

MANAGEMENT THROUGH AYURVEDIC MEDICATIONS AND LIFESTYLE MODIFICATION (PATHYASEVANA AND YOGASANA) IN A CASE OF POST-COVID COMPLICATION DIABETES MELLITUS (TYPE 2 DM): A SINGLE CASE STUDY

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ABSTRACT

Diabetes is an asymptomatic disease in most people, so there could be a good number of people who may not be aware of their diabetes before they caught COVID-19. Some studies state that in poorly resourced countries, as many as 50% of people with chronic illnesses, such as diabetes, are undiagnosed. Theoretically, COVID-19 can also cause diabetes as the pancreas have ACE2 receptors, which can enable SARS COV2 to enter the pancreatic beta cells, resulting in structural and functional damage. The present study is carried out to know the traditional Ayurvedic treatment for Diabetes Mellitus. For Diabetes Ayurvedic drugs, *Pathyasevana* and *Yogic* lifestyle are one of the best choices of management for their prime role in maintaining blood sugar levels and preventing Diabetes. The present study showed a significant effect on associated complaints. **Objectives:** - To study the effect of Ayurvedic medications and lifestyles modification (*Pathyasevana and Yogasana*) on Post Covid complications Type 2 Diabetes Mellitus. **Materials and Methods:** A 33-year-old male, reported to the Government Ayurveda college and hospital, Nagpur. With complaints of loss of appetite, weakness, sweet taste of mouth, mild polydipsia, mild polyurea excessive mental stress, and Insomnia for the last two months. For that, he had taken treatment of allopathic medicine for a few days, but he was not satisfied. He had been given Ayurvedic medications for 3 months. Appropriate modifications were done at diet and lifestyle as per Ayurvedic text. Proper Yoga protocol was provided to him. Fasting and Post Prandial blood sugar levels were measured by an electronic glucometer before and after treatment. **Result:** - Improvement in subjective and objective symptoms was found. .

Mild to moderate improvement was noted in weakness, sweet taste of mouth, mild polydipsia, mild polyurea, Insomnia was reduced. **Conclusion:** - Ayurvedic medicines and lifestyle modifications can be considered as a mainstream treatment in the case of newly diagnosed post covid diabetes mellitus.

Keywords: Diabetes Mellitus, Post covid complication, Yogasana, Lifestyle modification.

INTRODUCTION

Diabetes is an asymptomatic disease in most people, so there could be a good number of people who may not be aware of their diabetes before they caught COVID-19. There are studies that state that in poorly resourced countries, as many as 50% of people with chronic illnesses, such as diabetes, are undiagnosed. Several patients, even when they know that they have diabetes, are either unable to afford medical care or are not managing the disease well, resulting in only about 1 in 8 patients with diabetes have their blood sugar level optimally controlled. Then there are people who may have had the tendency to develop diabetes, and COVID-19 has caused what we called stress hyperglycemia. In some patients, it could be a combination of stress hyperglycaemia and medications such as steroids that can lead to an increase in blood sugar levels. And finally, there is an ongoing discussion about the possibility of COVID-19 disease itself causing new-onset diabetes in a patient.

Coronavirus can cause inflammation, hormonal infection or febrile illness can elevate blood sugar levels. It is a consequence of the mechanism that the body employs to fight the infection. In some cases, the medicines given to treat that infection may cause this rise in blood sugar levels. When there is an increase in inflammatory markers, an extreme example of which is the "cytokine storm" in the case of COVID-19, it affects both the insulin release by the pancreas as well as the sensitivity of the tissue to insulin. Insulin facilitates the movement of glucose into tissues and any malfunctioning (either in production or tissue sensitivity) will lead to elevation of glucose levels in the blood. In the case of COVID-19, a patient with moderate to severe disease may need to be given steroids, which can also lead to an increase in the blood sugar levels of patients. in the

body, blood clots and other serious health conditions. Some asymptomatic, mild, moderate or severely affected patients have elevated levels of blood sugar. It's possible these patients have pre-diabetes (when your blood sugar levels are higher but can't be classified as diabetes) or pre-existing conditions before SARS-CoV-2 infection, due to steroid and insulin-dependent treatment diabetes triggered. In these patients, COVID-19 can affect blood sugar levels that cause diabetes after covid recovery may remain for their lifetime. It has been observed 25 to 30% patients those treated in hospital due to severe symptoms developed diabetes or high blood sugar level after COVID-19 recovery. As per recent studies, coronavirus spike protein can cause damage to pancreas Beta cells that is responsible to secrete insulin, due to cells damage pancreas is not able to maintain normal blood sugar levels and regulate glucose into the body's cells.

