AN AYURVEDIC APPROACH IN MANAGEMENT OF PRE–ECLAMPSIA

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Abstract: Pre-eclampsia is called disease of theories because over decades of research, numerous causes have been proposed but none of them has been proved. It may lead to eclampsia, a maternal life threatening convulsive disorder. Many times it becomes indication for termination of pregnancy. Treatment available in modern medicine for pre-eclampsia is not satisfactory and has side effects too. So to avoid side effects, Ayurvedic medicines like mixture of *punarnava*, *gokshu* and *jatamansi* should be administered in cases of pre-eclampsia. These drugs act with their different properties (*Guna* and *Karma*) on basic causative factors of disease and lowers its classic triad i.e. hypertension, proteinurea and edema or both. Therefore, it may help in prevention of eclampsia. So these drugs should be administered in mild pre-eclampsia under close monitoring for hypertension, oedema and proteinurea.

Key words: *Punarnava*, *Gokshur*, *Jatamansi*, Pre-eclampsia.

Introduction:
Considerable number of cases of pre-eclampsia are seen in clinics due to lack of poor maternal nutrition and anti natal care. Lack of women’s health awareness and poor reproductive education are also important causes. Pre-eclampsia includes evidence of so called classic triad i.e. hypertension, proteinurea and/or oedema after 20 weeks of gestation. If systolic blood pressure increases by at least 30 mmHg or that of diastolic by 15 mmHg i.e. 140/90 mm of Hg is sufficient for the diagnosis of pre-eclampsia. Oedema is diagnosed as clinically evidence of swelling over legs, abdomen and face. Proteinurea is defined as concentration of protein 0.1 gm/lit or more in at least two random urine specimens collected six hours apart or 0.3 gm in 24 hours.
collection. There is no place of domiciliary treatment in established manifestation of pre-eclampsia. The mentioned drug therapy should be given in uncomplicated or mild pre-eclampsia. There is no curative treatment of severe pre-eclampsia in modern medicine too. The definitive treatment of it is termination of pregnancy. Treatment modalities for pre-eclampsia according to modern medicine include mainly anti-hypertensives, sedatives, diuretics, anti-thrombotic agents along with rest and salt restricted diet. These modalities are somewhat beneficial for mother but not for the fetus. Anti hypertensive drugs have limited role in controlling pathology of disease. Diuretics cause electrolyte imbalance and harm to fetus by diminishing placental perfusion. Anti thrombotic agents increase the bleeding tendency and may cause PPH if patient goes in labour. So to continue the pregnancy without affecting maternal prognosis until the fetus becomes sufficiently matured enough to survive ex utero, some harmless combination of Ayurved drugs should be used alone or along with these anti-hypertensives (if BP is more than 140/90 mm of Hg). This Ayurvedic combination may improve maternal prognosis without affecting fetal growth and help the disease not to get advanced.

**Discussion on Literature Review**[1]

**Incidence**

14-20% in primi-gravida
5.7-7.3% in multi-gravida

Incidence increases in multiple pregnancies and with history of pre-eclampsia in previous pregnancies.

**Patho-Physiology:**

In pre-eclampsia, maternal vascular response to placentation is inadequate. This defective vascular response is due to inhibition of endovascular trophoblast migration which normally occurs from about gestational age 6 weeks onwards. These pathological changes causes decreased utero-placental blood flow. Biopsy finding from pre-eclamptic fetal bed show atherosclerotic changes. The endothelial injury ranged from swelling to complete erosion resulting in reduction of lumen.

**Hypertension:** In pre eclampsia there is gradual increase in BP from
II³ to III³ trimester. Systolic BP is elevated by 30 mm of Hg, while diastolic pressure is by 15 mm of Hg (not more than 150/100). This hypertension is mostly from renal origin, because of compression of inferior vena cava and renal artery due to pressure of gravid uterus. Thus renal plasma flow is diminished and glomerular filtration rate is decreased resulting in the excessive rennin secretion which activates angiotensin II. It causes vasoconstriction resulting in hypertension.

