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Ayurvedic Management of Type One Diabetes to Improve Quality of Life and Reduce Uncontrolled Sugar Level: A Case Study of *Vataja Prameha*

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Abstract

India has the 2nd highest number of diabetic people in the world. An *Ayurvedic* approach towards treating the type 1 diabetes mellitus can give an option to manage the patient with less requirement of insulin and can improve the patient's living. T1DM is a lifelong and complex autoimmune disease with no cure. By *Ayurvedic* point of view this condition can be correlated with *sahaja prameha* (hereditary) and *vataja prameha*. Superficially both conditions are mentioned as *asadhya* in *ayurveda*. But so many conditions are mentioned regarding prognosis and management of *vataja prameha*. This article is going to present a same condition of T1DM to a male child of 8 years old. He had consulted to the Jeena Sikho Life Care Limited Hospital, Derabassi, Punjab, India for the *Ayurvedic* management of his uncontrolled sugar. *Panchakarma* therapies, oral formulations made up of herbs and minerals, diet modification and exercise could become helpful in this case for the management. Rapid positive progress was observed during *Panchakarma* procedures. There was significant reduction in insulin dose observed during and after *Ayurvedic* management.

Keywords: T1DM, *Ayurvedic* management, *Vataja prameha*, *Panchakarma* therapy, *Ayurvedic* formulations, *Asadhya*, Reduction in insulin dose.

Introduction

Diabetes mellitus (DM) is a condition of chronic impairment of carbohydrates, fats and protein metabolism. Primarily it is classified into 2 types mainly; one is type 1 DM (T1DM) and second is type 2 DM (T2DM). Former type is associated with lack of insulin secretion by pancreatic beta cells and later is associated with insulin resistance by body cells. Basically insulin lack or insulin resistance affects on metabolism of glucose to inhibit the uptake and utilization of glucose by most of the body cells except those of brain. It leads to increase in blood glucose concentration, fall in glucose utilization by cells rapidly and increase in utilization of fats and proteins ^[1]. Around 5 to 10 percent of diabetic people have the type I form of the disease. In 2021, about 8.4 million people were diagnosed with T1DM worldwide. This number is expected to rise to 13.5 to 17.4 million by 2040. ^[2] In Type 1 DM can occur due to pancreatic beta cell injury or disorders that impair insulin production. In many patient of T1DM beta

cells destruction may involve viral infections or autoimmune disorders. In some cases, there may be a hereditary tendency for beta cell degeneration even without viral infections or autoimmune diseases. Usually the onset of type I diabetes happens at about 14 years of age in the United States, and therefore it is often termed as juvenile diabetes mellitus. However, it can occur at any age, including adulthood. The insulin lack decreases the efficiency of peripheral glucose utilization and enhances glucose production, raising plasma glucose to 300 to 1200 mg/100 ml. The increased plasma glucose then has multiple effects throughout the body. A random blood sugar level of 200 mg or higher in a type 1 diabetic person often indicates diabetes ^[1].

Ayurveda classified *prameha vyadhi* (diabetes) into 2 types mainly *sahaja prameha* (hereditary) and *apathyanimitaja prameha* (by unhealthy lifestyle) which is *doshaja prameha*. ^[3] Type 1 diabetes shows similarities with *madhumeha* and *sahaja prameha* by *ayurveda*. *Madhumeha* is a type of *vataja*

prameha and *sahaja prameha* occurs due to *beeja dosha* i.e. *kulaja vyadhi* (hereditary disease). The prognosis of both *vataja* and *sahaja prameha* is said as *asadhya* (incurable). But in some conditions *vataja prameha/madhumeha* and is said as *yapya*. *Yapya* means the chronic diseases which are not curable but can be manageable or maintainable. These diseases have need of ongoing management and lifestyle adaptations. *Ayurvedic* management can maintain its health and wellbeing by recommending herbal/herbo-mineral and *pathya-apathya* (wholesome and unwholesome) diet and activities. This article is presenting a case study of 8 years old male child patient who had managed with *Ayurvedic* treatment. He had K/C/O T1DM for 3 years. He had given *Ayurvedic* medicines together with his ongoing standard of care (insulin injections). His requirement for the dose of insulin was reduced to some extent during IPD days than previous units. The addition of *Ayurvedic* treatment to the patient's standard treatment protocol helped to maintain his uncontrolled blood sugar at a normal level with reduced insulin injections.

