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A Case Study on Ayurvedic management of Gestational Diabetes Mellitus

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ABSTRACT

Gestational diabetes mellitus (GDM) is defined as carbohydrate intolerance of variable degree with onset or first recognition during pregnancy. The prevalence of gestational diabetes mellitus is increasing worldwide and is associated with both short term and long term adverse effects for the mother and her infant. There is no direct reference of GDM in Ayurveda. We get reference of *Garbhavriddi* excessive increase in size of abdomen and perspiration. *Garbhavriddi* or macrosomia condition can be interpreted as complication of GDM. Pregnancy is associated with progressive insulin resistance. Human placental lactogen , progesterone, prolactin, and cortisol are associated with increased insulin resistance during pregnancy. Ayurveda focusses on change in lifestyle of the *Garbini* which helps in maternal health and foetal growth minimizing the complications related to pregnancy. Ayurvedic management brings balance of the *Doshas* with the combination of herbs, diet, *Aoushadha Yogas* are more beneficial in the management of gestational diabetes.

Key words: *Gestational Diabetes Mellitus, Diet, Hyponidd, Nishamalaki Vati, Cordorium Plus.*

INTRODUCTION

Pregnancy is associated with insulin resistance (IR) and hyperinsulinemia that may predispose some women to develop diabetes. Gestational diabetes mellitus (GDM) is defined as carbohydrate intolerance of variable degree with onset or first recognition during pregnancy. In 2013, the World Health Organization (WHO) recommended that hyperglycaemia first detected during pregnancy be classified as either 'diabetes mellitus (DM) in pregnancy' or 'GDM'.[1] The prevalence of gestational diabetes mellitus is increasing worldwide and is associated with both short term and long term adverse effects for the mother and her infant. The prevalence of GDM in India varies from 3.8 to 21% in different parts of the country. Nearly 50% of women with GDM will develop type 2 diabetes mellitus over a period of 5-20 years. The prevalence of GDM also depends on the screening criteria.[2]

According to WHO recommendations GDM should be diagnosed at any time in pregnancy if one or more of the following criteria are met.

- Fasting plasma glucose 92-125mg/dl
- 1 hour plasma glucose 180mg/dl following a 75gm oral glucose load
- 2 hour plasma glucose 153-199mg/dl following a 75gms oral glucose load.[1]

CASE REPORT

A 30yrs old female patient, Hindu by religion, a housewife presented to Prasuti Tantra and Stree Roga O.P.D of SKAMCH & RC, Bangalore on 20th

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February 2019 at 27 weeks 1 day in her third pregnancy. G3P2A0L2 /- H/O 2 FTND, her last menstrual period was on 14/8/18. She developed fatigue, frequent urination 8-10 times a day, excessive thirst, then she consulted our hospital. Patient got admitted in our hospital for the same on 20/2/19 and her *Rajo Vrittanta* was regular, menarche attained at the age of 15 years and her married life of 7 years. and on 20/2/19 she was diagnosed as GDM , her FBS was 110 mg/dl PPBS (2 hourly) was 185mg/dl.

Personal history

She is not a known case of PIH and thyroid dysfunction. Not underwent any surgery, not allergic to any medications. Inj. TT 1st dose taken at 20 wks. She is non-vegetarian, H/O day sleep since pregnant.

Ashta Sthana Pareeksha

- *Nadi* - 74/min
- *Mutra* - 8-10 times /day
- *Mala* - once / day
- *Jivha* - *Alipta*
- *Shabda* - *Prakruta*
- *Sparsha* - *Prakruta*
- *Druk* - *Prakruta*
- *Aakruti* - *Madhyama*

Investigations

Done on 18/11/19

- Hb - 10.8
- Blood group and Rh factor - 'A' Positive
- BT - 3 minutes, 40 seconds
- CT - 4 minutes 5 seconds
- HIV - Negative
- HBsAG - Negative
- VDRL - Non -reactive

Done on 20/2/19

- Urine routine and microscopic examination report - sugar 1.0%
- PPBS - 185mg/dl
- FBS - 110 mg/dl

USG

- Single live fetus of 23wks 3 days of gestational age
- EFW 585gms +/- 10% approx.
- Placenta – posterior
- Liquor volume – adequate
- EDD – 18/5/19