**Oedema:** Obstruction to venous blood flow from lower body is responsible for oedema due to venous stasis and leads to oligouria, excessive rennin secretion converted into angiotensin. Decreased GFR is also responsible for increased aldosteron release to cause sodium and water retention leading to edema.

**Proteinuria:** Due to low renal plasma flow and spasm of the afferent glomerular arterioles, there is anoxic damage to the endothelium of the glomerular tuft. Endothelial cells swell up and their capillary permeability gets increased resulting in increased leakage of protein. Tubular re-absorption is simultaneously depressed. Therefore, proteins get excreted in urine.

**Ayurved literature review:**

Diseases of pregnant woman due to fetus are called ‘Garbhopdrava’ in Ayurveda. Garbhini shotha (oedema) is one of the garbhopdrava mentioned in Kashyapa Samhita. Oedema of pregnancy may be of different origin. Ayurveda has described ‘Garbhotpidan’ as a causative factor of shopha (oedema) of pregnancy. Though direct description of pre-eclampsia is not mentioned in Ayurveda, but its clinical and pathological similarity can be co-related with the condition garbhini shotha which is garbhopdrava. Oedema of pregnancy is termed as garbhini shotha and is described in kashyap samhita. It has been also described that kleda from foetal body is transmitted to maternal kleda. This kleda is responsible for development of edema in mother. Causetive factors of pathology in pregnancy induced hypertension and proteinuria is same. This triad is kapha vataj in nature. Lavan, abhishyandi ahar, sluggishness...
and day time sleep are the causative factors for *kapha prakopa*. Anemia, poor nutrition, exhaustion and debility due to other diseases are responsible for *vât prakopa*. All these factors have been seen in the pathology of pre eclampsia.

**Ayurvedic Drug review:** In ayurveda texts herbal and mineral materials are available as drugs. These drugs have been described according to their properties called *guna* and activity called *karma*. Pharmacokinetics of these drugs is called as *karma*.

**Punarnava quatha** is recommended by *kashyap samhita* in *garbhini shotha*. Its diuretic property is attributed to large amount of potassium and presence of alkaloid punarnavin. It is *rasayana* and *raktavardhak* too. These properties helps to increase hemoglobin and to reduce edema. *Punarnava* is *vishagnha* (anti toxic) and *kledahara*. Its content hypoxanthine-9, L-arabinafuranoside lowers the level of uric acid which results in neutralization and excretion of metabolic substances responsible for toxemia. It contain amino acids like alanine, arginine which are helpful in prevention of complications of pre-eclampsia like Intra Uterine Growth Retardation and oligohydramnios.

**Gokshur** has *mutra* (diuretic), *rasayan* (rejuvenating), *balya* (strengthening), *dipan* (appetizer) properties and is recommended in *shotha* (edema). *Sushruta* described it for month wise remedies for pregnancy called *masanumasik yoga* during sixth and seventh month. *Gokshura* induces diuresis due to its large potassium content and alkaloids. It helps to relieve the symptoms by *vat shaman* and nourishing the *dhatu* with increased osmo regulation of plasma.

**Jatamansi** is cardio tonic as *punarnava*, increasing number of cardiac systole. This property is beneficial to overcome excessive demand of circulation due to increased plasma volume in third trimester of pregnancy. It is hepato protective by its *tikta rasa*, which regularize the liver function and helps to control serum alkaline phosphates. Its cardio tonic property helps to improve renal perfusion due to improved circulation and spasm of afferent glomerular arterioles. Hence it prevents anoxic damage to the endothelium of
glomerular tuft and reduces proteinuria. Jatamansi is sedative, memory enhancer and anti stress agent which is useful to reduce hypertension. It has anti oxidative property which is beneficial for prevention of IUGR. Being a neuro protective drug it helps to reduce symptoms like giddiness, headache and insomnia. Jatamansi also reduces kleda and is diuretic.

