

## MANAGEMENT OF PREGNANCY INDUCED HYPERTENSION THROUGH AYURVEDA: A CASE REPORT

Dr. Megha Gupta<sup>1\*</sup> and Prof. L. P. Dei<sup>2</sup>

<sup>1</sup>Ph.D. 1<sup>st</sup> Year Scholar, PTSR Deptt, I.P.G.T. & R.A., G.A.U., Jamnagar.

<sup>2</sup>H.O.D. PTSR Deptt., I.P.G.T. and R.A., G.A.U., Jamnagar.

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### \*Corresponding Author

**Dr. Megha Gupta**

Ph.D. 1<sup>st</sup> Year Scholar,

PTSR Deptt, I.P.G.T. &

R.A., G.A.U., Jamnagar.

### ABSTRACT

Pregnancy is a very crucial period for a woman as many changes take place during this period in woman's body. Among many conditions associated with pregnancy, hypertension is seen commonly now a days during pregnancy known as pregnancy induced hypertension, due to increased age of marriage and thus delayed conception. This is because of more orientation of women towards their career. PIH complicates approximately 6% of pregnancies globally and is the most important cause of maternal and neonatal morbidity and mortality.<sup>[1]</sup> The national incidence of PIH is 15.2% in India, while it is 4 times higher in primipara than multipara women.<sup>[1]</sup> Though various medicines are

mentioned in modern science for treatment of pregnancy induced hypertension but through this case study, an effort is made to treat this condition through Ayurvedic medicines which was found successful. In Ayurveda, specific description regarding pregnancy induced hypertension is not there but Acharya Harita mentioned Shopha as one of the Updravas of Garbha while mentioning Garbhini Vyadhi.<sup>[2]</sup> The main Dosha responsible for the condition can be taken as Vata specially Vyana Vayu as it is responsible for normal circulation of blood in whole body<sup>[3]</sup> due to Chala Guna of Vayu.<sup>[4]</sup> Vata can be increased due to two reasons either Vata Prakopa directly due to intake of Vataprakopaka Aahara Vihara and second by Aavarana.<sup>[5]</sup> In the present case study, 1 case was selected from the OPD of IPGT & RA, Jamnagar who was a pregnant lady of 5 months and 10 days gestational period of age 31 years third gravida with obstetric history of one live baby and one abortion. She was given a powder of Sarpagandhadi Yoga 5 gms 2 times a day with water after meals and Punarnavashtaka Kwatha 10 gm twice a day empty stomach for 25 days and it was found the combination was effective in reducing the blood pressure. The drugs in Sarpagandhadi Yoga

and Punarnavashtaka Kwatha possess diuretic, antihypertensive, hypotensive, sedative, anti stress, antioxidant, anti inflammatory, anti atherosclerotic and vasodilator properties which lowers the blood pressure.