Case Report

A male child patient of aging 8 years old had come with his father and consulted to Jeena Sikho Life Care Limited Hospital, Derabassi, Punjab, India on 04.12.2024. He had K/C/O uncontrolled type 1 diabetes mellitus for 3 years on insulin. He had complained of general weakness only. His father wanted to take *Ayurvedic* treatment for T1DM to maintain his general condition. His history had taken along with examinations to start further *Ayurvedic* management.

Table 1: History taking

History of	Remark
K/C/O	Type 1 diabetes on Insulin for 3 years
Medication	Inj. Tresiba 6 unit Inj. Apidra 3 to 6 unit According to parameters
Occupation	Student
Diet pattern	Both
Family history	No any history
Birth history	Normal

Table 2: General examination

Assessment	Observation
Height	124 cm
Weight	23 kg
Age	8 years
Sex	Male
Blood group	A positive
Pulse	78/min
Temperature	Afebrile

Table 3: *Ashtavidh parikshana*

Assessment	Observation
<i>Nadi</i> (pulse)	<i>Vata pittaja</i>
<i>Mala</i> (bowel)	Normal
<i>Mutra</i> (urine)	Normal
<i>Jivha</i> (tounge)	<i>Sama</i> (mild coated)
<i>Shabd</i> (pronunciation)	Normal
<i>Sparsh</i> (touch)	Normal
<i>Drik</i> (eyes)	Normal
<i>Akriti</i> (physique)	Normal

Table 4: *Dashvidh parikshana*

Assessment	Observation
<i>Prakriti</i> (Physical constitution)	<i>Vata pittaja</i>
<i>Vikriti</i> (pathological constitution)	<i>Vataja</i>
<i>Sara</i> (excellence of tissues)	Average
<i>Samhanan</i> (body compactness)	Average
<i>Praman</i> (measurements of body parts)	Average
<i>Satmya</i> (homologation)	Average
<i>Sattva</i> (mental constitution)	Average
<i>Aaharshakti</i> (capacity ingesting, digesting and assimilating the food)	Average
<i>Vyayamshakti</i> (capacity to exercise)	<i>Avar</i> (low)
<i>Vaya</i> (age)	<i>Balyavastha</i> (childhood age)

Laboratory Investigations

- He was advised for CBC (Complete blood count), HbA1c, C-peptide, RFT (renal function test) and serum electrolyte test. He did all investigations on 05.12.2024
- His CBC showed normal parameters including Hemoglobin which was also within range and it was 12.6 gm/dl.
- His HbA1c value showed 8.1% which is diabetic range and eAG was calculated as 185.77.
- His C peptide was reduced to 0.010 mg/dl (normal range 1.10 to 4.40)
- Ketone bodies also revealed within normal i.e. 5 mg/dl.
- His RFT and electrolyte test showed normal results.

Diagnosis: He was already a diagnosed case of type 1 diabetes mellitus with uncontrolled sugar level. By *Ayurvedic* perspective the case was diagnosed as *Madhumeha* a subtype of *vataja prameha*.

Ayurvedic Intervention

The child patient was advised to admit for going through *Panchakarma* therapy. Starting from consulting day till discharge he had taken *panchakarma* therapy for 9 days. Together with this he had prescribed oral medicines and diet and activity recommendations also.

1. **Panchakarma Therapy:** He had advised following *Panchakarma* for 9 days (table no. 5) and all had been

done in the morning session. Procedure names and their contents are mentioned below with quantity used.

Table 5: Panchakarma therapy

Procedure	Contents	Quantity and Duration
Local application of <i>kalka</i> (paste) over feet (<i>Vilepana</i>)	Paste of <i>Nimba</i> (<i>Azadirachta indica</i>) & <i>Karvellaka</i> (<i>Momordica charantia</i>)	30 minute Quantity as needed for feet
<i>Madhu-tailik basti</i>	Mentioned later in discussion	110 ml, 10 minutes required
<i>Matra basti</i>	<i>Dhanwantaram tailam</i>	40 ml, 10 minutes required
<i>Mrudu avgaha swedan</i>	<i>Hot water</i>	Tub full of water for 30 minutes
<i>Shiropichu</i>	<i>Dhanwantaram tailam</i>	150 ml for 30 minutes
<i>Shirodhara</i>	<i>Dhanwantaram tailam</i>	250 ml for 45 minutes
<i>Patra-pottali swedan</i>	<i>Dhanwantaram taila</i> <i>Eranda patra</i> and <i>Nirgundi patra</i>	50 ml oil and 100 gram of both leaves for 30 minutes

2. **Oral Medicines Prescribed during IPD Period:** Formulations made up of anti-diabetic (*pramehahar*) herbs and minerals and immunity booster (*rasayan*) herbs were prescribed. Following table no. 6 mentioned prescribed formulations and their directions of use throughout IPD days. All medicines had to take with

lukewarm water (*koshna jala*) and syrups had to take with equal amount of lukewarm water (*samapramana koshna jala*). *Koshna jala* is given as *anupan* means a liquid which can help to absorb the medicine easily and rapidly in the body [4].

