Kottakkal Journal of Ayurvedic Medicine and Research
Volume 1, Issue 3 (July-September) 2025 |Page No: 36-40 | ISSN:3107-4057

EFFECT OF *ABHRA NISHADI CHURNA* AS ADD - ON MEDICATION ON POST PRANDIAL BLOOD SUGAR IN TYPE 2 DIABETES MELLITUS :

A CASE REPORT

[1]Dr Antony Jose
[1]Senior medical officer
[1]Govt Ayurveda Dispensary, Kadaplamattom, Kottayam

Abstract

Ayurveda provides detailed knowledge of causative factors and pathogenesis of diseases, along with time tested treatments based on its principles. We report a 10 year chronic case of diabetes mellitus (68-year-old female patient), currently on conventional medicine, having a short time elevation of blood glucose level. A one- month long Ayurveda treatment, along with the present conventional medicine, has shown notable efficacy in managing the hyperglycemia.

Key words: Diabetes mellitus, Hyperglycemia, Abhra nishadi churna

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Introduction

Diabetes is a chronic metabolic disorder characterised by increased blood glucose levels due to insulin insufficiency or insensitivity[1]. Type -2 diabetes is due to non immune causes of pancreatic B cell loss with variable degree of tissue insensitivity to insulin called insulin resistance. This form of diabetes occurs predominantly in adults[2]. Genetic and environmental factors combine to cause both the beta cell loss and insulin resistance.

Patient information

A 68 year – old female patient was diagnosed with type 2 diabetes mellitus 10 years back and has been on conventional medicine, metformin 500mg once daily, with regular follow ups. She exhibited elevated plasma glucose level recently even while on conventional treatment. The patient's general history reveals a generally good state of health. She has hypertension as a concomitant illness, now managed with conventional medicine. Due to unresolved hyperglycemia and having not secured results with the current management, the patient has chosen to seek Ayurvedic treatment. She had mild fatigue and distressing sensation of unsteadiness at the time of presentation in the OPD of GAD, Kadplamattom.

Clinical findings:

General examination

The vital signs were all with in normal limits: body temperature at 98.4^{o}F, pulse rate at 80 beats per minute and blood pressure measuring 130/80 mmHg.

Systemic examination

In the course of the systemic examination, no other systems displayed any kind of abnormalities.

Diagnostic assessment

Post prandial blood investigations showed elevated level of glucose. The patient had previously been assessed by a conventional medicine physician.

Nidana panchaka

The involvement of *Nidana Panchaka* (five diagnostic principles) and the elements of *Samprapti* [pathogenesis] has been detailed in table 1.

Table 1 – *Nidana panchaka* and elements of *samprapti* of Type 2 Diabetes mellitus case

Sr. No	***Nidana panchaka***
1	***Nidana*** – Food – *snigdha, madhura ahara,* Life style –lack of exercise
2	***Poorva roopa*** **(prodrome)** - Fatigue
3	***Roopa*** **(signs and symptoms)** - Distressing sensation of weakness,fatigue
4	***Upasaya*** **and** ***anupasaya*** *Upasaya* [relieving factors]- *lekhanam, rasayanam* *Anupasaya* [exacerbating factors]-*brumhanam*
5	***Samprapti*** (pathogenesis) – All the *tridosha* are involved in the pathogenesis of Type 2 Diabetes Mellitus. The reduced insulin sensitivity indicates an *Avarana* of the controlling functional domain represented by *vata* dosha. *Dushya – Dhatukshaya* is caused by the *dhatvagni mandya*. Though *snigdha* food is taken, the rasa formed is not converted to *dhatu* and the *avipakva rasa* is lost through urine. The *dhatvagnimandya* in the form of reduced insulin secretion or increased insulin resistance causes hyperglycemia in type 2 diabetes mellitus. The loss of *rasa* through urine is seen as glycosuria.
	Elements of *Samprapti*
6	*Dushya – rasa*
7	*Agni – dhatvagni mandya*
8	*Srotas –rasa vaha, mutrvaha*
9	*Rogamarga –madhya*
10	*Adhishtana-vasthi*
11	*Vyadhi svabhava –chirakari* (chronic)

Therapeutic interventions

The patient is under conventional oral hypoglycaemic medicines which was continued during the whole period of consultation The specific internal medications prescribed as add – on medications are outlined in Table-2.

Table 2 - List of internal medication with dose, adjuvant and duration

Sr.No.	Formulation	Dose, adjuvant, frequency and time	Duration
1.	*Abhra nisadi churna*	*Abhra* 125 mg, *pippali churna* 2gm, *nisa churna* 5gm with luke warm water twice a day before food.	30 days

Follow up and periodic evaluations

The follow-ups details with timeline, treatment protocol and periodic clinical observations are mentioned in table 3.