Diagnosis - Gestational diabetes mellitus

Treatment administered

Patient was advised to take following medicines on 20/2/19

- Cordorium Plus 2 tsp TID
- Hyponidd Tab. TID with water
- *Nishamalaki* [3] *tab. BID with water*
- Himcoccid Syrup 2 tsp BID given on 20/2/19 till 7/3/19

Dietary regimen advised for the patient

Vegetables	*Methi* leaves, *Karavellaka*, tomoto, *Shigru* leaves fruits, cauliflower, cabbage, sponge gourd, cucumber, spinach, beet root.
Pulses	*Mudga*, chana dal, raagi, chick pea
Spices	Turmeric, cinnamom, fenugreek seeds, garlic
Cereals	Wheat , barley, oats, *bajra*
Fruits	Orange, apple, gooseberry, blueberry
Dry fruits	Almond , apricot, walnut

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Table 1: Clinical reports

Date	BP (mm/hg)	PR	Weight	Fundal Height	Post prandial blood sugar levels in mg/dl
20/2/19	130/80	74/bpm	72kgs	27-28 weeks	185
7/3/19	120/90	76/bpm	74kgs	28-30 weeks	170
20/3/19	110/80	75/bpm	75kgs	30-32 weeks	154
29/3/19	120/90	74/bpm	76kgs	32-34 weeks	142
8/4/19	110/80	75/bpm	77kgs	34-35 weeks	131.13
15/4/19	130/90	76/bpm	77kgs	35-36 weeks	144
25/4/19	130/80	76/bpm	78kgs	36-37 weeks	130
5/5/19	130/80	74/bpm	78kgs	37-38 weeks	126

Table 2: Ingredients of Tab. *Nishamalaki.*

Name of the Drug	Latin name	Parts used	*Rasa*	*Guna*	*Viry*
Haridra	*Curcuma longa*	Rhizomes	*Tiktha, Katu*	*Laghu, Ruksha*	*Ush*
Amalaki	*Emblica officinalis*	Fruit	*Lavana Varjitha Pancharasa*	*Laghuruksha*	*Sheetha*

Table 3: Ingredients of Cordorium Plus.

Name of the Drug	Latin name	Parts used	*Rasa*	*Guna*	*Karma*	Quantity
Arjuna	*Terminalia arjuna*	*Twak*	*Kashaya*	*Laghu, Ruksha*	*Udardaprashmana, Sthambana. Medohara, Hridroga*	100 mg
Pushkara Moola	*Inula racemose*	*Roots*	*Tiktha, Katu*	*Laghu, Tiksha*	*Jwarahara, Shophahara Kasagna*	60 mg
Vriksh amla	*Garcinia indica*	*Fruit*	*Amla, Madhura*	*Ruksha, Guru*	*Ruchikrut, Deepana*	20 mg
Gokshura	*Tribulus terrestris*	*Fruit*	*Madhura*	*Guru, Snigda*	*Pramehahara , Mutra Kruchragnahridroga , Anilahara*	100 mg
Vetas amla	*Hippophaer hamnoides*	*Fruit*	*Amla ,*	*Laghu, Ruksha*	*Tridoshahara, Vatanulomana*	1 ml
Jatam amsi	*Nordostachys jatamansi*	*Root*	*Tiktha, Kashaya, Madhura*	*Laghu, Snigdha*	*Tridoshahara*	20 mg

Table 4: Ingredients of Tab. Hyponidd

Drug name	Latin name	Part used	*Rasa*	*Guna*	*Karma*	Quantity
Kiratha tiktha	*Momordica charantia*	Fruit	*Katu, Tikta, Madhura*	*Laghu, Ruksha*	*Kaphagna, Hridya, Pramehahara*	12 mg
Shuddh ashilajathu	*Black bitumen*		*Kapha pitthanut Pramehanashaka, Tridoshahara, Dahaprashamana, Kushthaghna, Chakshushya*	*Tiktakashaya*	*Medohara, Shoshaka, Pramehagna, Hridya*	37.5 mg
Yashada bhasma						37.5 mg
Shweta kiratha tiktha	*Momordica charantia*	Whole plant extrac				15 mg