Table 6: Prescribed medicines

IPD day	Medicines	Direction of use
Day 1 04.12.2024	1. <i>Divya shakti churna</i> 2. Tablet <i>Vasantkusumakar ras</i> 3. <i>Madhumeha nashak</i> syrup 4. <i>Prameharoghar churna</i> 5. Capsule DM	$\frac{1}{4}$ th TSF <i>churna</i> HS (<i>Nishakale</i>) 1 tablet OD after food (<i>Adhobhakte</i>) 10 ml syrup BD after food (<i>Adhobhakte</i>) 1 TSF <i>churna</i> BD after food (<i>Adhobhakte</i>) 1 capsule BD before food (<i>Pragbhakte</i>)
Day 2 05.12.2024	Continued all	---
Day 3 06.12.2024	1. Skipped Capsule DM 2. Added 3. Tablet <i>Madhumehanashak</i>	1 tablet BD before food (<i>Pragbhakte</i>)
Day 4 07.12.2024	Continued all as Day 3	---
Day 5 08.12.2024	1. Tablet <i>madhumehanashak</i> (dose increased) 2. Rest continued all	1 tablet TDS before food (<i>Pragbhakte</i>)
Day 6 09.12.2024	Continued all as Day 5	---
Day 7 10.12.2024	Continued all as	---
Day 8 11.12.2024	1. <i>Prameharoghar churna</i> (dose reduced) 2. Rest continued all	1 TSF <i>churna</i> OD after food (<i>Adhobhakte</i>)
Day 9 12.12.2024	<i>Madhumeha nashak</i> tablet	1 tablet BD before food (<i>Pragbhakte</i>)

After discharge medicinal course for 1 month was given as follows. These medicines also told to take with lukewarm water.

- Prameharoghar churna*:** 1TSF TDS after food (*Adhobhakte*)
- Capsule DM*:** 1 capsule TDS before food (*Pragbhakte*)
- Arogya vati*:** 1 tablet BD after food (*Adhobhakte*)
- Divya shakti churna*:** $\frac{1}{2}$ TSF *churna* HS (*Nishakale*)

Diet Recommendation

Ayurvedic diet was advised to him and this diet plan was scheduled according to DIP diet plan. This DIP diet has a significant role in managing lifestyle disorders. It included millet diet, plants, salads, fruits etc. natural sources only. [5]

Quantities of fruits, salads, sprouts and dry fruits had to calculate with following formulas. Following table mentioned the calculated quantity of food items advised to the patient.

Table 7: Recommended quantity of food

Food	Formulas	Quantity for patient
Fruits	Patient s weight in Kg \times 10 = fruits in gm	230 gram
Salads	Patient s weight in Kg \times 5 = salad in gm	125 gm
Sprouts	Patient s weight in Kg = sprouts in gm	23 gram
Dry fruits	Patient s weight in Kg = dry fruits in gm	23 gram

Table 8: DIP diet plan

Diet	Quantity/type of food	Time
Fruits	All type of fruits especially citrus fruits	Till 12.00 pm
Salad (Plate 1)	All salads like cucumber, tomato, beetroot etc.	Just before lunch & dinner
Lunch (Plate 2)	Millet diet, bitter taste and fruity vegetables, lentils etc.	Between 12.00 to 1.00 pm
Afternoon	Dry fruits and boiled sprouts	Between 4.00 to 4.30 pm
Dinner (Plate 2)	Same as lunch	In the evening before 7.30 pm

Activities Recommendation

- Light exercises/*yogasanas* were advised to him.
- *Vajrasana* is advised to do after every meal
- Walking had to do after dinner.
- Avoid day sleeping and awakening at night
- Advised to meditate regularly

Results

- Before consulting for the *Ayurvedic* treatment he was recommended insulin injections by his physician. Dose of injection Apidra was 3 to 6 units (U) and dose of injection Tresiba was 6 units at night. Following table mentioned the required dose of insulin during *Ayurvedic* treatment. During treatment his requirement of insulin

was reduced than recommended.

