



Review Article

PREGNANCY-INDUCED HYPERTENSION - AYURVEDIC UNDERSTANDING

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ABSTRACT

Pregnancy-induced hypertensive disorders are included among the most common medical complications of pregnancy with an incidence of 5–10%. Hypertension that develops as a direct result of gravid state is referred to as 'pregnancy-induced hypertension'. The timely management of pregnancy complicated with hypertensive disorders is significant, otherwise it can lead to adverse fetal, neonatal and maternal outcomes. The basic pathology in pre-eclampsia, one of the types of hypertensive disorders is endothelial dysfunction and intense vasospasm due to abnormal placentation compromising blood flow to the foetoplacental unit. There is no direct reference of pregnancy-induced hypertension in Ayurveda classics, but the manifested symptoms can be explained within the purview of Ayurveda. Abnormality in placentation can be considered as impairment in the normal functioning of *Vata dosha* and when the pathology progresses further; *Kapha*, *Pitta* also play their own roles. In a woman with or without a previous history of pre-eclampsia, intervention should begin from pre-conceptional period. Planned pregnancy after pre-conceptional care followed by *Garbhini paricharya* along with the use of *Garbhasthapaka dravya*, *Rasayana dravya*, *Masanumasika Garbhasravahara dravya* can play significant roles in the prevention as well as management of pregnancy-induced hypertension thus improving the maternal and foetal outcomes.

INTRODUCTION

Pregnancy-induced hypertensive disorders are included among the leading causes of maternal and perinatal morbidity and mortality.^[1] They form the most common medical complications of pregnancy with an incidence of 5–7%.^[2] According to WHO, at least one woman dies every seven minutes from complications of hypertensive disorders of pregnancy.^[3] Hypertension that develops as a direct result of gravid state is referred to as 'pregnancy-induced hypertension' (PIH).^[4] It can be gestational hypertension, pre-eclampsia or eclampsia.^[4] Hypertension can be a presenting sign of an underlying pathology, which may be pre-existing or appears for the first time during pregnancy.^[4]

On many occasions, the condition is often undiagnosed till complications occur. The timely management of pregnancy complicated with hypertensive disorders is significant, otherwise it can lead to adverse fetal, neonatal and maternal outcomes. PIH refers to one of four conditions: a) pre-existing hypertension, b) gestational hypertension and preeclampsia (PE), c) pre-existing hypertension plus superimposed gestational hypertension with proteinuria and d) unclassifiable hypertension.^[5]

Physiology of Pregnancy

Significant cardiovascular and haemodynamic changes occur early in pregnancy in order to provide enough blood for the embryo and to maintain normal intrauterine foetal growth. Maternal plasma volume and cardiac output increase. Systolic blood pressure, diastolic blood pressure, maternal heart rate, and peripheral vascular resistances seem to significantly decrease until 24th week of gestation, and then they increase until delivery, gradually returning to normal during postpartum period.^[6]

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Pre-Eclampsia (PE)

Pre-eclampsia is a multisystem disorder of unknown etiology characterized by the development of hypertension to the extent of 140/90mm of Hg or more with proteinuria after the 20th week of pregnancy in a previously normotensive and nonproteinuric woman.^[4] Pathological oedema is also included in the diagnostic criteria of pre-eclampsia. Manifestation of pitting oedema over the ankles after 12 hours of bed rest or excessive weight gain of more than 4lb (2kg) a week in the late months of pregnancy can be the presentation of pre-eclampsia. Presence of 0.3g or more of total protein in 24 hours urine or urine protein/creatinine ratio >0.3 or equal to 1+ protein in at least two random clean-catch urine samples tested 4 hours apart in the absence of urinary tract infection is significant.^[7]

Risk Factors and Etiological Factors

Risk factors include: Primigravidae, family history of hypertension or pre-eclampsia, obesity, pre-existing vascular disease, thrombophilia, new paternity, pregnancy following assisted reproductive techniques and abnormalities of placenta.^[7]

While describing etiological factors; abnormal placentation caused due to the failure of trophoblast invasion, vascular endothelial damage, inflammatory mediators, increased free radical formation, immunological intolerance between maternal and foetal tissues, imbalance of angiogenic and antiangiogenic proteins, genetic predisposition, dietary imbalance, coagulation disorders play significant roles.^{[7]///}

