Review Article

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ROLE OF HERBS IN ANTENATAL AND POSTNATAL HEALTHCARE WITH SPECIAL REFERENCE TO YOGARATNAKARA

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ABSTRACT

Garbhini and Sutika paricharya *(*Antenatal and postnatal care*)* are very well described by ancient Ayurvedic scholars starting from samhita period. Samhitas have given a detailed description of ahara (nutrition), vihara (life style) and vichara (thought process) to be followed by women during pregnancy and puerperal period. The author of Yogaratnakara (17AD) provided the additional information about antenatal and postnatal healthcare measures. The paper reviews the herbs mentioned in Yogaratnakara for antenatal and postnatal care in the light of modern scientific validations. The wise and appropriate use of the herbs mentioned help in reducing the complications during antenatal and postnatal period and promises a healthy progeny

Keywords: Garbhini paricharya, Sutika paricharya, Yogaratnakara

INTRODUCTION

Pregnancy care consists of Antenatal (before birth) and Postnatal (after birth) healthcare for expectant mothers. It involves treatments and trainings to ensure a healthy pre-pregnancy, pregnancy, and birthing process for the mother and for her child. The wisdom regarding the general management of pregnancy is found in both the Charaka samhita and Sushruta samhita under the subject of "Garbhini Vyakarana". They have described dietary regimen, living style and other required management for whole pregnancy and up to 6 months after delivery. It is the woman who procreates children and propagates the human species**.** Dharma **(**righteousness**)**, artha **(**wealth**)**, lakshmi **(**auspiciousness**)**, and loka **(**the entire universe**)** are represented in every woman[1]. Acharya Charaka advises the physician to be very vigilant during the management of pregnancy and quotes that "If a cup filled with oil right up to the brim is to be carried without spilling even a single drop, every step has to be taken with care"[2]. Yogaratnakara an excellent compendium of the 17th century AD provided some additional information about antenatal and postnatal healthcare measures. The paper reviews the frequently used and specially mentioned drugs in Yogaratnakara for antenatal and postnatal health care measures with the help of modern scientific validations.

Yogaratnakara and other Ayurvedic classics, journals and internet publications were consulted to compile the specific information.

Yogaratnakara is one of the most renowned compendia on Indian medicine. The author has utilized all the available information right from Charakasamhita to Yogatarangini (middle of 17th century) to compile this work. The work is divided into two parts poorvardha and utharadha. Most of the drugs which are introduced by foreign invasion like Ahiphena, Akarakarabha etc. are seen in use in this book. Tobacco was introduced in India by Portuguese in 15th century A.D. The description of Tamakhu (tobacco) is seen in Yogaratnakara with a name 'Tamraparni'. He also introduced tea under the name 'Syamaparni'. The use of Bhimaseni karpura in eye diseases is a new contribution of Yogaratnakara. Details of nadipariksha and ashtasthanapariksha are dealt in this work[3].

The author of Yogaratnakara (17AD) provided the additional information about antenatal and postnatal healthcare measures[4].

- Aparajita and Bisa are suggested to prevent abortion.
- Utpaladi gana and Pippalyadi gana are suggested during antenatal and postnatal periods respectively.
- Dasamoolakwatha is indicated as broad spectrum formulation for all varieties of sootikarogas (Postpartum diseases).
- Yogaratnakara is the first text to denote Pippalimoola for prevention of visceral fat deposition after delivery.
- Vidarikanda, Satavari and Vanakarpasamoola are suggested as galactagogues.

Drugs prescribed in Yogaratnakara for masanumasika garbhini paricharya and their botanical identification are mentioned in Table 1.