All eight studies were retrospective cohort studies, consisting of four from China ^[1, 2] two from Italy ^[3, 4] and two from the United States. ^[5, 6] All studies were conducted during the first 5 months of the pandemic (i.e. January-May 2020). The mean or median age of patients in these studies varied from 47 to 65.5 years. All the studies (except for two with no data on sex) ^[7, 8] had more males than females, with the proportion of males ranging from 52.1% to 67.1%. Data on new-onset diabetes were available in two studies and three studies (or cohorts) had previously undiagnosed diabetes cases. In six studies (or cohorts), ^[9, 10] HbA1c was not performed for all participants, so it was not possible to differentiate between new-onset and previously undiagnosed diabetes. In the majority of studies (n = 6), ^[11] the exact time of detection of newly diagnosed diabetes was not reported, whereas, in two studies, ^[12] the

diagnosis was made within 24 hours to 3 days after hospital admission. Only one study reported on the type of diabetes (i.e. type 2 diabetes).^[13] The quality of studies was either fair or good, with most (n = 6; 75%) studies being of good quality. With a total of 3711 COVID-19 patients with 492 cases of newly diagnosed diabetes from eight studies, the random effects meta-analysis estimated a pooled proportion of 14.4% (95% CI: 5.9%-25.8%) with a high degree of heterogeneity. Since the prevalence of diabetes is being common during Covid 19. Hence, this study is planned to foresee the management through Ayurvedic Medications and Lifestyle modification (Pathyasevana and Yogasana) in a case of Post Covid complication Diabetes Mellitus (Type 2 DM).

A CASE REPORT

A 33-year-old male, reported to the Government Ayurveda College and hospital, Nagpur. With

complaints of loss of appetite, weakness, sweet tastes of mouth, mild polydipsia, mild polyurea excessive mental stress, and Insomnia for the last two months. For that, he had taken treatment of allopathic medicine for a few days, but he was not satisfied. When he visited OPD first of all we carried out his routine blood investigation as complete blood count, Blood Sugar level, renal function test, Urine routine examination and thyroid function to rule out any possible associated disorders. All the investigations were found within the normal limit, but the Blood glucose level was raised than the normal value. He has known a case of hypertension for 3 years. There was no significant past history of any other chronic illness inpatient. No history of any type of addiction was found. He was given some Ayurvedic medications, a chart of *pathyaapathya* diet and a *Yogic* lifestyle.

General Examination

Pulse rate	76/min
Respiration rate	26/min
Temperature (0F)	97.60F
Blood pressure	130/70mmHg
Body Weight	57 kg
Height	5.5

Systematic Examination

Respiratory system - Chest bilateral clear, no abnormality detected

Cardiovascular System: S1S2normal

Gastrointestinal System: no abnormality was detected

Locomotors System: normal

Nervous System: The patient was conscious, well-oriented, no abnormality detected

K/c/o -HTN since 3 years

Family history - No

Ashtavidh Parikshan

Nadi (Pulse)	76/min
Mutra (Urine)	Normal
Mala (Stool)	Regular
Jivha (Tongue) Shabd (Speech)	Clear
Sparsh (Touching)	Anushnashit
Druk (Vision)	Prakrut
Akruti (Stature)	Madhyam

Blood Investigations

Sr. No.	Date	Blood Sugar Level	HbA1C	Mean Blood Glucose	KFT – Blood urea	LFT - Globulin
1	23/04/2021	Fasting 140mg/dl Postprandial 250mg/dl	13.8%	349.36mg/dl	55.6mg/dl	2.40g/dl
2	24/04/2021	Fasting 160mg/dl Postprandial 240mg/dl				
3	24/04/2021	Fasting 110mg/dl Postprandial 260mg/dl				
4	30/04/2021	Fasting 110mg/dl Postprandial 220md/dl				

Chief Complaints: Loss of Appetite, Weakness, Sweet Taste of Mouth, Mild Polydipsia, Mild Polyurea, Excessive Mental Stress, Insomnia