**KEYWORDS:** Pregnancy induced hypertension, *Sarpagandhadi Yoga*, *Punarnavashtaka Kwatha*, anti atherosclerotic.

## INTRODUCTION

Hypertension, also known as high blood pressure, is a medical condition in which the blood pressure in the arteries is persistently elevated.<sup>[6]</sup> Long term high blood pressure, is a major risk factor for coronary artery disease, stroke, heart failure, atrial fibrillation, peripheral vascular disease, vision loss, chronic kidney disease and dementia.<sup>[6]</sup> In pregnancy, it is the common medical complication which contributes significantly to maternal and perinatal morbidity and mortality. It is the sign of an underlying pathology, which may be pre existing or appears for the first time during pregnancy and thus classified accordingly. Pregnancy induced hypertension is defined as the hypertension that develops as a result of the gravid state which includes gestational hypertension (BP  $\geq$  140/90 mm Hg for the first time in pregnancy after 20 weeks, without proteinuria), preeclampsia (Gestational hypertension with proteinuria, urinary excretion of  $\geq$  0.3 gm protein/24 hours specimen or 0.1 gm/litre) and eclampsia (women with preeclampsia complicated with grand mal seizures and/or coma).<sup>[7]</sup> The underlying basic pathology is endothelial dysfunction and intense vasospasm, particularly affecting the vessels of uterus, kidney, placental bed and brain. Endothelial dysfunction is due to oxidative stress and the inflammatory mediators. Vasospasm results from the imbalance of vasodilators (Prostaglandins I<sub>2</sub>, Nitric Oxide) and vasoconstrictors (Angiotensin – II, TXA<sub>2</sub>, Endothelin – 1).<sup>[7]</sup> Increased maternal deaths are mainly related to eclampsia, accidental haemorrhage, acute renal failure, pulmonary edema, DIC and HELLP syndrome.<sup>[7]</sup> Although the maternal mortality has been reduced significantly, the perinatal mortality still remains very high even in the developed countries (7-10%).<sup>[7]</sup> In developing countries, the perinatal mortality remains to the extent of about 20%, about 50% of which being stillborn.<sup>[7]</sup> The main reasons include IUD due to spasm of uteroplacental circulation leading to accidental hemorrhage or acute red infarction, IUGR due to chronic placental insufficiency, asphyxia, prematurity either due to spontaneous preterm onset of labor or due to preterm induction.<sup>[7]</sup> Management includes rest, lying in left lateral position, high protein diet (100 gm/day), diuretics like furosemide, antihypertensive drugs like methyl dopa,

labetalol, nifedipine. The definitive treatment of preeclampsia is termination of pregnancy (delivery) depending on the condition of the mother and fetal maturity.

In *Ayurveda*, specific description is not available regarding the condition but it can be understood as follows- *Vata Dosha* can be aggravated by two ways by taking *Vata Prakopaka Aahara Vihara* or by *Aavrana* of some other *Dosha* like *Kapha* and *Pitta*.<sup>[5]</sup> *Vyana Vayu* is *Sarvashaarira Vyapi* responsible for circulation of blood in body<sup>[3]</sup> thus it is mainly affected in this condition. *Vata* is responsible for *Sankocha, Stambha*<sup>[8]</sup> thus causing constriction of arteries when aggravated causes symptoms like *Shankhbheda, Aswapna, Bhrama*<sup>[9]</sup> then it vitiates *Rakta* also causing *Raktadushti* due to which *Shiroruk, Pipasa, Buddhi Sammoha, Sweda, Kampa* occurs in this condition.<sup>[10]</sup> The *Chikitsa* in this condition should be *Vatanulomaka, Vatashamana, Mridu Virechana, Raktashodhaka, Anulomana, Hridaya, Medhya* and *Nidrajanana*.

## CASE REPORT

A 31 year old married woman visited the Prasuti Tantra and Stree Roga O.P.D. of I.P.G.T. & R.A., Jamnagar on 05/03/2018, for regular antenatal check up with pregnancy of 4 months and 14 days. She was a third gravida with LMP on 20/10/2017 and EDD on 27/07/2018. Obstetric history revealed a previous normal vaginal delivery of a female child 2 years back at hospital and an induced abortion 9 months back of 1 and ½ month gestational age using MTP pills. Hematological, biochemical & microbiological investigations were found to be normal. On examination the general condition of the patient appeared normal. BP was 120/70 mm of Hg and Pulse 75 bpm. Pallor, edema etc. were absent. Per abdomen examination revealed fundal height corresponding to 18-20 weeks of pregnancy. Then she continued her regular antenatal check up here which was uneventful. When she came on 30/03/2018 with her sonography report, her reports were normal showing single intrauterine fetus with breech presentation of 22 weeks and 3 days. Her BP was 140/100 mm Hg on that day with normal urine report and mild pitting pedal oedema. She was given *Sarpagandhadi Yoga* 5 gm twice a day with water after meals and *Punarnavashtaka Kwatha* 10 gm twice a day empty stomach for 7 days. She was told to take rest, lie in left lateral position and told to come after 7 days. On 13/04/2018, her BP was recorded 140/80 mm Hg with no fresh complaints. The treatment was continued and she was advised to come again after 7 days on 20/04/2018 when her BP was found 120/80 mm Hg and no pedal edema was there. The treatment was continued, on

4/05/2018 her BP was 110/70 mm Hg and on 18/05/2018 120/80 mm Hg. This can be tabulated as follows.