Madhukam (*Glycyrrhiza glabra* Linn)

Yogaratnakara prescribes Madhukam **(***Glycyrrhiza glabra***)** along with other drugs in the first, fourth, seventh, ninth and tenth month of pregnancy. *Glycyrrhiza glabra* Linn is a hardy perennial shrub, attaining a height up to 2**.**5m**.** It is sitavirya (cold in potency), madhura (sweet), guru(heavy), snigdha (unctuous) and tridoshahara. Acharya charaka classified it as jeevaniya (invigorators), sandhaneeya (wound healing), sonitasthapana (which restores blood in pure form), balya (strength promoting) and rasayana (rejuvenators)[5]. The author of Dhanwanthari nighantu describes the drug as soshanasaka and chardivinasini (cures emesis)[6]. Specifically, it has been recommended for the treatment of cough, hiccup, fever and spleen disorders. It is nutritive, antibacterial, anti-inflammatory,

antistress, adaptogenic, hepatoprotective and has the ability to inhibit chromosomal aberrations[7-8].

Sariva (*Hemidesmus indicus* Linn.R.Br)

Hemidesmus indicus Linn.R.Br is a twining shrub, belonging to the family Asclepiadaceae. Sariva is madhura (sweet), snigdha(unctuous) and sukrala. It is jwarahara, dahaprasamana (pacifies burning sensation), sthanyasodhana (purifies breast milk), tridoshahara and amavishahara[9]. Ethnobotanical studies on *Hemidesmus indicus* revealed its benefits towards increase in lactation in mothers, fever, and as a blood purifier[10]. Various extracts of the root displayed anti inflammatory, antimicrobial, antioxidant and antidiabetic activities[11].

Payasya

The synonym payasya has been attributed to kshirakakoli (*Lilium polyphyllum* D.Don) and Kshiravidari (*Ipomoea paniculata* R.Br).

Ksheerakakoli (*Lilium polyphyllum* D. Don)

Kshirkakoli is a constituent of the Astavarga group, but the botanical identity is still controversial. Lilium polyphyllum which is considered as the source plant of kshirakakoli is a bulbous, perennial herb and recently reported as critically endangered[12]. Medicinally, bulb of the species is being used as refrigerant, galactagogue, expectorant, aphrodisiac, diuretic, antipyretic and tonic[13]. Kshirakakoli is vatapithahara, brimhanam, sukrala ,dahahara and jwarahara[14].

Kshiravidari (*Ipomoea paniculata* R.Br.)

Ipomoea paniculata is a perennial twining climber of the convolvulaceae family. It is rasayana, vrishya, sthanyajanana and mutrala(diuretic) [15]. Juice of the tubers is used along with milk to increase lactation by the kandha tribes of Orissa[16]. The rhizome of the herb contains beta-sitosterol which is an antioxidant. Ergonovine, an alkaloid found in the herb, is used to stop menstrual bleeding.

Ananta (*Fagonia cretica* Linn.)

Fagonia cretica is an erect perennial herb-under shrub found in arid and semiarid areas of the country. It is used in the Indian system of medicine as diuretic, astringent, in the treatment of asthma, tumours, urinary disorders, and as an emmenagogue. It is vatapithasamaka, kaphanissaraka, medohara, mutrala and sthambhana[17]. The herb shows anticancerous antihaemorrhagic, antidiabetic, immunomodulatory, estrogenic and antioxidant activities[18].

Manjishta (*Rubia cordifolia* Linn)

Rubia cordifolia is a prickly climbing perennial herb of Rubiaceae family. Manjishta is kaphapithahara, vishahara, varnya, raktaatisaranut, pramehahara and vranahara[19]. It is scientifically validated for antibacterial, haemostatic, uterine stimulant, anti-inflammatory antioxidant, antistress, immunomodulatory and antitumour activities[20]. In traditional Chinese system of medicine, the herb is internally used for abnormal uterine bleeding, internal and external haemorrhage, bronchitis, and rheumatism[21]. Ethnobotanical survey done in 2010 has documented the administration of root decoction in the treatment of diabetes[22].

Kashmari (*Gmelina arborea* Roxb.)

