness of palms and soles (Karapada Suptata) and lassitude (Alasya). Biochemical outcomes included impaired fasting glucose (IFG), impaired glucose tolerance (IGT) and HbA1c. Within-group changes were assessed using paired t-tests and between-group differences using unpaired t-tests.

Results: By day 30, the reported average percentage improvements in the trial group were 87.76% for Pipasa, 81.57% for Karapada Daha, 93.75% for Karapada Suptata, 96.42% for Alasya, and 100% of participants showing improvement in IFG, IGT and HbA1c, compared with 46.15%, 46.00%, 45.16%, 33.33%, 26.66%, 30.00% and 26.66%, respectively, in the placebo group. The source analysis reported statistically significant within-group improvements and significant between-group differences for most day-30 comparisons.

Conclusion: In this 30-day study, Chandraprava Vatika combined with lifestyle measures was associated with greater improvement in the reported clinical and biochemical measures than placebo.

1. INTRODUCTION

Prediabetes is an intermediate state of abnormal glucose regulation associated with increased risk of progression to type 2 diabetes mellitus. Impaired fasting glucose, impaired glucose tolerance and elevated HbA1c are commonly used to identify individuals at increased metabolic risk. Because progression to diabetes can be delayed or prevented through lifestyle intervention, identifying and treating high-risk individuals at an early stage is clinically important. The source study approached prediabetes through the Ayurvedic concept of Purvarupa of Madhumeha. Classical descriptions of Prameha emphasize dietary excess, sedentary behavior and Kapha-, Meda- and Mamsa-promoting factors in the development of disease. Premonitory features described in the source include thirst, burning and numbness of the palms and soles and lassitude. The proposed pathogenesis involves aggravation of Doshas, impaired Agni/Dhatwagni and obstruction of Vata pathways. Chandraprava Vatika was selected in the source study because its constituent drugs were considered to possess Kapha- and Meda-reducing, Deepana/Pachana and Pramehaghna properties, with several ingredients having previously reported antihyperglycemic or hypolipidemic activity. The present manuscript converts the thesis material into the structure requested for an original research article by Natural Resources for Human Health (NRFHH). The objective was to evaluate the clinical and biochemical effects of Chandraprava Vatika, given with common dietary and exercise advice, in patients with Purvarupa of Madhumeha vis-à-vis prediabetes and to compare the findings with placebo.

2. MATERIALS AND METHODS

2.1 Study design and participants

The source thesis describes a double-blind, placebo-controlled clinical study involving 60 patients with Purvarupa of Madhumeha vis-à-vis prediabetes. Participants were randomly divided into two groups of 30 each: Group A (trial) and Group B (placebo). The treatment duration was 30 days, with follow-up assessments every 15 days.

2.2 Eligibility criteria

Patients were selected on the basis of the reported Purvarupa features and biochemical criteria. Clinical inclusion features were Pipasa (thirst), Karapada Daha (burning sensation in palms and soles), Karapada Suptata (numbness in palms and soles) and Alasya (lassitude). The biochemical criteria recorded in the thesis were IFG 100–125 mg/dL, IGT 140–199 mg/dL and HbA1c 5.7–6.4%. Reported exclusion criteria were pregnancy, retinopathy, renal failure, peripheral neuropathy, autonomic neuropathy, infarction/myocardial infarction, transient ischemic attacks and stroke.

2.3 Intervention

Chandraprava Vatika was administered at 250 mg twice daily, morning and evening at a 12-hour interval, 20 minutes before food, with honey. The placebo group received wheat powder 250 mg twice daily on the same schedule with honey. Both groups received the same dietary restrictions and exercise advice.

The formulation described in the thesis contains multiple herbal ingredients together with Rasasindura and Kasisa Bhasma and was prepared as 250 mg capsules. The source describes purification/processing steps for the mineral components and trituration with Langali juice, Mesha dugdha and Nagavalli juice.