Etiopathogenesis

PIH especially PE is considered to be a multifactorial disease. Many theories have been developed about the pathogenesis of this clinical entity. The central role of placenta is their common characteristic. The basic pathology in pre-eclampsia is endothelial dysfunction and intense vasospasm affecting almost all vessels especially those of the uterus, kidney, placental bed and brain. In a normal pregnancy, there is invasion of trophoblasts into the walls of the spiral arterioles of the uteroplacental bed. In the first trimester, the invasion is up to decidual segments and in the second trimester up to the myometrial segments, thus the spiral arterioles become distended, tortuous and funnel-shaped. In pre-eclampsia, there is failure of the second wave of trophoblast invasion and thus there is abnormal placentation compromising blood flow to the foetoplacental unit.^[7]

There is also an imbalance in the different components of prostaglandins – reduced vasodilator prostaglandins (PGI₂) and increased synthesis of thromboxane (TXA₂) which is a vasoconstrictor. The deficiency of nitric oxide also co-exist. There is

increased vascular sensitivity to angiotensin II whereas angiotensinase activity is depressed. The role of inflammatory mediators is also marked which cause endothelial injury. Oxidative stress caused by abnormal lipid metabolism also cause endothelial injury and dysfunction. Imbalance of angiogenic and antiangiogenic proteins in placental vascular bed also gets added up to the pathology.^[8]

Oedema

Increased capillary permeability due to endothelial injury causes excessive accumulation of fluids in the extracellular spaces.

Proteinuria

Increased capillary permeability leads to increased leakage of proteins with reduction in tubular resorption causing proteinuria.

Clinical Features^[9]

Symptoms usually manifest after the 20th week of pregnancy.

Mild Symptoms

Mild swelling over the ankles persisting on rising up from the bed in the morning or tightness of the ring on the finger is the early manifestation of oedema due to pre-eclampsia. The oedema may extend to the face, abdominal wall, vulva and even the whole body.

Alarming symptoms

Headache, disturbed sleep, diminished urinary output, epigastric pain associated with vomiting, dimness of vision.

Signs

- Insidious or abrupt rise in blood pressure
- A rapid weight gain of more than 4 lb a week in the later months of pregnancy is significant
- Pathological oedema
- Growth retardation of the foetus, scanty liquor may be evident

Follow-Up

The assessment of women with pregnancies complicated by PIH includes clinical follow-up, biochemical investigations and fetal ultrasound evaluation. Clinical follow-up includes blood pressure measurements and evaluation of any signs or symptoms indicative of clinical deterioration. Blood investigations include haematocrit, platelet count, uric acid, creatinine and liver enzymes, coagulation profile. Urinalysis for proteinuria should also be done. Ophthalmic examination should be repeated if necessary. Measures used for foetal surveillance include foetal movement count, biophysical profile, cardiotocography, assessment of amniotic fluid volume, ultrasound assessment of foetal growth as well as Doppler measurements of the umbilical artery, ductus venosus, middle cerebral artery, and cerebroplacental ratio.^[10]

Complications^[11]

Maternal complications during pregnancy include eclampsia, abruptio placentae, oliguria or anuria, dimness of vision, preterm labour, HELLP syndrome (haemolysis, elevated liver enzymes, low platelet count), cerebral haemorrhage, acute respiratory distress syndrome. Labour complications include postpartum haemorrhage and eclampsia. During puerperium, eclampsia, shock, sepsis can occur. Remote complications may be residual hypertension, recurrence of pre-eclampsia in subsequent pregnancies, chronic renal disease. Foetal complications include intrauterine death, intrauterine growth restriction, asphyxia and prematurity.

Prognosis

The prognosis depends on gestational age, severity of the disease and response to treatment. If diagnosed early, with effective and prompt management, the symptoms subside leading to favourable maternal and foetal outcomes. If left uncared or with acute onset, life threatening complications can occur leading to maternal and foetal mortality or perinatal morbidity.

