



Impact of Myo B *Basti* on Type 2 Diabetes Mellitus Patients with Low Body Mass Index

Rohit Sane¹, Rahul Mandole^{1,*}, Gurudatta Amin², Harshita Gupta¹

¹Department of Research and Development, Madhavbaug Cardiac Clinic and Hospital, Thane, India

²Department of Medical Operations, Madhavbaug Cardiac Clinic and Hospital, Thane, India

Email address:

rohitmsane@gmail.com (Rohit Sane), drrahul@madhavbaug.org (Rahul Mandole), dragamin@gmail.com (Gurudatta Amin), guptaharshita030@gmail.com (Harshita Gupta)

*Corresponding author

To cite this article:

Rohit Sane, Rahul Mandole, Gurudatta Amin, Harshita Gupta. Impact of Myo B *Basti* on Type 2 Diabetes Mellitus Patients with Low Body Mass Index. *International Journal of Diabetes and Endocrinology*. Vol. 8, No. 1, 2023, pp. 12-15. doi: 10.11648/j.ijde.20230801.13

Received: January 24, 2023; Accepted: February 21, 2023; Published: March 3, 2023

Abstract: Type 2 Diabetes Mellitus (T2DM) is a syndrome characterized by a dysregulated metabolism and genetic immune-mediated involvement, and it progressively gets worse with the appearance of life-threatening complications and pathological changes that cause cardiac issues. A negative calorie balance with a low-carb diet is a very effective tool to manage T2DM with a reduction in orally administered antihyperglycemic agents (OHA) support. As per the twin cycle hypothesis, negative calorie balance can reduce insulin resistance by the reduction in excess adipose tissue but in normal to low BMI T2DM, weight reduction is not advisable. So, the concept of a low-carb and low-calorie diet for good glycemic control is difficult to apply. This study aimed to evaluate impact of 240 ml of Sneha Basti (Myo B Basti: per rectal oil-based herbal formulation) along with an 800 cal/day (*Prameh*) diet to achieve good glycemic control in T2DM patients with low body mass index. The Myo B *Basti* shows a mean change of HbA1c in one month from 9.44 to 8.15mmol/mol. Myo B *Basti* was found to significantly improve HbA1c, BMI, body weight, abdominal girth, SBP, and DBP at the end of the study period i.e., 30th day. Allopathic dependency was also reduced to a great extent. Despite of an 800cal/day diet no major weight loss was observed. Thus, it can be concluded that Myo B *Basti* can be used as an efficient and safe therapeutic alternative for the treatment of T2DM.

Keywords: Type 2 Diabetes Mellitus, Myo B *Basti*, *Prameh* Diet

1. Introduction

The most prevalent kind of DM, Type 2 Diabetes Mellitus (T2DM), is characterized by hyperglycemia, insulin resistance, and a relative insulin deficiency. The prevalence of T2DM in India is among the highest in the world. [1] The condition is a significant burden on the patient and the healthcare system, mostly because of difficulties with the macrovascular and microvascular systems. [2] Indian patients with T2DM had an earlier age at illness onset and less access to resources for establishing adequate metabolic control, which could predispose them to a higher prevalence of comorbidities than patients in industrialized nations. [3] Globally, the prevalence of type 2 diabetes mellitus, the most common kind of diabetes, has reached epidemic levels.

Historically, DM has been diagnosed by an oral glucose tolerance test, which consists of a fasting blood sugar level >126 mg/dl and a post-meal blood sugar level >140 mg/dl. These days, the glycosylated hemoglobin (HbA1c) test is utilized to diagnose diabetes mellitus since it shows blood glucose levels over the previous two to three months. HbA1c levels >6.5% are indicative of diabetes mellitus, while levels between 6.5 and 5.7% are indicative of prediabetes. The majority of recommendations state that the ideal HbA1c level is 6.5%. [4] While diabetic nephropathy is one of the main causes of morbidity and mortality in diabetic patients after cardiovascular disease (CVD), diabetic neuropathy has various after-effects, including foot ulcers and amputations. [5]

Currently, diabetes is managed by promoting dietary changes, frequent exercise, and the use of oral anti-diabetic

medications/OHA. Most OHAs work by decreasing intrinsic glucose synthesis, increasing tissue absorption, or raising excretion. Common classes of anti-diabetic medications include sulphonylureas, thiazolidinedione, biguanides, etc. [6] But the main problems with OHA use include a variety of side effects, such as hypoglycemia, pancreatitis, anemia, etc. [7] These negative consequences have been observed to significantly lower drug adherence in DM patients, together with the rising cost of therapy. [8] As a result, there is a need for an efficient alternative therapy that would mitigate these side effects of traditional pharmaceuticals and improve patient adherence to medications for the best possible result.