- Injection Apidra had not been required from day 5 to day 9 and injection Tresiba had not been required from day 1 to day 4. Later it required but in decreased dose than recommended and it was 1 unit only on last day.
- During day one he had no any complains except general weakness which was gets managed after *Ayurvedic* treatment.
- Following table is showing progressively reduced requirement of insulin units during IPD period of *Ayurvedic* treatment. Route of insulin was subcutaneous.

Table 9: Insulin required during IPD days

IPD days	Injection Apidra	Injection Tresiba
Day 1	Not needed	Not needed
Day 2	4 U	Not needed
Day 3	2 U	Not needed
Day 4	2 U	Not needed
Day 5	Not needed	2 U
Day 6	Not needed	1 U
Day 7	Not needed	2 U
Day 8	Not needed	Not needed
Day 9	Not needed	1 U

Table 10: Before and After Sugar Levels of the Patient during IPD Day.

Days	Breakfast		Lunch		Dinner	
	Before	After	Before	After	Before	After
1	-	-	-	-	89 mg/dl	Refused
2	108 mg/dl	-	229 mg/dl	-	305 mg/dl	Refused
3	84 mg/dl	-	224 mg/dl	162 mg/dl	230 mg/dl	285 mg/dl
4	56 mg/dl	-	310 mg/dl	240 mg/dl	276 mg/dl	-
5	64 mg/dl	93 mg/dl	69 mg/dl	-	172 mg/dl	305 mg/dl
6	64 mg/dl	-	80 mg/dl	-	254 mg/dl	291 mg/dl
7	123 mg/dl	-	198 mg/dl	-	245 mg/dl	288 mg/dl
8	215 mg/dl	-	182 mg/dl	-	250 mg/dl	268 mg/dl
9	200 mg/dl	-	360 mg/dl	-	230 mg/dl	269 mg/dl
10	144 mg/dl	-	Discharged	-	-	-

Discussion:

- **New classification** of diabetes is based on underlying etiology and according to this, type 1 DM is again classified into 2 subtypes:
 - Subtype 1A (immune-mediated) DM is characterized by autoimmune destruction of pancreatic beta cells which usually leads to insulin deficiency.
 - Subtype 1B (idiopathic) DM characterized by insulin deficiency with tendency to develop ketosis but these patients are negative for autoimmune markers [6].
- **Prognosis of Vataja Prameha:** As earlier noted it is *asadhya* (no cure) by all *acharyas*. But *acharya Charaka* explained the conditions of *vataja prameha* for treatment or noted its prognosis that which condition is manageable and which condition should be avoided for treatment [7].
 - Vataja prameha* in which patient urinates somewhat blackish/grayish urine (*shyava aruno mutra*),

presence of pain and that *prameha* which has involvement of *majja*, *vasa*, *ojo* and *lasika* is not curable even not manageable.

- Further he mentioned *vataja prameha* which includes more loss of immunity (*dhatu kshaya*) or which is caused by loss of immunity that condition is also not curable so there is no reason to worry for its treatment.
- Vataja prameha* which occurs with all sequences of *hetu* (etiological factors), *puravroop* (pre-symptomatic phase), *roopa* (symptomatic phase) etc. then it is also not curable. Otherwise we can manage the *vataja prameha* which are excluded by above conditions with *Ayurvedic* treatment.

- **Treatment:** According to modern science T1DM requires an effective treatment of administration of enough insulin so that the patient will have carbohydrate, fat, and protein metabolism that is as normal as possible.

Availability of insulin is in several forms. Ordinarily, a patient with severe type I diabetes is given a single dose of one of the longer-acting insulin (effects that last as long as 10 to 48 hours) each day to increase overall carbohydrate metabolism throughout the day. Then additional quantities of regular insulin (duration of action that lasts from 3 to 8 hours) are given during the day at those times when the blood glucose level tends to rise too high, such as at mealtimes. Thus, each patient is provided with an individualized pattern of treatment. [1]

- **Ayurvedic Management:** As said above regulation of metabolism is essential in the treatment as normal as possible. *Acharya Charaka* and *Acharya Sushruta* mentioned a basic concept regarding *prameha chikitsa*. They classified *prameha rugna* (diabetic patient) into 2 types [3, 7].
 - i). **Sthula and Balavan Pramehi:** Obese and strong immunity patient.
 - ii). **Krusha and Paridurbal:** Thin or normal and less immunity patient.