Gmelina arborea is a fast growing deciduous tree occurring naturally throughout India. It is considered under Brihatpanchamoola. Bhavamisra identifies it as ushna virya drug and the fruit is attributed with seeta virya. Kashmari fruit is brimhana, vrishya, keshya and rasayana[23]. It shows antidiabetic, antioxidant, antimicrobial and diuretic activities[24].

Utpaladi gana

Utpaladigana consists of six drugs namely neelautpala, raktautpala, kalhara, kumuda, sveta amboja (all Nelumbo and Nymphaea sp.) and madhuka. It is indicated in Daha, Thrishna, Hridamaya, Rakthapitta, Moorcha, Chardhi and Arochakam[25]. Both *Nelumbo nucifera* and *Nymphaea stellata* possess anti inflammatory, analgesic and antimicrobial activities[26,27]. Nelumbo nucifera shows haemostatic activity also.

Bisa which is also known as padmanala or mrinala (*Nelumbo nucifera* leaf stalk) is prescribed in yogaratnakara to prevent abortion. Acharya charaka advocates the use of bisa in the management of rakthapitta[28].

Aparajitha (*Clitorea ternatea* Linn)

Clitorea ternatea commonly known as Butterfly pea belonging to the family Fabaceae is a perennial leguminous twiner. The flowers of the plant *Clitorea ternatea* resemble a conch shell, therefore it is commonly called "Shankpushpi" and is reported to be a good "Medhya" (brain tonic) drug. The herb is reported for its antioxidant, antidiabetic, diuretic, antimicrobial and hepatoprotective activities[29].

Satavari (*Asparagus racemosus* Willd.)

Asparagus racemosus is a spinous under-shrub, with tuberous, short rootstock bearing numerous succulent tuberous roots. Satavari being a versatile female tonic is recommended both in antenatal and postnatal period. The root of *Asparagus racemosus* has been specially recommended in cases of threatened abortion and as a galactogogue. It is also advocated in leucorrhoea and menorrhagia. It possesses adaptogenic, anti inflammatory, antibacterial, antistress and diuretic activities[30].

Vanakarpasa (*Thespasia lampas* (Cav.) Dalzell & A. Gibson)

Thespesia lampas is a medicinally important plant of the Malvaceae family. Vanakarpasa otherwise known as bharadwaji is sitavirya (cold in potency), ruchya and vranasatrakshatapaha[31].Yogaratnakara recommends the use of vanakarpasa as a galactogogue. The roots of this plant are reported for anti-diabetic, anti-hyperlipidaemic, hepatoprotective, antioxidant and anthelmintic activities[32].

Pippalimoola (*Piper longum* Linn)

Piper longum is a deciduous slender aromatic climber with perennial woody roots that belongs to the family Piperaceae. It is Vatakaphahara, Deepaniya (stomachic), Pachaniya (digestant), Bhedi (purgative), and Soolahara[33].Some of the alkamides isolated from the fruits of Piperlongum has the ability to inhibit Diacylglycerol Acyltransferase. Pharmacological inhibition of acyl CoA:diacylglycerol acyltransferase has emerged as a potential therapy for the treatment of obesity and type 2 diabetes[34]. In a clinical study pippalimoola choornam with takram as anupana showed significant effect in reducing the abdominal fat after delivery and this study substantiated the observation recorded by Yogaratnakara.

Vidarikanda (*Peuraria tuberose* Willd.)

Pueraria tuberosa (Willd.) DC is a perennial herb commonly known as 'vidarikanda', distributed throughout Southeast Asia. It is vatapittasamaka, balya, brimhaneeya, sthanyajanana, mutrala and sukrajanana (promotes production of sperm/semen)[35]. In vivo and in vitro studies have provided the support against traditional demands of the tuber as spermatogenic, immune booster, aphrodisiac, anti-inflammatory, cardiotonic and brain tonic[36].