Personal History

Wake up at 5.40 am, Bowel habit – Regular, Water intake at morning – 2 glasses of warm water, Morning walk – Daily 3-kilometre, Exercise

(Yogasana and Pranayam) – Pavanmuktasana, Gomukhasana, Tadasana – 10 min, Anuloma–Vilom, Kapalbhata - 10 min, Breakfast at 8 am, Lunch at 1.00 pm, Daytime sleep – No, Tea - 3- 4 pm (2 times a day), Dinner at 9.00 pm
Addiction - No

Dietary Habits

	Time	Habits
Breakfast	8.30 – 9.00 am	Upma/Poha/ 2 Chapati, 1 bowl vegetable/ Multigrain chapati/Fruits/ sometimes fermented food like Idli, Dosa/ Black tea/ Kadha
Lunch	1.00- 1.30 pm	2 - 3 Chapati, 1 bowl vegetable, 1 bowl rice, 1bowl salad (carrot, cucumber, radish, Tomato, Coriander leaves, green chilli, ½ tsp black salt), sometimes 1 cup curd, 1 cup Takra (Buttermilk), coconut – groundnut chutney, Tomato chutney, 1 Rosted Papad, Mango pickles.
Snacks	4.00 – 5.00 pm	1 cup tea/ Coconut water/Fruits juice/ 1 plate Churmuri Chiwda (Puffed Rice)
Dinner	9.00pm	2 Fulke, 1 bowl Vegetable, 1 bowl mung usual/mataki usal/ vatana usal, 1 bowl toor dal (Cejanus cajan), 1 bowl Rice, 1 Jwari Chapati, Roasted Tomato –Chill – Coriander chutney, Mung dal halwa/ Suji halwa, 1 bowl curd with 1 tsp sugar, 1 bowl salad (Carrot, Tomato, Cucumber, Coriander leaves sprinkle with black salt).
Sleep	11.15 pm	Disturbed

MATERIALS AND METHODS

After obtaining written informed consent, he was given a treatment plan, lifestyles modification plan (Pathyasevana) and Yoga protocol for three months. He had taken the medications properly with proper dose and duration. He followed a lifestyle modification plan for three months.

Along with the below medications, the patient was advised to take Amalaki Juice (20ml) with

Haridrachurna (1g), Fenugreek bheej with lukewarm water in the morning, daily outdoor walk for 11 hours, Avoidance of Diwaswapan i.e. sleeping during the day.

Treatment Planned

The following oral medicines were administrated for three Months:

Date	Medications	Duration
1/05/2021	1) Mahalakshmi Vilas Rasa 100mg Nishaamalaki Churna 125 mg Giloysatva 500 mg	BD with honey before meal
	2) Chandraprabhavati 2tab 3) Sutshekar Ras 2Tab	BD with lukewarm water after meal BD with lukewarm water before a meal
1/06/2021	1) Mahalakshmi Vilas Rasa 100mg Nishaamalaki Churna 125 mg Giloysatva 500 mg 2) Chandraprabhavati 2tab 3) Sutshekar Ras 2Tab 4) Jamunbeejchurna - 30 gm Vijaysarchurna - 30 gm Gudmar churna - 30 gm	BD with honey before meal BD with lukewarm water after meal BD with lukewarm water before a meal 1 tsp OD before a meal with lukewarm water
1/07/2021	1) Jamunbeejchurna - 30 gm Vijaysarchurna - 30 gm Gudmar churna - 30 gm	1 tsp OD before a meal with lukewarm water