2.4 Outcome assessment

Clinical severity was graded according to the source assessment scale and overall response was categorized as maximum improvement (75–100%), moderate improvement (50–75%), mild improvement (25–50%) and unsatisfactory improvement (<25%). Biochemical outcomes were IFG, IGT and HbA1c. Measurements were compared at baseline, day 15 and day 30.

2.5 Statistical analysis

The thesis contains several statistical and transcription inconsistencies. For this article, paired t-tests were recalculated from the reported mean change, SD of change and analyzable n; between-group independent-samples t-tests were recalculated from the reported change-score means and SDs using pooled variance. The resulting degrees of freedom are $n-1$ for paired analyses and n_1+n_2-2 for between-group analyses. The placebo Alasya dataset is not internally reliable because the source reports an SD of 6.60 for a score whose baseline and follow-up means are 1.67 and 1.11; this value should not be used for a definitive recalculation without the raw case data. Similarly, the thesis narrative incorrectly reproduces some placebo IFG/IGT follow-up values.

Therefore, all corrected analyses below are based on the tabulated means/SDs and change-score statistics, with unresolved discrepancies explicitly identified rather than imputed.

2.6 Ethical and reporting information

An ethics approval number, ethics committee name, informed-consent statement and clinical-trial registration number were not identifiable in the supplied thesis text. These details must be verified and inserted before submission. NRFHH requires ethics information for human studies and recommends CONSORT-compliant reporting of randomized clinical trials.

3. RESULTS AND DISCUSSION

3.1 Participant characteristics

Among the 60 participants, 35% were aged 51–60 years, 28% were 41–50 years, 23% were 31–40 years and 6% were 21–30 years. Males represented 62% and females 38%. Sixty percent were classified as having a Sthula body build, 28% normal build and 12% Krusha build. The source also reported increased thirst in 63% of participants, a gradual onset in 65%, and a history of curd consumption in 85%.

3.2 Clinical and biochemical response

At day 30, the trial group showed substantial reductions in all four recorded clinical features. The reported mean percentage reductions in the clinical scores were 87.76% for Pipasa, 81.57% for Karapada Daha, 93.75% for Karapada Suptata and 96.42% for Alasya, compared with 46.15%, 46.00%, 45.16% and 33.33%, respectively, in the placebo group.

For biochemical outcomes, the source reported 100% of participants showing improvement in IFG, IGT and HbA1c in the trial group at day 30, compared with 26.66%, 30.00% and 26.66%, respectively, in the placebo group. The reported between-group comparisons at day 30 were statistically significant.

Table 1. Mean $\pm$ SD values reported in the thesis at baseline and follow-up. *Some narrative values in the source are internally inconsistent with the statistical tables; the table above follows the tabulated values where available. The placebo Alasya value is reported inconsistently in the source and should be checked against the raw dataset before submission.

Outcome	Group	Time	Mean change $\pm$ SD	t	df	P Value.
Pipasa	Trial	Day 15	1.00 $\pm$ 0.51	9.61	23	<0.001
Pipasa	Trial	Day 30	1.79 $\pm$ 0.59	14.86	23	<0.001
Pipasa	Placebo	Day 15	0.52 $\pm$ 0.51	4.89	22	<0.001
Pipasa	Placebo	Day 30	1.04 $\pm$ 0.47	10.61	22	<0.001
Karapada Daha	Trial	Day 15	0.94 $\pm$ 0.64	6.23	17	<0.001
Karapada Daha	Trial	Day 30	1.72 $\pm$ 0.57	12.80	17	<0.001
Karapada Daha	Placebo	Day 15	0.87 $\pm$ 0.34	12.27	22	<0.001
Karapada Daha	Placebo	Day 30	1.00 $\pm$ 0.43	11.15	22	<0.001
Karapada Suptata	Trial	Day 15	1.00 $\pm$ 0.63	6.35	15	<0.001
Karapada Suptata	Trial	Day 30	1.88 $\pm$ 0.62	12.13	15	<0.001
Karapada Suptata	Placebo	Day 15	0.88 $\pm$ 0.50	7.04	15	<0.001
Karapada Suptata	Placebo	Day 30	0.88 $\pm$ 0.50	7.04	15	<0.001