Prevention

Eventhough pre-eclampsia is not totally preventable, the risk factors can be identified early and the predisposing factors can be avoided or controlled. Regular antenatal checkups, resorting to mild physical activity, intake of balanced diet, calcium supplementation, intake of antioxidants, vitamins C, E, magnesium, zinc, low salt diet can be followed. Antiplatelet agents like low-dose aspirin is given daily from early pregnancy in high-risk groups.^[12]

Management

The objectives of management are to stabilize hypertension and to prevent the development of severe pre-eclampsia, to prevent complications, prompt delivery of a healthy baby, restoration of maternal health and well-being. Adequate bed rest, high protein diet are advised. Diuretics are to be used in massive oedema, the injudicious use of which is not recommended. Antihypertensives are recommended in persistent rise of blood pressure especially when diastolic blood pressure is more than 110mmHg, associated proteinuria. The definitive treatment of pre-eclampsia is termination of pregnancy.^[13]

Eclampsia^[14]

Pre-eclampsia when complicated with grand mal seizures and/or coma is called eclampsia. The cause of convulsion due to cerebral irritation may be anoxia, cerebral oedema, cerebral dysrhythmia. Fits can occur during antenatal, antepartum, intrapartum and postpartum periods. Foetal and maternal prognosis is uncertain. Early detection and management of pre-eclampsia can be considered as the

prevention of eclampsia. Use of anti-hypertensives, anticonvulsant therapy and timely delivery are important.

Gestational Hypertension^[15]

Gestational hypertension is the sustained rise of blood pressure to 140/90mmHg or more on at least two occasions 4 or more hours apart beyond the 20th week of pregnancy or within the first 48 hours of delivery in a previously normotensive woman. The management principles of gestational hypertension are similar to those of pre-eclampsia.

Ayurvedic Approach

There is no direct reference of pregnancy-induced hypertension in Ayurveda classics, but the manifested symptoms can be explained within the purview of Ayurveda. The term '*Garbhajanya vishamayata*' can be used to describe the symptoms under pregnancy-induced hypertension. The risk factors of hypertension like genetic component, obesity, hyperlipidemia (*Snigdha, Guru ahara, Adhyasana*), sedentary lifestyle (*Alpa vyayama, Bhuktva divaswapna*), intake of high salty and spicy food (*Atilavana kshara amla katu*) can be viewed as those causing *Raktadushti nidana* as per *Charaka Samhita Sutra Sthana Vidhisoniteeya Adhyaya; Sopha Nidana, Vatasonita Nidana* as per *Astanga Hridaya* which can also be incorporated into the description of pregnancy-induced hypertension.^[16,17,18]

The pathophysiology involved in the development of pre-eclampsia is endothelial dysfunction, vasospasm due to abnormal placentation set in due to the failure of second wave of trophoblast invasion into the maternal spiral arteries. In the formation of *Garbha, doshas* especially *vata* are the controlling mechanism.^[18] The normal functions of *Vata* mentioned in *Charaka Samhita Sutrasthana Vatakalakaleeyam Adhyaya* like '*Karta Garbhakriteenam*', '*Sthoolanusrotasaam Bhetha*', '*Dhatumaanasamsthanavyakti*', '*Pravartanam Srotasa*', '*Vibhago Dhatunaam*' are indispensable in the formation and continuation of pregnancy till delivery at term.^[19] *Vyana vata* is involved in blood circulation.^[20] Abnormality in placentation can be considered as impairment in the normal functioning of *Vata dosha* particularly '*Karta Garbhakriteenam*', '*Sthoolanusrotasaam Bhetha*'. When the pathology progresses further leading to *Srotorodha* and complications like HELLP syndrome; *Kapha, Pitta* also play their own roles.

Any abnormality in the functioning of *Vata* will lead to either *Vinihanti Garbha* or *Vikritimapadayati* which will be manifested as the symptoms and complications of pre-eclampsia like low birth weight, foetal death, preterm labour etc.^[19]

Even though pregnancy-induced hypertension is not directly mentioned as a separate entity in Ayurveda, scattered references of the multitude of individual symptoms in pre-eclampsia can be seen as described in Ayurveda classics, most of which have poor prognoses.