Dietary Advice for three months

Sr. No.	Time	Food
1	Breakfast 8.00 – 9.00 am	1 plate Upma/ Sprout (1 bowl Mung Usal/ Matakhi Usal/ Chana Usal) / Lahi/Soji/ Broken wheat porridge/ veg oatmeal/ 3 chapati with 1 bowl veg or dal/ Mung kadhan (Soup)/ khakra/ MultigraineParatha/ Multigrainetoast/ egg white/ Fruits/ 2 bowl Salad (Carrot, Cucumber, Tomato, Coriander leaves, black salt)/ Juices (Amla/ Jamun/ Alovera/ Karela (Bitter gourd)/ Gauva)/ Coconut water/ 1 tsp fenugreek powder or seed – Amla powder with 1 glass of lukewarm water/ Vegetables soup.
2	Lunch 10.00 – 12.00 am	2-3 Fulke/ 1 bowl rice/1 bowl Mung, kulattha dal/ Ladyfinger (Bhindi), Cauliflower, Cabbage, Beans, Spinach, Mushroom, Eggplant, Capsicum, Bottle gourd, Ridge gourd, round gourd, Radish, Pumpkin, Peas, Green beans, Fenugreek leaves, Broccoli, Cucumber, Beetroot, Ginger, Green chilli, green pepper, Coriander, Turnip, Mint, Curry leaf, drink 1 cup buttermilk, 1 bowl Salad (Cucumber, Carrot, Raddish, Tomato, Coriander leaves)
3	Evening snacks 5.00 pm	1 bowl Puffed rice (Kurmura), Air-popped popcorn, Roasted Chickpeas, Fruits (Jamun/Guava/Apple)
4	Dinner 7.00 pm	Sorghum (Jwari)/ Barley/ Ragibhakri, Mung dal khichadi, 1 bowl vegetable, Salad
5	Water	Warm water Mustasidhhajalsevan
6	Sleep 10.30 pm	
7	Avoids	Daytime sleep Sweet, dairy products like curd, paneer, cheese etc. Refrigerated, salty, spicy and deep oil fried food.

Yoga Protocol for three months

		Duration
1. Starting Prayer	“SamadhanaySaukhyayNirogtvyayJivane YogmevaAbhyasyetPradnyaYathashakti Nirantaram”	5 min
2. Yogasana ^[14]	Warm up	5 min
	Hold each asana for 30 seconds then gradually increases the holding time to 1 min	
	A) Standing: - Trikonasana, Virbhadrasana, Tadasana, Ardhakatichakrasana, Natrajasana, Padhastasana, Adhomukhasvanasana.	5 min
	B) Sitting: - Paschimottanasana, Bhujangasana, Ardha – Ushtrasana, Naukasana, Ardha – Matsyendrasana.	5 min
	C) Supine: - Pavanmuktasana, Halasana, Sarvangasana, Vipritkarni, Setubandhasana, Uttanpadasana, Chakrasana	5 min
	D) Prone: - Shalbhasana, Bhujangasana, Dhanurasana.	5 min
3. Pranayam	AnulomVilom (alternate nostril breathing) ^[15] Surya bhedan (right nostril breathing) ^[16] Bhastrika (bellows breath) ^[17] Bhramari (humming bee breath) ^[18] Sheetali/ Sitkari (cooling breath)	5 min 5 rounds 3- 5 min 5 rounds 5 rounds
4. Meditation	“AUM” chanting ^[19, 20] Yoga nidra: Yogic relaxation ^[21, 22]	5 min 10 min
5. Surya namaskar	Suryanamaskar (Start with 3, then increase by 1 every week till 8 suryanamaskar. Then 8 suryanamaskar were done daily for 1 year.	10 min
6. Closing Prayer	“Om Sarve Bhavantu Sukhinah Sarve Santu Niramaya Sarve Bhadrani Pashyantu Ma Kaschid Dukh Bhaag Bhavet.”	1 min

The assessment was done using a calibrated electronic glucometer – the same batch of strips, as well as the same electronic batch chip, was used for checking fasting and post-prandial blood sugar levels before and after the treatment.

Results

On the first follow up (after 25 days of the treatment) patient reported a reduction in previously mentioned

symptoms. Mild to moderate improvement was noted in weakness, sweet taste of mouth, mild polydipsia, mild polyurea, Insomnia was reduced. On the second follow up (35th day) patient felt a lightness and energy in routine activity, mental stress was also reduced.

Improvement in subjective and objective symptoms was found is mentioned in the table.

Assessment Criteria	Date	Before Treatment	Date	After Treatment
Objective	23/04/2021	Fasting 140mg/dl Post Prandial 250mg/dl	18/05/2021	Fasting 79 mg/dl Post-Prandial 227 mg/dl
	24/04/2021	Fasting 160mg/dl Post Prandial 240mg/dl	02/06/2021	Fasting 79 mg/dl Post Prandial 165 mg/dl
	24/04/2021	Fasting 110mg/dl Post Prandial 260mg/dl	18/06/2021	Fasting 85 mg/dl Post Prandial 163 mg/dl
	30/04/2021	Fasting 110mg/dl	30/04/2021	Fasting 79 mg/dl