Pippalyadigana

Yogaratnakara mentions the use of Pippalyadigana in management of soothika rogas**.** It is vatakaphahara, deepana and pachana**.** It is specially indicated in gulma, soola and jwara[37]**.**

Major goals of antenatal care are to provide adequate nutrition & maintain proper foetal/embryonic growth, maintain adequate haemoglobin level, manage common pregnancy complaints such as morning sickness, backaches, leg pain, frequent urination, constipation, and heart burn, avoid /prevent miscarriage, maintain proper mental health of mother and her upcoming progeny. Common causes of spontaneous abortion during the first trimester are, chromosomal abnormalities of the embryo or fetus, vascular disease (such as lupus), diabetes, other hormonal problems, infection and abnormalities of the uterus.

Drugs having antimicrobial activity like madhuka, sariva, manjishta etc fight infections and reduce the risk of abortion. Madhuka is reported for its ability to inhibit chromosomal aberrations. The inclusion of antidiabetic drugs like Sariva, Ananta, Kashmari, Manjishta reduce the risk of miscarriages due to diabetes in the first and second trimester. During first trimester of pregnancy most of women experience nausea and vomiting, thus cannot take proper diet. Administration of Utpaladi gana gives relief from chardhi (vomiting) and its associated complications. By the end of second trimester most women suffer from oedema of feet and other complications of water retention. The use of diuretic and anti inflammatory drugs like Ananta, Kashmari etc, relieves oedema and also reduces the risk of hypertension. Adaptogenic and antistress drugs like Satavari, Madhuka etc helps to manage the body's hormonal response to stress. The drugs mentioned for masanumasika paricharya are advised to be taken in the form of ksheerapaka. Milk is a wholesome diet and good source of calcium, Vitamin D, Vitamin B2, niacin, proteins. It has been studied that on gradual increase in temperature of milk, solubility of fats and proteins also increases, which may enhance the extraction of the medicinally important lipid soluble active constituents.

The major aims of postnatal care are to arrest postpartum bleeding and promote uterine involution, prevent postpartum infection, optimize the quality and quantity of breast milk, reduce the abdominal/visceral fat. The use of drugs like satavari and payasya helps to increase lactation during the postnatal period. The use of pippalimoola helps in reducing the abdominal fat. Due to vitiation of vata after delivery, digestive power as well as immunity and strength of women become weak and therefore care and management in normalizing vata and increasing body strength of sutika should be adopted. Use of Pippalyadigana helps in kindling the digestive fire and facilitates to subdue vitiation of vata and kapha.

The female reproductive system functions under the influence of a number of hormones mainly Oestrogen, Progesterone, Oxytocin and Prolactin. Table 2 represents the list of scientifically validated drugs which can either influence the function of those hormones or act like hormones.[38]

The question is whether all these drugs are safe for use during the antenatal and postnatal period? Some of the modern scientific studies contradict the use of these herbs in the antenatal period. The drugs like Ananta and Manjishta which are used in the antenatal period are experimentally proven for their estrogenic activity. A study on the histological and morphological characteristics of placenta in the rats administrated with *Glycyrrhiza glabra extract* showed risky consequences in histological and morphological characteristics of placenta in rats including decrease in weight of foetus[39]. Methanolic extract of *Asparagus racemosus* (100mg/kg/day for 60 days) roots showed teratological disorders in terms of increased resorption of foetus, gross malformation and intrauterine growth retardation with a small placental size in Charles foster rats[40]. Aswagandha is nowhere mentioned in the masanumasikaparicharya and in Srilankan traditional medicine the root is used as an abortifacient and to produce criminal abortion. But the methanol and water extracts of *Withania somnifera* roots administered at a dose of 500 mg/kg or 3000 mg/kg/body weight from days 1-7 of pregnancy showed no abortifacient effect in rats[41]. Even though vidari acts as an anti fertility agent it produced no abnormalities in the offspring of rats that received extract of *Pueraria tuberosa* from day 8- day 15 (organogenesis) of gestation[42].