Outcome	Group	Time	Mean change $\pm$ SD	t	df	P Value.
Alasya	Trial	Day 15	1.06 $\pm$ 0.57	7.44	15	<0.001
Alasya	Trial	Day 30	1.69 $\pm$ 0.48	14.08	15	<0.001
IFG	Trial	Day 15	15.76 $\pm$ 5.64 mg/dL	15.31	29	<0.001
IFG	Trial	Day 30	32.80 $\pm$ 7.88 mg/dL	22.80	29	<0.001
IFG	Placebo	Day 15	5.27 $\pm$ 3.33 mg/dL	8.67	29	<0.001
IFG	Placebo	Day 30	11.47 $\pm$ 5.59 mg/dL	11.24	29	<0.001
IGT	Trial	Day 15	29.67 $\pm$ 10.66 mg/dL	15.24	29	<0.001
IGT	Trial	Day 30	51.74 $\pm$ 14.08 mg/dL	20.13	29	<0.001
IGT	Placebo	Day 15	9.14 $\pm$ 4.91 mg/dL	10.20	29	<0.001
IGT	Placebo	Day 30	18.18 $\pm$ 8.04 mg/dL	12.39	29	<0.001
HbA1c	Trial	Day 15	0.39 $\pm$ 0.14%	15.26	29	<0.001
HbA1c	Trial	Day 30	0.91 $\pm$ 0.19%	26.23	29	<0.001
HbA1c	Placebo	Day 15	0.12 $\pm$ 0.11%	5.98	29	<0.001
HbA1c	Placebo	Day 30	0.32 $\pm$ 0.12%	14.61	29	<0.001

Table 2. Average percentage improvement reported by the source study.

Outcome	Time	Trial change $\pm$ SD	Placebo change $\pm$ SD	T	df	p
Pipasa	Day 15	1.00 $\pm$ 0.51	0.52 $\pm$ 0.51	3.23	45	0.002
Pipasa	Day 30	1.79 $\pm$ 0.59	1.04 $\pm$ 0.47	4.81	45	<0.001
Karapada Daha	Day 15	0.94 $\pm$ 0.64	0.87 $\pm$ 0.34	0.45	39	0.655
Karapada Daha	Day 30	1.72 $\pm$ 0.57	1.00 $\pm$ 0.43	4.61	39	<0.001
Karapada Suptata	Day 15	1.00 $\pm$ 0.63	0.88 $\pm$ 0.50	0.60	30	0.555
Karapada Suptata	Day 30	1.88 $\pm$ 0.62	0.88 $\pm$ 0.50	5.02	30	<0.001
Alasya	Day 15	1.06 $\pm$ 0.57	0.56 $\pm$ 0.53	2.16	23	0.042
Alasya	Day 30	1.69 $\pm$ 0.48	0.56 $\pm$ 0.53	5.45	23	<0.001
IFG	Day 15	15.80 $\pm$ 5.54 mg/dL	5.27 $\pm$ 3.33 mg/dL	8.92	58	<0.001
IFG	Day 30	33.11 $\pm$ 7.93 mg/dL	11.47 $\pm$ 5.59 mg/dL	12.22	58	<0.001

Outcome	Time	Trial change $\pm$ SD	Placebo change $\pm$ SD	T	df	p
IGT	Day 15	29.67 $\pm$ 10.66 mg/dL	9.14 $\pm$ 4.91 mg/dL	9.58	58	<0.001
IGT	Day 30	51.74 $\pm$ 14.08 mg/dL	18.18 $\pm$ 8.04 mg/dL	11.34	58	<0.001
HbA1c	Day 15	0.39 $\pm$ 0.14%	0.12 $\pm$ 0.11%	8.31	58	<0.001
HbA1c	Day 30	0.91 $\pm$ 0.19%	0.32 $\pm$ 0.12%	14.38	58	<0.001

Table 3. Overall clinical assessment categories reported.