Date	BP (mmhg)	PR	Weight	Fundal Height	Pedal Odema
30/03/2018	140/100	74 bpm	78 kg	22-23 weeks	mild pitting
13/04/2018	140/80	74 bpm	80 kg	23-24 weeks	mild pitting
20/04/2018	120/80	75 bpm	80 kg	23-24 weeks	no
04/05/2018	110/70	74 bpm	80.5 kg	26-27 weeks	no
18/05/2018	120/80	74 bpm	82 kg	27-28 weeks	no

*Sarpagandhadi Yoga* – It consists of following ingredients in equal quantity in dry powder form as shown in Table 1.

**Table 1: Ingredients of Sarpagandhadi Yoga.**

Name of Drug	Latin name	Part used	Quantity
<i>Sarpagandha</i>	<i>Rauwolfia serpentina</i> (L.)Benth.ex Kurz	Root	500mg
<i>Brahmi</i>	<i>Bacopa monnieri</i> (Linn.) Pennell	Whole plant	1 gm
<i>Arjuna</i>	<i>Terminalia arjuna</i> (Roxb.) Wt. & Arn.	Stem Bark	1 gm
<i>Jatamansi</i>	<i>Nardostachys grandiflora</i> DC.	Rhizome	500 mg
<i>Gokshura</i>	<i>Tribulus terrestris</i> Linn.	Fruit	1 gm
<i>Guduchi</i>	<i>Tinospora cordifolia</i> (Willd.) Miers. Ex Hk.f. & Th.	Stem (Dry)	1 gm

**Punarnavashtaka Kwatha:** It consists of following ingredients in equal quantity in dry powder form as shown in Table 2.

**Table 2: Ingredients of Punarnavashtaka Kwatha.**<sup>[11]</sup>

Name of Drug	Latin name	Part used	Quantity
<i>Punarnava</i>	<i>Boerhavia diffusa</i> Linn.	Root	1 part
<i>Nimba</i>	<i>Azadirachta indica</i> A. Juss.	Stem Bark	1part
<i>Patola</i>	<i>Trichosanthes dioica</i> Roxb.	Leaf	1 part
<i>Shunthi</i>	<i>Zingiber officinale</i> Rosc.	Rhizome	1 part
<i>Kutaki (Tikta)</i>	<i>Picrorhiza kurroa</i> Royle ex Benth.	Root	1 part
<i>Guduchi (amrita)</i>	<i>Tinospora cordifolia</i> (Willd.) Miers. Ex Hk.f. & Th.	Stem Bark	1 part
<i>Devdaru</i>	<i>Cedrus deodara</i> (Roxb.) Loud.	Heartwood	1 part
<i>Abhaya</i>	<i>Terminalia chebula</i> Retz.	Fruit	1 part

## DISCUSSION

Many diuretics and anti hypertensive drugs are used in PIH in modern science but has many side effects. Diuretic Frusemide is given which prevents reabsorption of sodium and potassium mainly from Loop of Henle thus by increasing urine output, lowers blood pressure but has complications in mother like weakness, fatigue, muscle cramps, hypokalemia, postural hypotension and diminished placental perfusion leading to fetal compromise.<sup>[12]</sup>

Commonly used antihypertensive drugs in pregnancy as first line therapy like methyl dopa (central and peripheral antiadrenergic) and labetalol (alpha and beta adrenergic blocking agent) also has many side effects like postural hypotension, hemolytic anemia, sodium retention, excessive sedation, tremors, headache, asthma, congestive cardiac failure in mother.<sup>[12]</sup> Nifedipine which is second line drug acts by direct arteriolar vasodilatation by inhibition of slow inward calcium channels in vascular smooth muscle but causes flushing, hypotension, headache, tachycardia, inhibition of labor in mother.<sup>[12]</sup> So to avoid these side effects and provide a safer Ayurvedic alternative, the present study was done.

As the main *Dosha* responsible in this condition is *Vata* specially *Vyana Vayu* and *Rakta Dushti* is also there so in the present study drugs selected have *Raktashodhaka*, *Anulomana*, *Hridya*, *Rechaka* (in case of *Aavrana Janya Prakupit Vata*), *Medhya*, *Nidrajanana* and *Vatashamaka* properties.