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Nimba	*Melia Azadirachta*	Leaf	*Tikthakashaya*	*Laghu Ruksha*	*Mehanruth pitthakaphahara*	75 mg
Vijayasara	*Pterocarpus marsupium*	bark	*Kashaya Tiktha*	*Laghuruksha*	*Kaphapitthara, Rasayana, Medohara, Mehahara*	75 mg
Guduchi	*Tinospora cordifolia*	Stem	*Tiktha*	*Laghu Snigdha*	*Tridoshahara, Pramehahara, Hridya, Kamalahara*	75 mg
Madhunashini	*Gymneasylvestre*	Leaf				112.5 mg
Amalaki	*Emblica officinalis*	Fruit	*Lavanavarjitapancharasa*	*Laghu Ruksha*	*Pachani, Vayasthapana*	150 mg
Janmbu	*Eugenia jambolona*	Seeds	*Kashaya Madhura Amla*	*Laghuruksha*	*Pachanarochana*	150 mg
Aragwadha	*Cassia auriculate*	Seeds	*Madhura*	*Guru Snigdha*	*Hridrogaharapittkaphahara*	225 mg
Haridra	*Curcuma longa*	Rhizome	*Tiktha, Katu*	*Laghu Ruksha*	*Lekhaniya, Kushtagna*	300 mg

DISCUSSION

Nishamalaki or *Nisha Amalaki* (NA), various combination formulations of *Haridra* and *Amalaki*[3] is recommended in Ayurvedic classics, proven efficacious and widely practiced in the management (treatment, prevention of complications) of *Madhumeha* (Diabetes Mellitus). *Nishamalaki* possess antihyperglycemic, Antidiabetic, insulin mimetic, α-Amylase inhibitory and α glucosidase inhibitory, antioxidant properties. It improves insulin sensitivity, increases glucose uptake by skeletal muscles and is beneficial in the management of *Madhumeha, Prameha.*[4] Cardorium Plus contains *Arjuna* and *Pushkaramoola* which correct *Dhamaniprathichaya*. *Arjuna* is a *Hridya* drug (cardio protective). *Pushkaramoola* removes *Kapha* vitiation and inhibits the process of *Srothorodha*, since *Kapha Dosha* is mainly responsible for *Srothorodha*. *Kurubaka* acts against *Kapha Dosha*, *Vyana Vatha Dosha*, *Medodushti* and improves *Rakthavahasrotas*. *Vrikshamla* is a proven drug against *Medodushti* which prevents Dyslipidaemia and Atherosclerosis. *Gokshura* is a potent *Vata* pacifying herb with *Rasayana* quality. Rasayana drugs like *Vetasamla* will boost the immune system in the body and scavenges free radicals in addition *Vetasamla* also act against *Vyana Vata Dosha*, *Medo Dushti* and improves *Rakthavahasrotas*. *Jatamansi* acts against *Vyana Vata Dosha* and helps to maintain normal *Rakthavahasrotas.* Various experimental studies have shown that the various ingredients of Hyponidd have antidiabetic action. *Gynmnema Sylvestre* and Gurmar increases insulin secretion probably by regeneration of pancreatic beta cells.[5],[6] In vitro trials on experimental models with *Gynmnema Sylvestre* have proved that this herbal drug increases insulin release by increasing the cell permeability.[7] *Jambu Beeja* and *Neem Patra* are reported to have antidiabetic action.[8],[9] *Gurmar* is also reported to have stress reducing effect.[10] Moreover, *Amla*, which is a rich source of vitamin C, has been reported to reduce free radical production, which is considered to be the most important causative factor for diabetes related complications. Additionally *Haldi* and *Shilajit* also have antioxidant property.[11] *Vijaysara* has been proved to be effective in reducing HbA1c levels in newly diagnosed type 2 diabetic patients.[12] *Pterocarpus marsupium* is effective in reducing levels of blood glucose and glycosylated haemoglobin in type 2 diabetic patients.[13] *Tinospora cordifolia*, a widely used herb in Indian Ayurvedic medicine, has been shown to have antidiabetic and hypolipidemic action.[14] Similarly, *Momordica charantia* seeds have been reported to have insulin like bioactivity.[15]

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CONCLUSION

Women with GDM have extra physiological challenges that when left unattended, have the potential to increase negative pregnancy outcomes for both mother and child. *Nishamalaki Vati* and Cordorium Plus along with *Pathyaahara* was effective in the management of GDM in present case. There were no adverse effects noted during treatment course. Besides gestational diabetes mellitus was managed by oral medication and *Pathyahara* along with prevented the polyhydramnios, excessive weight gain and she was posted to caesarean section delivered a female baby of 2.9 kgs.

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