In 1st type *sanshodhan chikitsa* (detoxification) is advised because it has *doshabaladhikya* (more involvement of pathogenic factors) and in second type *bruhan chikitsa* (nourishing the body and increasing weight if needed) regarding this *acharya Sushruta* stated that, '*krushaha tu satatam anupalayet*' means the weak diabetic patient should always be protected. [3] As studied earlier this is a case of T1DM to a male child of age 8 years old. This type was assumed as 2nd type of *prameha rugna* i.e. *krusha* and *durbal*. So the treatment had been done accordingly. *Acharya Charaka* included therapies like *sneha prayog* (oil/cow ghee application internally and/or externally), *jala avasekai* (*avagaha*/hot water steam) and *vilepana* (application herbal pastes). *Jala avaseka* and *vilepana* can be applicable in all types of diabetes. He mentioned the focus of *vataja prameha chikitsa* should be on *santarpana* (nourishment) and *sanshaman* (pacification of doshas).

- i). *Santarpan yoga* includes various anti-diabetic herbs and there formulations. *Triphala* is the main *santarpan yoga* mentioned by *acharya Charaka* which is a component of *prameharogahar churna* prescribed to patient. It is also an ingredient of *dhanwantaram taila* which is used for *Panchakarma* therapies.
 - ii). *Sanshaman* included different type of *aahara* (diet) for '*prameha shanti*' (to pacify diabetes). Diet is like *Yavanna* (recipes made up of barley), *saktu & yusha* (soup of lentils and vegetables) and *laghu aahar* (light diet). On the basis of this diet plan was given to the patient as mentioned in *Ayurvedic* intervention.
- **Vyayama/Exercise:** *Acharya Charaka* advised to do different types of *vyayamas* (exercises) for the rapid recovery in diabetes and to maintain the controlled diabetic condition. It is mentioned as '*vyayama yogaihi vividhaihi*'.
 - **Nidan Parivarjan** (preventing the causative factor): Before initiating all these treatments *nidan parivarjan* is the 1st step of treating the disease. *Acharya Charaka* mentioned it by narrating it as "हेतोः असेवा। जातस्य रोगस्य भवेत् चिकित्सा।" which means avoid that factors which are responsible for causing the diabetes. In this presenting case causative factor was unknown, it may be an auto-immune disease or idiopathic. So preventive measures responsible for the disease were not known but the

triggering factors which are said as *prameha hetu* (diabetic causative factors) had been told to avoid for preventing the progression of disease and thereby it can avoid serious diabetic complications. Causative factors mentioned by *acharya Vagbhata* are food and activities which increases *meda* (Lipid or fat), *mutra* (urine) and *kapha dosha*, food of sweet, sour and salty taste, *snigdha* (Oily), *guru* (uneasy to digest), *pichchila* (Sticky or fermented), *sheetal* (cold potency food), *nava dhanya* (new grains), *anup mansa* (sea food, non-veg of buffalo, goat etc.), *ikshu* (sugarcane), *guda* (jiggery), *gorasam* (curd and milk), *ekasthana aasanarati* (sitting continually at one place), *shayanam vidhivarjitam* (sleeping without following rules of sleep) [8]. These factors are told to avoid for the patient.

- **Symptomatic Cure:** Along with the management of disease symptomatic relief should also be managed by treatment. Patient had only complained of general weakness. It is a complication (*upadrava*) of *prameha* mentioned as '*dourbalya*' by *Acharya Charaka*. [9]

Thus by keeping all these therapeutic concepts in the mind regarding diabetes treatment, *Ayurvedic* plan for the management of this case was applied as follows:

Panchakarma Therapies:

- i). **Awagaha Swedan:** In this procedure patient was asked to sit in a hot water tub (42 degree temperature). It is one among the types of body steam [10]. It relieves *shoola* (pain) and pacifies the diseases caused by *vata* and *kapha dosha* [11, 12]. It helps to increase blood circulation and detoxifies body naturally by steaming.
- ii). **Matra Basti:** *Matra basti* of *dhanwantaram taila* was administered through the rectum. It is called as enema of oil. *Matra basti* is useful mainly in *abala rugna* (whose immunity/strength is low) as it promotes strength. [13] It helps to boost the immunity and strength of the patient. *Dhanwantaram taila* (oil) is used here. Because its *rogadhikara* (indications) include '*Sarvavata vikarjit*' means it cures all types of *vata dosha* disorders and it is noted as best useful in lactating mothers and children for any *panchakarma* therapy. This is stated by saying '*Sutika-bala pujitam*'. Ingredients of *dhanwantaram taila* are given below: [14]