Padasopha

Padasopha enumerated as one among *Vyakta Garbha lakshana* can be considered as physiological oedema of pregnancy, whereas *Sopha* described in *Garbha upadrava* according to *Hareeta Samhita* can be pathological oedema. *Garbhini padasopha* is one among *Asadhya mudagarbha lakshana* according to *Kashyapa Samhita*.^[21,22,23]

Jarayu dosha

Jarayu dosha is mentioned among *Garbha vyapath* according to *Sarngdhara* which may be the abnormal placentation occurring in pre-eclampsia.^[24]

Vipareeta Indriyarthā

Vipareeta indriyarthā is one of the *Asadhya mudagarbha lakshana* according to *Susruta* and *Vagbhata* which can be related to eclampsia.^[25,26]

Akshepaka and Apatantraka

Kashyapa has described the *chikitsa* of *Garbhini Akshepaka* and *Apatanaka* which can be considered as the manifestation of eclampsia in *Garbhini*. *Akshepaka* is one of the *Asadhya mudagarbha lakshana* according to *Susruta* and *Vagbhata*.^[27,25,26]

Vivarnata

The treatment of *Vivarnata* in *Garbhini* is described in classics; which can be considered as anaemia due to blood loss in abruption placentae.^[22]

Garbhasosha

Garbhasosha is described in classics along with its treatment.^[28] The causes of *Garbhasosha* are varied; pre-eclampsia can also predispose to intrauterine growth retardation.

Mutragraha

The treatment of *Mutragraha* in *Garbhini* is explained, oliguria can be seen as one of the complications of pre-eclampsia.^[29]

Jataharini

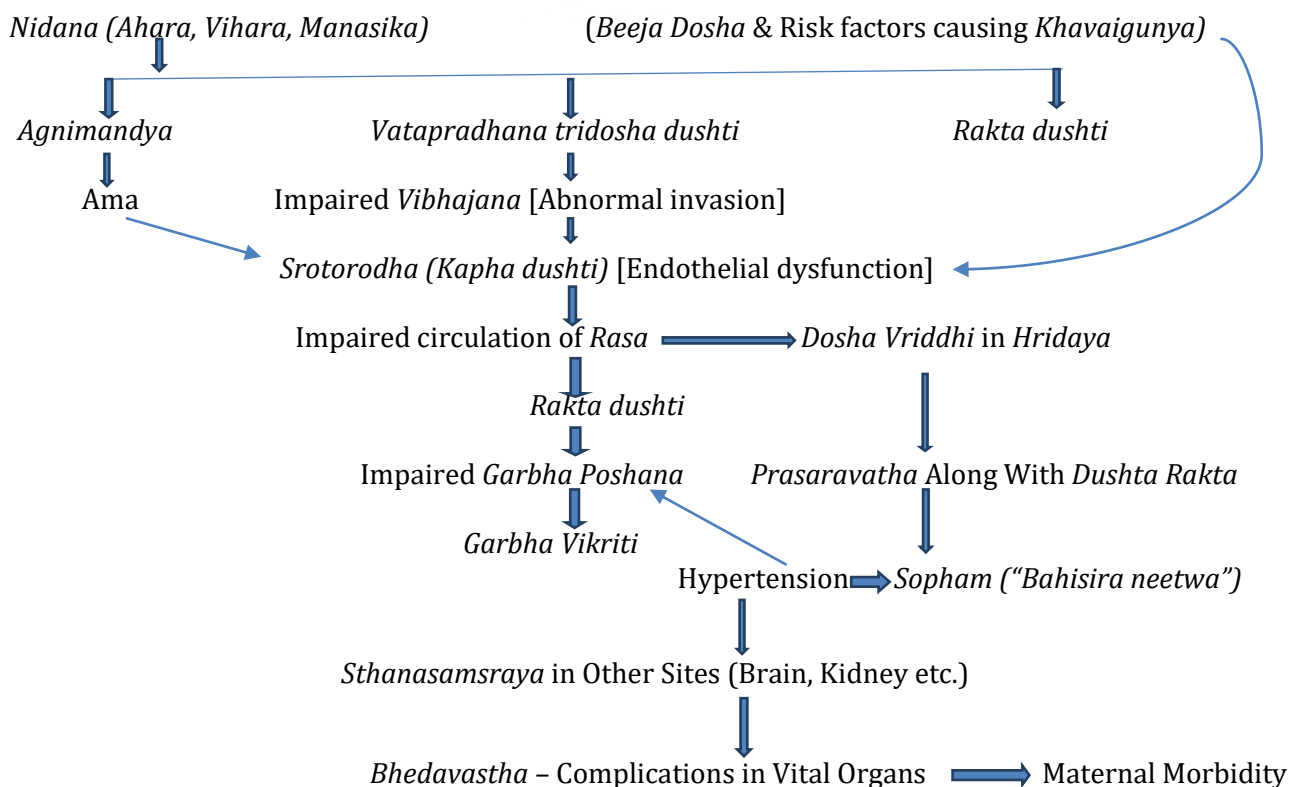
Jataharini form another domain of *Garbhini vyadhi*; some the symptoms of which can be equated with pre-eclampsia; for example, *Mohini Jataharini* in which *Vishamayata* or toxemia can be seen.^[30]