The properties and action of the ingredients of *Sarpagandhadi Yoga* are shown in Table 3.

**Table 3: Properties and pharmacological action of the drugs in *Sarpagandhaadi Yoga*.**

Drugs	Properties	Pharmacological action
<i>Sarpagandha</i>	<i>Nidrajanana, Raktabharaprashamana</i> <sup>[13]</sup>	Hypotensive, vasodilator <sup>[13]</sup>
<i>Brahmi</i>	<i>Medhya, Akshepahara, Anulomana, Raktashodhaka</i> <sup>[14]</sup>	Tranquilizer <sup>[14]</sup>
<i>Arjuna</i>	<i>Hridya, Hridayottejaka</i> <sup>[15]</sup>	Cardio protective <sup>[15]</sup>
<i>Jatamansi</i>	<i>Medhya, Nidrajanana, Anulomana, Hrid balya, Raktabharaniyamaka, Mridurechana</i> <sup>[16]</sup>	Hypotensive, diuretic, antianxiety <sup>[16]</sup>
<i>Gokshura</i>	<i>Vatashamaka, Anulomana, Hridya</i> <sup>[17]</sup>	Hypotensive, cardiotoxic, diuretic <sup>[17]</sup>
<i>Guduchi</i>	<i>Trishnanigrahana, Anulomana, Hridya, Raktashodhaka</i> <sup>[18]</sup>	Antistress, antioxidant, hypotensive, diuretic <sup>[18]</sup>

The properties and action of the ingredients of *Punarnavashtaka Kwatha* are shown in Table 4.

**Table 4: Properties and pharmacological action of the drugs in *Punarnavashtaka Kwatha*.**<sup>[11]</sup>

Drugs	Properties	Pharmacological action
<i>Punarnava</i>	<i>Anulomana, Rechana, Hridya</i> <sup>[19]</sup>	Diuretic, antihypertensive, cardiotoxic <sup>[19]</sup>
<i>Nimba</i>	<i>Raktashodhaka</i> <sup>[20]</sup>	Diuretic, hypotensive <sup>[20]</sup>
<i>Patola</i>	<i>Anulomana, Rechana, Raktashodhaka, Hridya</i> <sup>[21]</sup>	
<i>Shunthi</i>	<i>Vatashamaka, Vatanulomana, Hridya</i> <sup>[22]</sup>	Anti atherosclerotic,

		cardiovascular, antioxidant <sup>[22]</sup>
<i>Kutki (Tikta)</i>	<i>Rechana, Raktashodhaka</i> <sup>[23]</sup>	Antistress, diuretic, hypotensive, antioxidant <sup>[23]</sup>
<i>Guduchi (Amrita)</i>	<i>Trishnanigrahana, Anulomana, Hridya, Raktashodhaka</i> <sup>[18]</sup>	Antistress, antioxidant, hypotensive, diuretic <sup>[18]</sup>
<i>Devdaru</i>	<i>Anulomana, Hridyottejaka, Raktaprasadana</i> <sup>[24]</sup>	
<i>Abhaya</i>	<i>Medhya, Anulomana, Mridurechana, Hridya, Srotah- shodhana</i> <sup>[25]</sup>	Antistress, hypotensive <sup>[25]</sup>

The drugs used have diuretic, hypotensive, antioxidant, antistress, cardiogenic, vasodilator and anti atherosclerotic properties which helps in lowering blood pressure.

## CONCLUSION

So after observing the results, it can be said that main Dosha responsible for Pregnancy induced Hypertension is Vayu (Vyana Vayu) and Raktadushti occurs in this condition. The drugs selected have Raktashodhaka, Anulomana, Hridya, Rechaka (in case of Aavrana Janya Prakupit Vata), Medhya, Nidrajanana and Vatashamaka properties. Sarpagandhadi Yoga and Punarnavashtaka Kwatha are effective in controlling blood pressure in pregnancy induced hypertension in the present case but to validate the effect of Sarpagandhadi Yoga and Punarnavashtaka Kwatha scientifically in PIH, appropriate research methods should be adopted for future clinical studies.

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