In patients with type 2 diabetes, Ayurveda may be an alternative form of treatment. Ayurvedic doctors advise a multi-step bodily purification procedure used in the chronic stage of sickness called Panchakarma. Panchakarma therapies, which are largely bio-cleansing in nature and cure the primary pathogenic causes implicated in the disease and normalize metabolism, are the focus of radical treatment in Ayurveda. *Snehana*, or oleation, *Swedana*, or passive heat therapy, and *Basti*, or per rectal medication delivery, are the three procedures utilized in panchakarma. [9] The non-toxic, medicinal oils and ghee employed in the Panchakarma detoxification method sequentially loosen and remove lipid-soluble toxins from their deposited places and encourage their removal.

In the current study, we discussed the impact of *Basti* in known diabetic patients with normal to low body mass index (BMI). The process of reduction of HbA1c from baseline was carried out without increasing the dose of orally administered antihyperglycemic agents (OHA) and insulin through lifestyle modification, including dietary modifications, physical exercise daily, and Panchakarma *Basti* therapy.

2. Methods

2.1. Study Design

Observational and prospective record-based study.

2.2. Study Site

Madhavbaug Cardiac Clinics, Maharashtra, India.

2.3. Study Period

February 2022 (4 weeks).

2.4. Study Participants

Elderly people with type 2 diabetes (HbA1c >6.5% to 10.5%), BMI <23, and receiving stable doses of OHAs or no OHAs visited Madhavbaug clinics located throughout Maharashtra.

2.5. Methodology

The data of 14 Patients who had been administrated 7 Myo B *Basti* with a minimum of 7 sittings over 28 days were considered for the study. The selection was based upon relevant baseline data of HbA1c >6.5 to <10.5 in mmol/mol. On day 1, patients had undergone weight in kg, BMI (<23Kg/m²), abdominal girth (ABG) in cm, and hand dynamometer strength (HGS) measurements as per guidance.

The primary interim analysis of 14 subjects completed the Myo B study. On day 1 250 ml of Myo B *Basti* and 800 kcal *Prameh* diet kit was administrated to patients and Random Blood Sugar (RBS) test, HGS, and other clinical parameters were noted. *Basti* is a 10 minutes procedure in which per-rectal drug administration is done in the body for maximum absorption using Myo B and ghee. After the treatment, Blood Sugar Level (BSL) was again checked and *Basti* retention time was recorded. The same procedure was carried out for 7 sittings over 1 month with regular follow-ups. For 30 days subjects' diet was monitored via WhatsApp.

2.6. Investigational Product

Snehana: Neem (*Azadirachta Indica*) siddha oil

Swedana: 15 ml Decoction of Dashmool

Basti: 240 ml oil of Myo B

MyoB Tail

Sr No	Name	Botanical Name	Part Used	Quantity %	Reference
1	<i>Ashwagandha</i>	<i>Withania somniferous</i>	Panchang	25	BPN 393
2	<i>Ela</i>	<i>Eatarial cardamom</i>	Fruit	4	BPN 222
3	<i>Gokharu</i>	<i>Tribulus terrestris</i>	Fruit	4	BPN 292
4	<i>Bala</i>	<i>Sidac ordifolia</i>	Root	4	BPN 367
5	<i>Atibala</i>	<i>Abitulon indicum</i>	Root	4	BPN 370
6	<i>Til Tail</i>	<i>Sesamum indicum</i>		100	BPN 652

Reference: Bhavprakash Nighantu

Figure 1. Ayurvedic Proprietary Medicine Composition.

3. Results

Initially, 27 subjects were screened for the study out of which only 16 subjects fulfilled the inclusion criteria and were enrolled in the study. However, by the end of the study, 2 patients discontinued and hence dropped out and then the total number of study subjects was scaled down to 14.

Table 1. Results of the primary interim analysis.

n=14	Baseline Average	Day 30 Average	Day 1	Day 30	▲	Significance
Age (years)	51.64	-	14.35	-	-	-
HbA1c (mmol/mol)	9.44	8.15	2.12	1.76	-1.29	0
Weight (Kg)	58.52	56.75	10.87	10.03	-1.77	0
BMI (kg/m ²)	21.55	20.93	2.45	2.28	-0.62	0
SBP (mmHg)	127.21	121.14	10.74	14.86	-6.07	0.18
DBP (mmHg)	73.93	74.79	5.91	5.1	0.86	0.68
ABG (cm)	82.46	81.62	7.81	4.73	-0.84	0.62
HGS (Kg) (right) n=5	23.82	26.02	5.97	6.85	2.2	0.19
HGS (Kg) (left) n=5	25.22	25.45	7.05	6.7	0.23	0.85
DMQ	36.21	16.71	15.69	3.9	-19.5	0

ABG – Abdominal girth, BMI – Body mass index, DBP - Diastolic blood pressure, DMQ - Diabetes Management Questionnaire, HGS - Hand Dynamometer Strength, SBP - Systolic blood pressure

Allopathic medicine consumption on day 1 and after the 300th day of therapy was as shown in Table 2. Most of the enrolled subjects were treated with biguanides, Sulfonylurea,

and Dipeptidyl Peptidase 4 inhibitors. After the 90th day of treatment, all participants who had been using allopathic medications prior were reduced.