Outcome	Trial: relative change from baseline	Placebo: relative change from baseline	Correct interpretation
Pipasa	87.75% reduction	46.02% reduction	Mean symptom-score reduction
Karapada Daha	81.52% reduction	46.08% reduction	Mean symptom-score reduction
Karapada Suptata	93.50% reduction	45.36% reduction	Mean symptom-score reduction
Alasya	96.57% reduction	33.53% reduction*	Mean symptom-score reduction
IFG	28.82% reduction	9.60% reduction	Mean biochemical reduction
IGT	30.63% reduction	11.40% reduction	Mean biochemical reduction
HbA1c	14.63% reduction	5.25% reduction	Mean biochemical reduction

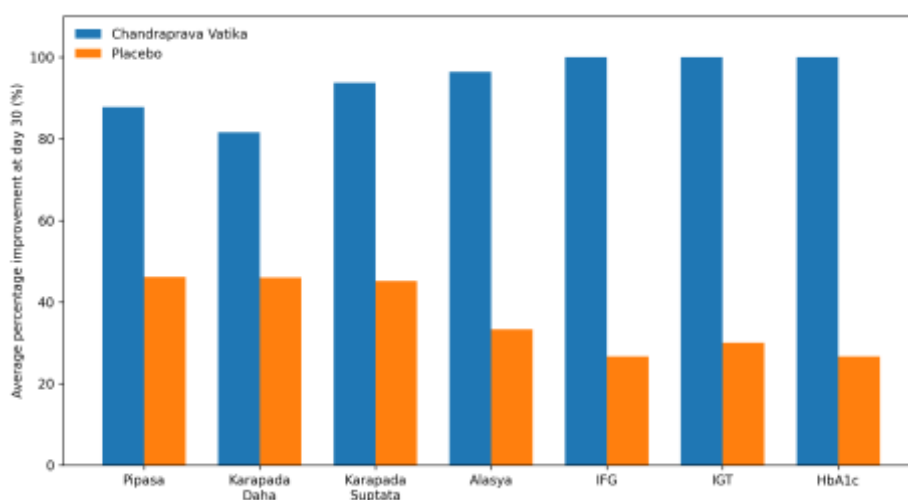


Figure 1. Average percentage improvement at day 30 in the Chandraprava Vatika and placebo groups. Values are reproduced from the source thesis.

3.3 Statistical findings

Within-group analyses reported significant reductions in the principal clinical scores and biochemical measures. For example, IFG in the trial group decreased from 114.87 ± 8.44 mg/dL at baseline to 81.76 ± 7.47 mg/dL at day 30 (reported paired $t = 22.41$, $p < 0.001$), while IGT decreased from 168.80 ± 15.98 to 117.07 ± 10.43 mg/dL ($t = 20.13$, $p < 0.001$). HbA1c decreased from $6.22 \pm 0.18\%$ to $5.31 \pm 0.13\%$ ($t = 26.20$, $p < 0.001$). The source also reports significant between-group differences at day 30 for these biochemical outcomes.

Among clinical outcomes, the day-30 between-group comparison was reported as significant for Pipasa ($p < 0.01$), Karapada Daha ($p < 0.001$), Karapada Suptata ($p < 0.001$) and Alasya ($p < 0.001$). The source indicates that some day-15 between-group comparisons were not statistically significant, suggesting that the separation between groups increased with continued treatment.