Samprapti Ghatakas

Even though a direct reference of pre-eclampsia is unavailable in Ayurveda; for the purpose of understanding and treatment, the knowledge of *Samprapti ghatakas* that lead to the manifestation of this disorder is necessary. The *Samprapti ghatakas* can be summed up as:

- Dosha – Vatapradhana tridosha*
- Dushya – Rasa, Rakta*
- Srotas – Rasavaha, Raktavaha, Manovaha*
- Srotodushti – Sanga*
- Vyaktasthana – Sarvasareera, Manas*
- Sadhyasadyata – Kricchrasadhya*

Samprapti



Aharaja, Viharaja, Manasika factors mentioned in *Sopha, Vatasonita nidana* and also those specifically mentioned for *Raktadushti* are involved in the initiation of PIH.^[17,18] *Beejadushti* and other risk factors like previous history of PIH, vascular diseases play their own roles causing *Khavaigunya*. *Agnimandya* and consequent *Ama utpatti, Vatapradhana tridoshadushti* occur. *Vatavaigunya* leads to impaired *Vata karma* like abnormality in *Vibhajana* which may be manifested as abnormal invasion of trophoblasts. Impaired *Vibhajana karma* causes impairment in *Garbha akriti* which is one of the most important *Karma* of *Vata* which can be seen as abnormality in placentation.^[19] Impaired *Vibhajana* in *Garbha* leads to *Srotodushti* which may be manifested as endothelial dysfunction causing pre-eclampsia. *Srotodushti* causes impaired circulation of *Rasa*, and *Hridaya* is affected consequently as it is *Rasavaha srotomula*. *Rasadushti* and subsequent *Raktadushti* cause impairment in *Garbha poshana* leading to *Gabha vikriti* in due course of the disease progression.^[31] *Dosha vriddhi* in *Hridaya* along with *Dushita rakta* progresses to *Prasara* of *Dosha* by *Dushita vyana vata* manifested as hypertension. *Sarvasareera* mainly the vital organs like kidney, brain, liver and *Manas* are affected. Associated symptoms of PIH like *Sopha* develop due to extravasation of *Doshas* with *Rakta (Bahisira neetwa ruddhagati)*.^[17] If untreated, pre-eclampsia may progress to complications leading to maternal and foetal morbidity.

Masanumasika Garbha Vriddhi and Paricharya

A detailed description of *Masanumasika Garbha Vriddhi* and *Garbhini Paricharya* is explained in *Samhithas*. Critical analysis of *Garbhini paricharya* reveals that our *Acharyas* were well aware about the physiological and the pathological changes that occur during pregnancy and the regimen was designed in such a way that it satisfies the needs of both the mother and the foetus.

In the fifth month of pregnancy, *Mamsa sonitha upachaya* occurs in the *Garbha* utilizing mother's resources causing *Karshya* in her.^[32] Among *Garbhini vyadhi, Sopha* is mentioned along with its treatment. In the sixth month, *Acharyas* advise the intake of *Swadamshtra siddha ghruta* or *Yavagu*.^[33] *Swadmashtra* has *Mutrala* property which can be taken as a controlled diuresis.^[34] Pre-eclampsia is said to occur after the 20th week of pregnancy. Though strong diuretics are not recommended, mild diuretics can be used for the management. Thus, we can see that the time period of occurrence of pre-eclampsia and time period of administration of *Swadamshtra siddha ghruta* or *Yavagu* coincide. Even though a direct reference of hypertension cannot be related in the context, *Swadmashtra* can reduce the fluid retention in the body, thus managing the symptoms of pre-eclampsia.