Table 2. Allopathic medicine reduction dependency during the study.

	Baseline	Day 30	% Reduction
Alpha Glycosidase inhibitor	4	2	-50
Dipeptidyl Peptidase 4 inhibitor	5	3	-40
Biguanide	9	3	-66.67
Sulfonylurea	6	4	-33.33
Thiazolidinedione	2	2	0
Calcium channel blockers	2	1	-50
Beta-blocker	1	1	0
Angiotensin receptor blockers	1	2	100

4. Discussion

Prameha Chikitsa Sutra – Line of treatment:

स्थूलः प्रमेही बलवानिहैकः कृशस्तथैकः परिदुर्बलश्च।

सम्बृंहणं तत्र कृशस्य कार्यं संशोधनं दोषबलाधिकस्य ॥१५॥

Although type II diabetes is treatable with a wide range of pharmacological choices, its prevalence and contribution to global morbidity and mortality remain high and are steadily rising. Traditionally prescribed allopathic medications for type II diabetes mellitus work by lowering blood sugar levels. Since numerous herbal medications have been demonstrated to considerably lower blood glucose levels in clinical investigations, ayurvedic medicines serve as a potential alternative therapeutic option for the management of type II DM. [10] According to *Acharya Charaka*, to treat lean T2DM we have to nourish them with various fats, so here we have opted for various medicinal oils. When *Basti* mixes with the umbilical region, waist, back, and abdomen, they expel the metabolic products and accumulated *Dosha*. [11] On the other hand, *Acharya Sushruta* made it very apparent that the active ingredients of *Basti Dravya* spread throughout the body through the tiny channels, same as how water travels from the plant's root to all of its many parts. [12]

In the present study, the Myo B *Basti* was found to significantly improve HbA1c, BMI, body weight, abdominal girth, SBP, and DBP at the end of the study period i.e. 30th day. Another important finding of our study was that, by the end of the investigation period, patients' dependence on traditional allopathic anti-diabetic drugs had significantly decreased. One of the most important parameters for diabetes patients is the HbA1c result since it reflects blood sugar control over the previous two to three months. [4] Another crucial aspect of HbA1c is its ability to predict type 2 diabetes outcomes because prolonged high HbA1c levels have been proven to be closely correlated with morbidity and death. [13] Thus, the results of our study indicate that *Basti* has a positive prognosis in diabetic individuals since it considerably lowers HbA1c. In diabetic patients, maintaining blood sugar level management is crucial since it has been shown that poor blood sugar level control is linked to an increased risk of complications. [14] Since MyoB *Basti* demonstrated significant glycemic control, it may help to lessen the consequences of diabetes. The rising expense of therapy and the rising frequency of side effects linked to the use of conventional medications are two other significant problems with their utilization. [15] In light of this, we evaluated the impact of Myo B *Basti* on the dependence on traditional drugs. After the research period, our current investigation indicated that patients' dependence on

conventional drugs had generally decreased.

Hand grip strength (HGS) could have been reduced after the low carb diet but here it slightly increased through statistics suggesting insignificance but HGS is not reduced is a big achievement.

Generally, diabetes is associated with increased weight in the body. But here, the control of blood sugar levels was done without further decreasing the weight. This study shows that the Myo B *Basti* and *Prameh* diet kit has helped in the improvement of BMI without any adverse events.

We advise undertaking comparable research with direct comparison to conventional therapy, prospective design, lengthy follow-up time, and a larger sample size to generalize the findings of our study to the larger population.

5. Conclusion

MyoB *Basti* has a positive effect on HbA1c, weight, BMI, ABG, and blood pressure in T2DM patients as well as improves the quality of life. These changes were observed without significant weight loss. Myo B *Basti* is a potent therapeutic alternative for the treatment of T2DM in patients with low BMI. Therefore, it is safe to conclude that Myo B *Basti* can be used as an efficient and secure therapeutic alternative for the treatment of type 2 diabetes.

Acknowledgements

Miss Pallavi Mohe from Madhavbaug research and development department of Madhavbaug cardiac care clinics contributed in data collection and analysis. Authors thank Ms. Amruta Chavan for writing support and Ms. Poonam Pawar (Kaprau Communications) for additional editorial support.

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