	Post Prandial 220md/dl	Post Prandial 156 mg/dl
Subjective	Loss Of Appetite +++ Weakness +++ Sweet Taste Of Mouth ++ Mild Polydipsia ++ Mild Polyurea ++ Excessive Mental Stress +++ Insomnia ++++	Loss Of Appetite + Weakness + Sweet Taste Of Mouth + Mild Polydipsia + Mild Polyurea + Excessive Mental Stress + Insomnia +

DISCUSSION

Now a day, post covid complications are common due to overdoses of modern medicines. Hence a comprehensive treatment of Ayurvedic medications was given to the patient. Also, exercises and diet which would reduce the vitiation of *Kapha Dhatu* were given *Mahalakshmi Vilas Rasa*, *Chandraprabha* and *Nishaamalaki* have been mentioned in Ayurvedic scriptures in *Prameha Adhikar*. Hence, they were chosen for study. All these medicines are known to act on vitiated *Kapha Dhatu* and *Aamsanchaya* in the body. *Chandraprabha* is a potent *Mehantak* and also helps maintain the urinary system by eliminating *kleda* in the body. In *Chandraprabha Vati* as well most of the ingredients exhibited glucose-lowering activities. *Chandraprabhavati* formulation is mostly effective in *Kapha* and *Vata-Dosha*. The majority of drugs have *Katu*, *Tikta*, *Kashaya Rasa* and the prime *Virya* is *Ushna*, dominant *Vipaka* is *Katu-Vipaka* which helps in reducing the symptoms of *Prameha*.^[23] *Nishaamalaki* have also been mentioned in *Charak Samhita Pramehadhikar*. It is known to reduce the *kledasanchaya* in the body. *Navaprmeha* is said to be *sadhya*. It has antidiabetic and anti-hyperglycaemic properties. In *Nishaamalaki Churna* maximum drugs possess *Kashaya*, *Tikata rasa*, *Laghu*, *Ruksh guna*. *Prameha* is caused by *Kapha*, *Vata*, *Pitta*, *Medo Dushti*, as *Nishaamalaki Churna* had *Vata-Kaphahara* properties due to *Sheeta*, *Ushna Veerya* and *Madhura*, *Katu Vipaka*. This *Rasa* and *Vipaka* of the drugs help in alleviating the *Prameha*.^[23] *Jamun Churna* has anti-diabetic properties. *Jamboline* and *jambosine* in *jamun seeds* are potent and have medicinal properties that can facilitate quicker healing. These phytochemicals help in slowing down the release of sugar and giving a boost

to insulin production - the two functions that are important for keeping diabetes under control. It contains alkaloids, which convert starch into energy and help in reducing diabetes symptoms like constantly feeling thirsty and frequent urination. *Jamun seeds*, in powdered form, can help in reducing blood sugar levels. They are rich in fibre which can give a boost to the digestive system. A healthy digestive system can help in giving a boost to immunity and reduce risks and side effects associated with diabetes.^[24] *Vijaysar* increases digestive power and increase insulin production in the body.^[25] According to Ayurveda, *Vijayasar* is good for managing high sugar levels by improving metabolism due to its *Tikta* (bitter) and *Kapha-Pitta* balancing properties. *Vijayasar* also helps manage diabetic related symptoms like frequent urination, excessive thirst, fatigue and overeating due to its *Kashaya* (astringent) property. Due to its *Tikta* (bitter) nature, it helps manage blood sugar levels by preventing damage to pancreatic cells and promoting insulin secretion due to its antioxidant and anti-inflammatory activity.^[26] *Gudmar* (*Gurmar*) is effective in managing diabetes (type 2) due to its antioxidant and anti-inflammatory properties. It prevents the pancreatic cells from damage caused by free radicals and increases insulin secretion thereby lowering the blood sugar level.^[27] *Mustasiddha jala* is a powerful digestive that readily triggers the secretion of gastric juices thereby improving appetite, promoting digestion and enhancing liver functions. Touted as “*AmaPachak*” in Ayurveda, *Musta* removes toxins or *Amadoshas* from the body and prevents the conversion of *Ama* into *Amavisha*. Additionally, it is also used for the management and treatment of indigestion, loss of appetite, constipation. Due to