In *Garbhini sopha chikitsa*, *Acharya Kashyapa* advocated the use of *Varshabhu moola* with *Bhadradaru* and *Madhu*.^[35] *Varshbhu* also has *Mutrala* property.^[36] *Acharya Hareeta* advocated "*Na daruna vireka*" in the management of *Garbhini Sopha*.^[37] Thus the *Garbhini Sopha* with its *Chikitsa* mentioned in our classics can be equated with the clinical presentation of pre-eclampsia.

Preventive Aspects

Swasthasya Swaasthya Samrakshana incorporates the preventive aspects described in Ayurveda. It has equal importance as *Vikara prashamana* or curative aspects in terms of health. While dealing with *Prasuti* and *Streeroga*, Ayurvedic classics have described preventive aspects in terms of *Charya* or *Paricharya* which include *Rajaswala charya, Rithumati charya, Garbhini Paricharya, Soothika Paricharya* etc. Ayurveda recommends a planned pregnancy through pre-conceptual care for begetting a *Shreyasi praja*. *Garbhadana purva paricharya* or pre-conceptual care through *Sodhana chikitsa* and *Samana chikitsa* marks the preparative phase before *Garbhadana*.^[38] '*Na hi vaatadrite yonir vanitaanam pradushyati*' is mentioned in *Yonivyapath chikitsa*.^[39] *Yoni* can be considered as the entire female reproductive system; and no *Yoniroga* can manifest without the involvement of *Vata*. As *Vata* is the controller of all bodily functions as well as the most important single entity involved in the formation of *Garbha* and also the main *Dosha* involved in the pathogenesis of pregnancy-induced hypertension, *Sodhana chikitsa* focuses on *Vatanulomana* followed by *Shamana chikitsa* stabilizing *Vatapradhana tridosha*. The medicines given should be *Sophahara, Vatanulomaka, Hridya, Garbhasthapa, Raktaprasadaka* especially if there is a previous history of pregnancy-induced hypertension.

Preconceptional care ensures that the woman enters gestation after ensuring her physical as well as psychological well-being which should be carried over with *Garbhini Paricharya* or antenatal care. *Garbhini Paricharya* detailed in *Brihatrayis* and *Laghutrayis* includes the regimen to be followed during pregnancy. In the domain of *Garbhini Paricharya, Masanumasika Paricharya* (monthly regimen during pregnancy) is detailed which advocates monthly dietary regimen as well as lifestyle to be followed during pregnancy. Due consideration is given to the physiological as well as pathological changes that occur during pregnancy. As prevention is always better than cure, *Garbhini Paricharya* can prevent many of the disease conditions that may manifest during pregnancy. Any disease can affect *Garbhini* too, but the principles of management and the choice of medicines differ in them. *Teekshnaushadha, Sodhana* procedures are contraindicated in pregnancy as they hamper both the

Garbha as well as the *Garbhini*. Some pathological conditions manifest specifically in *Garbhini* which is the reason why *Garbhini paricharya* is stressed upon. Observance of *Garbhini paricharya* can improve the health of both the mother and the foetus and increases the chance of normal delivery of healthy baby at term.^[33]

Other than dietary regimen, intake of *Masanumasika Garbhasravahara dravya*, *Garbhasthapaka dravya* and *Rasayana dravya* improve maternal and foetal outcome in pregnancy.^[40,41,42] *Garbhasthapaka dravya* counteracts the *Garbhopaghatakara bhava* and paves way for the survival of the foetus.^[41] *Rasayana dravya* have proven antioxidant property and can act as free radical scavengers. Drugs like *Satavari*, *Guduchi*, *Amalaki*, *Draksha*, *Jeevanti* can act as *Garbhini Rasayana*. Accumulation of free radicals due to abnormal placentation is one of the main causes for the development of pre-eclampsia. Thus, administration of drugs having antioxidant property from the initial stage of pregnancy can certainly prevent the development of pre-eclampsia and the complications following it. Drugs and diet containing flavonoids like *Dadima*, *Amalaki*, *Draksha* too can prevent pregnancy-induced hypertension.^[43]

Yoga, *Pranayama* can certainly improve the pregnancy outcome in pregnancy-induced hypertension both in preventive and curative aspects.