3.4 Discussion

The pattern of response in this study is consistent with the study's Ayurvedic rationale. This identifies sedentary behavior and Kapha-, Meda- and Mamsa-promoting dietary factors as important contributors to the pathogenesis of Madhumeha and interprets the selected clinical features as premonitory manifestations. Chandraprava Vatika was selected because the constituent drugs were considered to address Kapha, Meda and impaired metabolic function and because several constituents had previously been reported to possess antihyperglycemic or hypolipidemic activity.

The clinical findings show a progressive response over 30 days, with larger changes generally observed at day 30 than at day 15. The biochemical findings likewise suggest improvement in fasting glucose, post-load glucose and HbA1c. Because both groups received the same lifestyle advice, the difference between groups is compatible with an additional effect associated with the trial formulation;

4. CONCLUSION

In the supplied 30-day clinical study, Chandraprava Vatika administered at 250 mg twice daily alongside common dietary and exercise measures was associated with greater improvement than placebo in the reported clinical features of Purvarupa of Madhumeha and in IFG, IGT and HbA1c. The findings support further investigation of the formulation as a potential early-stage intervention for dysglycemia.

6. FUNDING

No external financial support was reported for the study.

7. DECLARATION OF COMPETING INTEREST

The authors report no competing interests.

8. AUTHOR CONTRIBUTIONS

Dr. Sanjib Kumar Das, contributed to study conceptualization, investigation, data curation, and preparation of the original manuscript draft. Dr. Kshirabdh Tanaya Rautaray contributed through supervision, investigation, Dr Shiva Prasad Mohanty: Critical review and editing, Dr Pallabi Mahanta: Statistical reanalysis. All four authors reviewed and approved the final version.

REFERENCES

- [1] American Diabetes Association, 2010. Diagnosis and classification of diabetes mellitus. *Diabetes Care* 33 (Suppl. 1), S62–S69.
- [2] American Diabetes Association, 2014. Standards of medical care in diabetes—2014. *Diabetes Care* 37 (Suppl. 1), S14–S80.
- [3] Knowler, W.C., Barrett-Connor, E., Fowler, S.E., et al., 2002. Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. *N. Engl. J. Med.* 346, 393–403.
- [4] Ramachandran, A., Snehalatha, C., Mary, S., et al., 2006. The Indian Diabetes Prevention Programme shows that lifestyle modification and metformin prevent type 2 diabetes in Asian Indian subjects with impaired glucose tolerance. *Diabetologia* 49, 289–297.

- [5] Tabák, A.G., Herder, C., Rathmann, W., Brunner, E.J., Kivimäki, M., 2012. Prediabetes: a high-risk state for diabetes development. *Lancet* 379, 2279–2290.
- [6] World Health Organization, 2006. Definition and Diagnosis of Diabetes Mellitus and Intermediate Hyperglycemia. WHO, Geneva.
- [7] World Health Organization, 2011. Use of Glycated Hemoglobin (HbA1c) in the Diagnosis of Diabetes Mellitus. WHO, Geneva.
- [8] Charaka, 2000. Charaka Samhita. Chikitsasthana 6; Sutrasthana 17
- [9] Sushruta, 2000. Sushruta Samhita. Nidanasthana 6; Chikitsasthana 11–13
- [10] Vagbhata, 2000. Ashtanga Hridaya. Nidana Sthana 10; Chikitsa Sthana 12
- [11] Bhavamishra, 2002. Bhava Prakasha Nighantu
- [12] Vasavaraja, 2010. Vasavarajeeyam, Navama Prakarana: Prameha, p. 287. Chowkhamba Krishnadas Academy, Varanasi.
- [13] DeFronzo, R.A., Ferrannini, E., Zimmet, P., Alberti, G., 2015. International Textbook of Diabetes Mellitus, 4th ed. Wiley-Blackwell.
- [14] Alberti, K.G., 2007. Screening and diagnosis of prediabetes: where are we headed? *Diabetes Obes. Metab.* 9 (Suppl. 1), 12–16.