intrinsic hypoglycaemic property, Nagarmotha plays a key role in pacifying the blood sugar levels in the body. The production of insulin from the β -pancreatic cells becomes active. It helps to attenuate the breakdown of starch into glucose which in turn leads to low blood glucose levels and thus helps in managing diabetes. [28] Fenugreek seeds (*trigonella foenumgraecum*) are high in soluble fibre, which helps lower blood sugar by slowing down digestion and absorption of carbohydrates. [29] Amlaki Swaras is a good source of vitamin C. It is a powerful antioxidant that will help reverse the free radical generation and the effect of oxidative stress. The consumption of Amla products regularly can prevent the chances of diabetes. In another mechanism, Amla's fibres can help absorb the excess sugar in the body to regular blood sugar levels. [30] *Asana* is considered to be the third *Anga* of *Ashtanga Yog*. As compared to other faculties of yoga, *Asanas* have gained much popularity in this modern era. Acharya Patanjali has defined *Asana* as '*Sthir sukham asanam*' [31] which not only strengthen the body physically but also relaxes body and mind. *Asanas* produce beneficial effects in diabetes by affecting insulin kinetics. They help the release of stored insulin from the pancreas and increase the utilisation and metabolism of glucose in the peripheral tissues and liver [32]. *Asanas* improve blood supply to muscles thus enhancing insulin receptor expression in the muscles, causing increased glucose uptake [33]. *Pranayama* practices itself to destroy obesity and other disorders. *Pranayama* augments cerebral blood flow and oxygenation that improves neuronal activities of brain centres including those present in limbic areas, and medulla and improves sympathovagal flow [34].

1. *Anulom Vilom* (Alternate nostril breathing): Regular practice of *Nadishuddhi* leads to leanness of body, increases glow and ignites the digestive fire. *Anulom Vilom* is found useful in diabetes as it has calming effects on the nervous system, facilitating homeostasis thus managing the stress levels [35].

2. *Suryabhedhi* (Right nostril breathing): It destroys Vata related disorders and ignites digestive power. Stimulation of the sympathetic nervous system and *Pingala nadi* removes dullness from body and mind and the heat produced through the practice burns up the impurities in the body. It increases metabolism and oxygenation by increasing the output of adrenaline from the adrenal medulla [36].
3. *Ujjayi*: It alleviates the *Kanthagat Kapha dosha* and is *Agnivardhak*. It also destroys all the *Dhatugat doshas*. It tackles autonomic nervous centres and sub-cortical centres by reducing.
4. 'Arousal' of *RAS* (Reticular activating system) and establishes more parasympathetic tone in the body. Other autonomic functions such as blood pressure, gastrointestinal activity and endocrinal secretions are also properly regulated.
5. *Bhramari*: it influences multiple systems in the body and has desirable effects on the respiratory system, autonomic nervous system, anxiety level and overall emotional status of the practitioner [35]. *Bhramari* helps to awaken the psychic sensitivity and awareness of subtle vibrations. The sound produced in *bhramari* is very soothing and relieves mental tension and anxiety.
6. *Bhastrika*: It is *Tridoshnashak* and increases the digestive fire. It reduces the BMI and waist-hip ratio in obese patients thus has a significant role in weight reduction. [36] The rapid and rhythmic pumping of the diaphragm and lungs stimulates the heart and blood circulation to the visceral organs, and this creates the massaging effect throughout the whole system.

In a recent study, it was seen that there was a statistically significant decline in fasting and postprandial blood sugar levels in the patients practising meditation as compared to those not practising meditation [37]. Ayurveda provides various methods for the better management of the disease in the form of *Pathya – Apathya* (dietary management). Unfavourable dietary habits and lifestyle modifications, associated with urbanization are the most important factors for the development of the

disease. According to Ayurveda, it is included in Yapya disease (difficult to cure). So, in order to prevent the onset of this disease, lifestyle modifications, as well as Yogasanas, plays an important role as it ensures good glycemic control and also helps in increasing the quality of life. [38] Hence efforts are also being made to duly reduce the Ayurvedic medicines of the patient and ask him to follow only the lifestyle modifications.

CONCLUSIONS

There is a significant effect of Ayurvedic medicines and lifestyle modification in the management of post covid complications diabetes mellitus. Hence Ayurvedic medicines and lifestyle modifications can be considered as a mainstream treatment in case of newly diagnosed post covid diabetes mellitus.

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