Dhanwantaram tailam – *Bala mula* (*Sida cordifolia* root), *Payasa* (milk), *Yava* (*Hordeum vulgare*), *Kola* (*Ziziphus jujuba*), *Kulattha* (*macrotyloma uniflorum*), *Dashmoola* (group of 10 herbs in *shothahar mahakashaya*), *Meda* (*Polygonatum verticillatum*), *Mahameda* (*Polygonatum cirrhifolium*), *Daruharidra* (*Berberis aristata*), *Manjishtha* (*Rubia cordifolia*), *Kakoli*, *Ksheerkakoli*, *Chandan* (*Santalum album*), *Sariva* (*Hemidesmus indicus*), *Kushtha* (*Saussurea lappa*), *Tagar* (*Valeriana wallichii*), *Jeevaka* (*Malaxis acuminata*), *Rushabhak* (*Malaxis muscifer*), *Saindhava* (rock salt), *Shaileya* (*Parmelia perlata*), *Vacha* (*Acorus calamus*), *Aguru* (*Aquilaria agallocha*), *Punarnava* (*Boerhavia diffusa*), *Ashwagandha* (*Withania somnifera*), *Shatavari* (*Asparagus racemosus*), *Yashtimadhu* (*Glycyrrhiza glabra*), *Vidari* (*Pueraria tuberosa*), *Devdaru* (*Citrus deodara*), *Triphala* [*Haritaki* (*Terminalia chebula*), *Bibhitaki* (*Terminalia Bellerica*), *Aamalki* (*Embllica officinalis*)], *Shatavha* (*Foeniculum vulgare*), *Twak* (*Cinnamomum verum*), *Ela* (*amomum cardamomum*), *Patra* (*Cinnamomum tamala*)

- i). **Madhutailik Basti:** This is the enema of decoction made

up of following ingredients. It was given on alternate days to *matra basti*. This enema is said to be useful in *sukumara* and *shishu* means persons with tender/delicate health and in children. It acts by removing *dosha* (*doshanirharan arthaya*) and thereby promotes *bala* (strength) and *varnodaya* (skin complexion). Ingredients and their quantity as given below: ^[15]

- **Madhu (Honey) and Taila (Sesame Oil):** *Saman matra* (both 20-20 ml)
- **Erandmoola Kwatha:** *Madhu taila saman matra* (40 ml)
- **Shatpushpa Kalka (Paste):** $\frac{1}{2}$ *pal* (24 gram)
- **Madanphala (Randia Spinosa):** 1 fruit
- **Saindhav (Rock Salt):** 1 *karsha* (12 gram)

ii). **Shirodhara:** *Shirodhara* is a *snehana* procedure of head which involved pouring of *dhanwantaram oil* over the forehead. It helps to improve the mental strength of patient by improving sleeping quality. It is important in this case because in all *prameha* and specifically in *vataja prameha* there is presence of *ojakshya*. *Ojakshya* can lead to disturbance in psychic conditions. *Oja kshaya* symptoms are like *bibheti* (fear), *durbal* (weak), *abhikshna dhyayati* (anxiety) etc. symptoms can found in diabetic patients. So to prevent this *Shirodhara* is important ^[16].

iii). **Shiropichu:** It has same uses as *shirodhara* only the difference is it specifically affects over the scalp area. It helps to increase blood circulation by vaso-dilation of blood vessels. Nutrients and oxygen can be absorbed easily and rapidly which then lead into relaxation of mind. This procedure include keeping of cotton swab dipped in *dhanwantaram oil* over the scalp. Both *shirodhara* and *shiropichu* helps to give a sound sleep.

iv). **Neem-Karela Therapy (Vilepana):** This therapy included the soaking of feet in the paste of *Nimba* (*Azadirachta indica*) and *Karvellaka* (*Momordica charantia*). These both drugs have anti-diabetic potential and can be used both internally and externally ^[17, 18].

v). **Patra-pottali Swedana:** This procedure included steam with massage. Leaves of *Nirgundi* (*Vitex nigundo*) & *Erand* (*Ricinus communis*) were used by crushing it to massage. These leaves were tied into a cotton cloth and then massage would get started by dipping it into the *dhanwantaram taila* (oil). *Nirgundi* is a *vata-kapha shamaka dravya* (*vata* & *kapha* pacifying herb) with hot potency ^[19]. *Eranda* is mentioned in *agrya sangraha* (best herbs in specific conditions) by *acharya charaka* as '*Vrushyavataharanam*' means excellent as aphrodisiac and *Vatahar* (*vata* pacifying). ^[20] This type of steam significantly detoxifies the body through sweating.