**Table.1: Description of drugs as per Guna Karma.**

<table>
<thead>
<tr>
<th>Sr no</th>
<th>Drug particulars</th>
<th>Gokshura</th>
<th>Punarnava</th>
<th>Jatamansi</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Latin name</td>
<td>Tribulus terresteris</td>
<td>Boerrhavia Diffusa</td>
<td>Nordostachys Jatamansi</td>
</tr>
<tr>
<td>2</td>
<td>Family</td>
<td>Zygophyllaceae</td>
<td>???????</td>
<td>Valirianaceae</td>
</tr>
<tr>
<td>3</td>
<td>Useful part</td>
<td>Fruit</td>
<td>Root</td>
<td>Root</td>
</tr>
<tr>
<td>4</td>
<td>Rasa</td>
<td>Madhura</td>
<td>Katu, tikta, kashay</td>
<td>Tikta, kashay Madhur</td>
</tr>
<tr>
<td>5</td>
<td>Virya</td>
<td>Madhura</td>
<td>Usnha</td>
<td>Sheet</td>
</tr>
<tr>
<td>6</td>
<td>vipaka</td>
<td>Sheet</td>
<td>Katu</td>
<td>Madhura</td>
</tr>
<tr>
<td>7</td>
<td>Guna</td>
<td>Guru,Snigdha</td>
<td>Ruksa,Ushna,Laghu</td>
<td>Laghu,Snigdha</td>
</tr>
<tr>
<td>8</td>
<td>Karma</td>
<td>Mutral,vrishya, Brahan,dipan, Rasayan</td>
<td>Shopnashini, rechak,rasayan, mutral, vishaghna, kushtaghna</td>
<td>Sandnyasthapan Bhutaghna</td>
</tr>
<tr>
<td>9</td>
<td>Chem. composition</td>
<td>Kaemferol, Alkaloids</td>
<td>Quinolizidine alkaloid</td>
<td>Ocacin,ursolic acid,oleanolic acid</td>
</tr>
<tr>
<td>10</td>
<td>Active ingredient</td>
<td>Tribuloside</td>
<td>Punarnavin Hypoxanthine, aminoacids</td>
<td>Nordosinediol</td>
</tr>
<tr>
<td>11</td>
<td>Doshghnata</td>
<td>Khapkhkar</td>
<td>Vat pitta kara kaphagnha</td>
<td>Vat pitta shamak</td>
</tr>
</tbody>
</table>

**Proposed treatment plan for pre eclampsia:**

Considering the pathology of pre eclampsia, we can use quatha (decoction) prepared from 5gm punarnava and 5gm gokshur churna. This quatha in dose of 40 ml should be administered with 2 gm churna of Jatamansi orally, twice in a day, in cases of blood pressure up to 140/90.
mmHg. It also can be used with anti hypertensive drugs for cases having blood pressure above this level. Patient has to be hospitalized for all routine precautions and monitoring and the quatha remedy should be used for a period of 15 days to 60 days as per requirement. Treatment can be stopped after reliving the symptoms. Non responding cases of severe pre- eclampsia should not be considered for this treatment. Apart from mentioned medicine routine iron, calcium and protein supplements should be given for their extra demand in pregnancy. Healthy and quality diet, and lifestyle modification should be strictly advised to these cases. Restriction of salty food, pickle, tobacco and meat of aqueous animals is useful. Use of Yoga, meditation, complete rest on left lateral side are at most important. At least two hour sleep in day and eight hour sleep in night is important. She should be free from all types of excitements, travelling, long standing, continuous sitting and factors which aggravate blood pressure. Consumption of milk, eggs, meat, fruits, vegetables like spinach, cauliflower, tomato, peas, peanut, germinated gram seeds, sprouts, carrots is beneficial.

**Conclusion and Summary**

Pre eclampsia can be treated and managed by Ayurvedic medicines and concept of garbhini paricharya in early stage. The mentioned medicines may play an important role in subsiding the symptoms of pre eclampsia without side effects on foetus. Modern medicines acts symptomatically and unable to break down the pathology of disease. These modern drugs also do not have any positive effects on fetal growth. Symptoms of pre eclampsia aggravates significantly after holding or omitting the modern medicines. On the other hand Ayurvedic drugs improves general health of mother and lowers the symptoms. It helps to arrest the disease to get advanced and also supports fetal growth. Hence with this concept we can conclude that the combined use of gokshura, punarnava and jatamansi in the form of quatha and churna preparation can treat pre eclampsia with support to fetal growth.
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