DISCUSSION

Even though there is no direct reference available in Ayurveda classics regarding pregnancy-induced hypertension, the manifested symptoms can be explained on the basis of the available Ayurvedic references. The pathophysiology in the development of pre-eclampsia is abnormal placentation which can be considered as impairment in the normal functioning of *Vata dosha* and when the disorder progresses, *Tridoshas* are involved. Any abnormality in the functioning of *Vata* can lead to either *Vinihanti Garbha* or *Vikritimapadayati* which will be manifested as the symptoms that develop during the progression of pre-eclampsia like maternal morbidity, low birth weight, foetal death, preterm labour etc.

The etiological factors of hypertension like genetic component, obesity, sedentary lifestyle, intake of high salty and spicy food etc. can be incorporated into *Raktadushti Nidana* as per *Charaka Samhita*, *Sopha Nidana* and *Vatasonita Nidana* as per *Ashtanga Hridaya*. Pregnancy-induced hypertension can also be viewed through the same perspective. Risk factors of pre-eclampsia like previous history of the same, vascular disease should also be considered. *Vatapradhana tridosha dushti* occurs in due course of the disease. *Srotodushti* causes impaired circulation of *Rasa*, and *Hridaya* is affected consequently as it is

rasavaha srotomula. *Rasadushti* and subsequent *Raktadushti* cause impaired *Garbha poshana* leading to *Gabha vikriti*. *Dosha vriddhi* in *Hridaya* along with *Dushita rakta* progresses to *Prasara* of *Dosha* by *Dushita vyana vata* manifested as hypertension. Associated symptoms of PIH like *Sopha* develop as mentioned in *Sopha Samprapti*. If untreated, pre-eclampsia may progress to complications leading to maternal and foetal morbidity.

In the realm of health, the science of Ayurveda has two domains namely *Swasthasya Swaasthya Samrakshana* and *Aaturasya Vikara prashamana* both of which are given equal importance. Ayurveda classics have specifically described *Garbhini Paricharya* with *Masanumasika Paricharya* based on *Masanumasika Garbha vriddhi*. *Garbhini paricharya* is described along with the simile that *Garbhini* should be taken care of like a pot filled with oil so as not to spill out its contents. *Garbhini vyadhis* along with their management are also dealt with in Ayurveda. *Samanya Garbhini paricharya* and *Masanumasika Garbhini paricharya* described in Ayurveda aims at positive maternal and foetal outcomes. The preventive aspects described in Ayurveda can be incorporated under *Swasthasya Swaasthya Samrakshana*.

In a woman with or without a previous history of pre-eclampsia, intervention should begin from preconceptional period. *Parivarjana* of the *Nidanas* causing *Tridoshadushti* as well as *Rakta dushti* in vital in this regard. After ensuring optimal health through *Sodhana* and *Samana chikitsa*, she should be advised for a planned pregnancy. After confirmation of pregnancy, *Masanumasika Garbhini Paricharya* should be advised meticulously which can improve both maternal and foetal outcomes, thus reducing the chances of development of complications like pre-eclampsia. *Rasayana dravya* should be advised throughout pregnancy. Along with all the *Paricharya*, regular antenatal checkups and timely investigations should be carried out.

CONCLUSION

Critical analysis of the causative factors and etiopathogenesis of pregnancy-induced hypertension reveals that they can be connected with those of *Raktadushti*, *Sopha* and *Vatasonita*. Thus, avoidance of the corresponding *Nidana* is of utmost importance stressing upon the preventive aspects. Even though pregnancy-induced hypertension or pre-eclampsia is not a completely preventable disorder, strict observance of the *Charyas* described in Ayurveda is beneficial. Planned pregnancy after pre-conceptional care through *Sodhana* and *Samana chikitsa* followed by *Garbhini paricharya* along with the use of *Garbhasthapaka dravya*, *Rasayana dravya*, *Masanumasika Garbhasravahara dravya* can play significant roles in the prevention as well as

management of pregnancy-induced hypertension thus improving the maternal and foetal outcomes.

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