Along with these therapies *Ayurvedic* formulations were prescribed. Here ingredients and uses of formulations are provided to know why they are used here.

i). **Divya Shakti Churna:** *Trikatu* (*Zingiber officinale*, *Piper nigrum*, *Piper longum*), *Triphala* (*Emblica officinalis*, *Terminalia chebula*, *Terminalia bellirica*), *Musta* (*Cyperus rotundus*), *vidang* (*Embelia ribes*), *Laghu ela* (*Elettaria cardamomum*), *Tejpatr* (*Cinnamomum tamala*), *Lavang* (*Syzygium aromaticum*), *Trivrutta* (*Operculina turpethum*), *Saindhav* (Rock salt), *Dhanyak* (*Coriandrum sativum*), *Pippali mul* (*Piper longum* root), *Jeerak* (*Cuminum cyminum*), *Nagkeshar* (*Mesua ferrea*), *Daidm* (*Punica granatum*), *Bruhat ela* (Black

cardamom), *Hingu* (*Ferula asfoetida*), *Ajmoda* (*Apium graveolens*), *Sajjikshar* (*Sodium bicarbonate*), *Pushkarmool* (*Inula racemosa*), *Mishri* (Rock sugar)

Use: boosts immunity and aids to treat indigestion

ii). Capsule DM Plus:

Ingredients: *Aamragandhi Haridra* (*Curcuma amada*), *Guduchi* (*Tinospora cordifolia*), *Methika* (*Trigonella foenum*), *Shweta musli* (*Chlorophytum borivilianum*), *Nimba* (*Azadirachta indica*), *Karvellak* (*Momordica charantia*), *Jambu* (*Syzygium cumini*), *Bilva patra* (*Aegle marmelos leaves*), *Gudmar* (*Gymnema sylvestre*), *Shilajit* (*Asphaltum*)

Indications: All types of diabetes and all diabetic complications.

iii). Vasanta Kusumakar Ras ^[21] –

Ingredients: *Suvarn bhasma* (gold ash), *Abhrak bhasma* (mica ash), *Loha bhasma* (ferrous ash), *Rasa bhasma* (ash of mercury), *Vanga bhasma* (ash of *Stannum*), *Praval pishti* (coral), *Mouktik bhasma* (pearl ash), *Godugdha* (milk), *Ikshu ras* (sugarcane juice), *Vasa swaras* (*Adhathoda vasica* decoction), *Haridra kwatha* (*Curcuma longa* decoction), *Mochkanda swaras* (*Musa acuminata* root juice), *Malati psupa rasa* (*Jasminum officinale* flower juice), *Usheera* (*Vetiveria zizanioides*), *Sugandhbala* (*Valeriana jatamansi*).

Indications: mentioned as '*sarva mehajit*' means can cure all types of diabetes.

iv). Madhumehanasaka Syrup:

Ingredients: *Karvellak* (*Momordica charantia*), *Jambu* (*Syzygium cumini*), *Nimba* (*Azadirachta indica*), *Kirattikta* (*Swertia chirayta*), *Gudmar* (*Gymnema sylvestri*), *Kutaj* (*Holarrhena antidysenterica*)

Indications: Diabetes mellitus, Diabetes neuropathy, Retinopathy, Hyperglycemia

v). **Prameharoghar Churna:** *Kutaki* (*Picrorhiza kurrooa*), *Kirattikta* (*Swertia chirayta*), *Nimba* (*Azadirachta indica*), *Karvellak* (*Momordica charantia*), *Rasanjan* (*Berberis aristat*), *Amlika beeja* (*Tamarind seeds*), *Kala namak* (Black salt), *Guduchi* (*Tinospora cordifolia*), *Shunthi* (*Zingiber officinale*), *Babbula tvak* and *phal* (*Acacia Arabica* bark and fruit), *Sarpagandha* (*Rauvolfia serpentina*), *Trivang bhasma*, *Yashad bhasma*, *Revandchini*, *Guggulu* (*Commiphora mukul*), *Methika* (*Trigonella foenum*), *Jambu* (*Syzygium cumini*), *Karanj* (*Pongamia pinnata*), *Shilajit*, *Haridra* (*Curcuma longa*), *Haritaki* (*Terminalia chebula*), *Indrayava* (*Holarrhena antidysenterica* seeds), *Vanshlochan* (*Bambusa arundinacea*), *Bibhitaki* (*Terminalia bellerica*), *Aamalki* (*Emblica officinalis*), *Shweta musali* (*Chlorophytum borivilianum*), *Gudmar* (*Gymnema sylvestre*)