The modern scientists of pharmacology opine that animal studies provide analogies and serve as useful models. But a cat or a rat cannot certainly act as an ideal model for man. Clomiphene citrate when tested in animals was found to possess potent anti-estrogenic action and in clinical trials it was proved to be an effective drug in inducing ovulation in women with ovulatory failure. Although a good deal of information can be obtained from animal studies, these cannot be superimposed at human level. Acharyas never mentioned the single drug usage of these herbs. They are prescribed along with other drugs in the form of ksheerapaka. Unless and until proven otherwise in clinical studies these drugs can safely be used in the antenatal and postnatal period.

Table 1: Drugs prescribed in Yogaratnakara for masanumasika garbhini paricharya

No	Drug	Botanical name
1	Madhukam	*Glycyrrhiza glabra* Linn
2	Sakabeejam	*Tectona grandis* Linn
3	Payasya	*Ipomoea paniculata* R.Br(Kshiravidari)/ *Lilium polyphyllum* D.Don (Kshirakakoli)
4	Devadaru	*Cedrus deodara* Roxb
5	Asmanthaka	*Bauhinia vahlii* W and A/*Ficus cordifolia* Roxb.
6	Krishnatila	*Sesamum indicum* Linn.
7	Manjishta	*Rubia cordifolia* Linn
8	Satavari	*Asparagus racemosus* Willd.
9	Vrikshadani	*Dendrophthoe falcata* (L.f.) Ettingsh
10	Utpala	*Nymphaea stellata* Willd.
11	Sariva	*Hemidesmus indicus* R.Br
12	Ananta	*Fagonia cretica* Linn
13	Rasna	*Pluchea lanceolata* (DC) Olive. & Hiern
14	Brhati	*Solanum indicum* Linn
15	Kantakari	*Solanum xanthocarpum* Schrad. & H Wendel.
16	Ksheerivriksha tvak	Stem bark of five lactiferous trees of Ficus genus.
17	Prisniparni	*Desmodium gangeticum* (L) DC.
18	Bala	*Sida cordifolia* Linn
19	Sigru	*Moringa oleifera* Lam.
20	Svadamshtra	*Tribulus terresteris* Linn
21	Sringataka	*Trapa bispinosa* Roxb.
22	Bisa	*Nelumbo nucifera* Gaertn.
23	Draksha	*Vitis vinifera* Linn
24	kaseru	*Scirpus kysoor* Roxb.
25	Kapitha	*Feronia limonia* (L) Swingle.
26	Vilwa	*Aegle marmelos* Corr
27	Shunti	*Zingiber officinale* Roscoe
28	Kasmari	*Gmelina arborea* Roxb.

The above listed drugs (Table 1) are prescribed in combination of three or four to be used in the form of ksheerapaka from the first month of gestation up to delivery. Among them drugs like Madhuka, Sariva, Ananta, Payasya and Kasmari are frequently used in combination with other drugs in masanumasikaparicharya (Antenatal monthly health care measures)

Table 2: Herbs from womb to delivery-scientific validations [41]

No	Activity reported	Drugs
1	Estrogenic	*Butea monosperma* (Lam) Taub *Cyperus rotundus* Linn. *Psoralea corylifolia* Linn. *Pueraria tuberose* (Willd) DC.
2	Antiabortion	*Asparagus racemosus* Willd.
3	Labour inducing/oxytocic	*Achyranthes aspera* Linn *Andrographis paniculata* Nees *Curculigo orchioides* Gaertn. *Adhatoda vasica* Nees
4	Lactogogue	*Asparagus racemosus* Willd. *Leptadenia reticulata* Retz. *Nigella sativa* Linn *Carum carvi* Linn *Anethum sowa* L.(dill) *Ipomea digitata* Linn.

The herbs mentioned are reported for their hormonal like activity.

CONCLUSION

Special and proper care during pregnancy as well as during puerperium help in the delivery of a healthy baby and restoration of health of mother. The wise and appropriate use of the herbs mentioned in Ayurvedic classics helps in reducing the complications during antenatal and postnatal period and promises a healthy progeny. More and more research works should be carried out to find out the action of these herbs on female reproductive system and the growing embryo.

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