Table 3 – Timeline of intervention and periodic clinical observations during follow up

Timeline	Dates	Periodic clinical observations
Onset of treatment	May 5,2025	Ayurveda treatment started
Follow up 1	May 14,2025	Post prandial blood glucose level reduced to 243mg%
Follow up 2	May 23, 2025	Post prandial blood glucose level reduced to 143 mg%
Follow up3	June 5,2025	Post prandial blood glucose level reduced to 130 mg%

Outcomes

The elevated blood glucose level exhibited decline to normal level without any reported adverse events during the course of treatment. Furthermore, the fatigue and distressing sensation of unsteadiness developed during the phase of hyperglycemia have been mitigated completely.

Discussion

The current case involves a period of hyperglycemia, in a patient who has been on conventional medicine for type 2 diabetes mellitus for the past 10 years. Recent studies have shown that conventional hypoglycaemic drugs are partially effective in reversing the diabetic changes and bringing the blood glucose level to the control healthy level[3]. So combinations of hypoglycaemic agents are needed.

The *samprapti* encompasses *avarana* as well as *dhatukshaya*. *Avarana* is explained by insulin insensitivity and *dhatukshaya* by non bioavailable fraction of blood glucose that might be excreted via urine.

The treatment planned was aimed at alleviating insulin resistance and enhancement of insulin secretion. Therefore the formulation should have the ability modify endocrine and metabolic domains. Both domains could be well accommodated in the arch terms *vata* and *pitta*, while the hindrance to the insulin sensitivity is encrypted in the term abnormal *Kapha*. As *Vata* represents the regulator domain, *Pitta* the metabolic domain and *Kapha* the facilitator domain, the *dosha* involvement in the case was *tridosha* type.

Abhranishadi churnam

Combination of *Nisha, Pippali* and *Abhrakabhasma* is indicated to be used for 1 month in Prameha[4]. *Nisa* [Curcuma longa] is known for its *ruksha* [producing dryness] property, which has a definite bearing on *kapha dosha*, the exact cause of *avarana*[5]. At organ level, pancreatic beta cells have to be stimulated in order to get insulin surge sufficiently. The cell proliferating or rejuvenating function could be ascribed to *rasayana* property. *Pippali* [Piper longum] is a known *rasayana* drug. *Abhra* holds *atibalya* property, which indicates 'utmost strength providing', again an indicator of *rasayana*. A study shows curcumin could favourably affect most of the leading aspects of diabetes, including insulin resistance, hyperglycemia, hyperlipidemia and islet apoptosis and necrosis. Research studies show that Piper longum has got anti diabetic and anti hyperlipidaemic activity. The aqueous extract of the root also reduced hepatic and renal function markers indicating its positive effect on metabolism[6]. It is also considered to be inexpensive and easily available and useful ina number of conditions including obesity, diabetes, inflammation and hepatotoxicity[7]..Another study points to the fact that, nano-Abhrabhasma showed improved cell penetration and was effective in the treatment of hyperglycemia, with no significant *in vivo* acute and sub-acute toxicity, even at high dosage (2000 mg/kg b.w.)[8]. Abhrabhasma is a combination of oxides of iron, mmagnesium, calcium, silica, potassium and aluminium[8]. Favourable outcome

observed in this case would be due to the synergestic effects of conventional drug and *Ayurvedic* combination and consistent follow-ups by the patient. As far as *Ayurvedic* combination is considered, a synergy among the three ingredients would also have definitely worked. The conceivable role of Ayurvedic formulation as an add-on medication in mitigating the pathophysiology of hyperglycemia has been shown in Table 4.

Table 4 - Components of *Ayurveda* formulation to treat diabetes

No.	Drugs	Pharmacological actions	Effect
1	*Nisha*	*Katu, tikta, ruksha, ushna*	*Dhatvagni improvement*
2	*Pippali*	*Deepana, rasayana*	*Dhatvagni improvement, Rejuvenation of agnyasaya*
3	*Abhra*	*Deepana, balya, sthairyakara*	*Rejuvenation of agnyasaya*

Conclusion

In the present case, treatment was designed in accordance with the tenet-*samprapti vighatana* [breaking the links of pathogenesis]. It was shown that *Abhra nishadi churna*, used as an add – on medication along with conventional drug could bring down hyperglycemia to the desired reference level. But the extent of role of standalone *Ayurvedic* formulation is yet to be discovered because conventional medicine drug must have played a pivotal role in this case. The mechanism of synergy is to be explored using pharmacological techniques. Reference of combination is *Rasatharangini*, in which the anupana is honey. Nonetheless, luke warm water has been chosen in order to allay the uncertainity regarding the purity of the product. In the herbo-mineral combination, which component hold a lead role, be it herbal or mineral, is also not known. Reference range at which the combination is ideal, needs another study.

Patient's perspective

Patient initially suffered tangible discomfort, including fatigue and distressing sensation of unsteadiness. However by the conclusion of the treatment, the patient was free from all signs and symptoms.

Informed consent

Written consent was obtained from the patient to publish this case study with clinical information. The patient understands that her name and initials will not be published and ample efforts will be made to conceal the identity, but anonymity cannot be guaranteed.

Declaration of generative AI scientific writing

The author declare that no generative AI or AI assisted technologies have been used in the writing process.

Source of funding

The research didn't receive funding from public , commercial or not- for- profit sectors.

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