Indications: all types of diabetes, controls blood sugar level, relieves urinary problems, improves immunity, useful in diabetic neuropathy and retinopathy

vi). Arogya Vati:

Ingredients: *Loha bhasma* (ferrous ash), *Abhraka bhasma* (Mica ash), *Tamra bhasma* (Copper ash), *Aamalki* (*emblica officinalis*), *Bibhitaki* (*Terminalia bellerica*), *Haritaki* (*Terminalia chebula*), *Chitrak* (*Plumbago zeylanica*), *Kutaki* (*Picrorhiza kurroa*), *Nimba* (*Azadirachta indica*)

Indications: fever, cough, asthma, constipation

Wholesome and Unwholesome Diet: Previously diet

management is already mentioned. Here only the some specific dos and don'ts are mentioned which have to follow in all types of diabetes. Following *pathya-apathya aahar* (Healthy and unhealthy diet) was advised to the patient which is explained by *acharya Bhavmishra*. This diet is for all types of diabetes. [22]

Pathya Aahar: *Godhuma* (Wheat), *Chanaka* (Chickpeas), *Aadhaki* (Pigeon pea), *Kulatth* (Horse gram), *Purana anna* (Old grains/millet), *Tikta shaka* (Bitter taste vegetables), *Yavanna vikruti* (Barley recipes), *Mudga* (Green gram), *Shali* (Rice)

Varjayeta: *Taila* (Oily food), *Takra* (butter milk or curd), *Ksheera* (milk), *Ghruta* (ghee), *Guda* (Jaggery), *Amla* (sore taste food), *Ikshurasa* (Sugarcane juice), *Pishtanna* (Starch food/refined flour), *Anupa mans* (non-veg/meat)

Further Scope of Study

- There is a limitation to this study because it has a single case study. Large scale study of *Ayurvedic* management in T1DM/Juvenile diabetes can give a standard protocol for all practitioners to manage type 1 diabetes.
- In large scale study enlightening on sudden manifestation of T1DM can also be studied. It will help to know more about etiology or pathogenesis.

Conclusion

This case presents the *Ayurvedic* approach in managing an 8-year-old male child with a known case of Type 1 Diabetes Mellitus (T1DM) for 3 years, previously managed with insulin (Tresiba and Apidra). The child was admitted to Jeena Sikho Lifecare Limited Hospital Derabassi, Punjab for a 9-day *Panchakarma*-based *Ayurvedic* management to improve his general condition and support glycemic control.

Despite the chronic nature of T1DM, which conventionally requires lifelong insulin dependency, remarkable improvements were observed during the *Ayurvedic* intervention:

- *Panchakarma* therapies, such as *Vilepana*, *Basti* (*Matra* and *Madhu-tailik*), *Shirodhara*, *Shiropichu*, *Patrapottali Swedana*, and *Avagaha Swedana*, were employed to balance *doshas*, enhance metabolism, and strengthen immunity.
- Oral *Ayurvedic* medications comprised of *pramehahar* (*anti-diabetic*) herbs and *rasayan* (*rejuvenating*) formulations to support pancreatic function, metabolism, and overall vitality.
- A well-structured DIP diet plan (based on natural, plant-based foods) was advised to optimize digestion and support metabolic health.

Key Outcomes

- **Insulin Requirement Significantly Reduced**
 - Apidra (short-acting insulin): *completely stopped from day 5 onward*.
 - Tresiba (long-acting insulin): *not needed from day 1 to 4*, and reduced to only 1 unit by day 9.
- Blood sugar levels showed moderate fluctuations, but remained clinically manageable without hypoglycemic or major hyperglycemic symptoms.
- General weakness, the chief complaint at presentation, was resolved by the end of the IPD period.
- No new complications or adverse effects were observed during or after *Panchakarma* treatment.

This case suggests that *Ayurvedic* management can play a supportive and adjunctive role in the care of pediatric T1DM patients—especially in reducing insulin dependency, improving overall health, and enhancing quality of life. While *Ayurveda* may not replace insulin therapy in T1DM, it can aid in optimizing metabolic function, immune resilience, and symptomatic relief when carefully supervised.

Continued monitoring, regular follow-up, and collaboration with an endocrinologist is essential, especially in pediatric T1DM cases undergoing integrative therapies.

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