

GARBHA POSHANA EVAM GARBHA MATRU PARATHANTRATA - A REVIEW ARTICLE

Indusree C. Suseelan

Assistant Professor, Dept. of Shareera Rachana, Sri Jayendra Saraswathi Ayurveda College, Nazarethpet, Chennai, Tamilnadu, India

Email: indu9sree@gamil.com

ABSTRACT

Garbha poshana and *garbha matru parathantrata* concepts are concerned with the fetal nourishment and the dependency of child on its mother for its proper growth and development respectively. As the *garbha* (fetus) grows inside the *garbhaashaya* (uterus) many changes occurs simultaneously both inside and outside the fetus. Development of structure such as *Garbha Nabhi nadi* (umbilical cord) and *Apara* (placenta) is responsible for *garbha poshana*. The exchange of materials between the mother and fetus shows the *garbha matru parathantrata*

Keywords: *garbha poshana*, *garbha matru parathantrata*, *Garbha Nabhi nadi*, *Apara*, fetal nourishment

INTRODUCTION

All living creature's ultimate aim is to survive as long as possible. Since immortality is debatable, the next best option is reproduction. Via reproduction all living beings lives through its progeny. All the survival skills are passed to next generation through genes which the structural units of inheritance. The health of the progeny plays a major role in its survival. Health is provided by the proper nutrition and care. This begins in the mother's womb. The fetus from the time of fertilization till its birth receives nutrition and care from its mother.

Ancient Ayurvedic physicians proposed two concepts namely the concept of *garbha poshana* (fetal nourishment) and the concept of *garbha matru parathantrata* (dependency of child on its mother for its proper growth and development). As the *garbha*

(fetus) grows inside the *garbhaashaya* (uterus) many changes occurs simultaneously both inside and outside the fetus. Development of structure such as *Garbha Nabhi nadi* (umbilical cord) and *Apara* (placenta) is responsible for *garbha poshana*. The exchange of both nutritive and waste materials between the mother and fetus shows the *garbha matru parathantrata*.

AIM AND OBJECTIVES:

To critically analyze the concepts of *garbha poshana* and *garbha matru parathantrata* given in Ayurvedic literature with special reference to the concept of fetal nourishment in modern Anatomy.

MATERIALS AND METHODS:

References from Ayurveda literary works such as chapters from Charaka Samhita- *Shareera sthana*,

Susrutha Samhita- *Shareera sthana* and Aṣṭāṅga Samgraha- *Shareera sthana* as well as from modern Anatomy literatures were collected, reviewed and analyzed.

REVIEW OF LITERATURE:

Ayurvedic review:- According to Acharya Susrutha the umbilical cord is attached to the *rasavaha nadi* (maternal part of the placenta) of the mother and this carries *ahara rasa virya* (nutrition) from the mother to the fetus. The fetus grows by this indirect supply of nutrition¹. From the time of conception until the different parts of the body and their subdivisions have got manifested, the embryo gets nutrition from the *tiriyak gata* (obliquely running) *rasavaha dhamanis* (vessels carrying rasa) which course through all parts of the body and imparts life to the embryo². The growth and development of the fetus takes place by means of the *garbha Nabhi nadi*, which serves as a channel for the *rasa* (lymph-chyle) formed in the mother's body. This nourishment of the fetus from the mother's body begins as soon as the fetus becomes endowed with life and continues up to the time when the child ceases to be connected with the mother³. The fetus receives all the nourishment it needs from the metabolic products of the mother and also breathes and sleeps in unison with the mother.

According to Acharya Charaka the fetus is free from thirst and hunger. The *garbha* is dependent upon the mother for all its activities⁴. The fetus is nourished by the process of *upasneha* (exudation) and *upasweda* (thermo-regulation). Some of the organs are well manifested and some others are not so, the fetus draws nourishment by the process of exudation, sometimes through the *romakupa* (hair follicles) and sometimes through the channels of umbilical cord. The umbilical cord of fetus is attached to the umbilicus on one side and placenta on the other. The placenta is in turn connected with the *matru hrdaya* (mother's heart) via *syantana sira* (pulsating vessels). The *matru hrdaya* is said to flood the *apara* with *rasa* with *sarvarasa* (all taste) which promotes *bala* (strength) and *Varna* (complexion) of the fetus⁵. According to Acharya Charaka the *Rasa* of the pregnant woman serves 3

purposes:-*Swa-shareera pushti* (Nourishment of her own body), *Stanyaaya* (Lactation) and *Garbhavidhi* (Growth of fetus). Being supported by that food, the fetus is dependent upon the mother keeps living inside the uterus⁶.

Situated inside the uterus, the fetus sleeps when mother sleeps and is awake when she is awake, the activities of the fetus is not independent, from the time of conception it is dependent for its moistness and dryness upon the food of the mother⁷. When all the organs and parts of the fetus become manifested, a tube connecting the umbilicus of the fetus with the *apara* which is in turn gets connected with the mother's heart is formed. The nutrient portion of the food travels from the mother's heart carried through the *dhamanis* and reaches the *apara* and from there to the *Nabhi*. Then it goes to the *pakwaashaya* (intestine) where it undergoes further digestion by *kaya Agni* (digestive juices). Comprised mainly of nutritive materials *rasa* nourishes all the tissues. *Rasa* also oozes out through the hair follicles to form the fluid outside the fetus⁸.

According to Vagbhata in Aṣṭāṅga Hrdaya, during the 3rd month of gestation manifestation of *gaatrapanchaka* (5 parts of body) as well as *sarvasushma-anga* (all minute organs) starts. A tube connecting the *Nabhi* (umbilicus) of the fetus with *hrdaya* of the mother develop which is responsible for the passage of *matur ahara rasa* (essence of mother's food) resulting in the nourishment of the fetus⁹. This process is compared to *kedaara eva kulya nyaya* (irrigation of a cornfield by means of numerous canals).

Modern Review:-

Nutrition of fetus according to modern science is mentioned to from different sources depending on its various stages of development. This can be categorized in 3 states as follows:- After fertilization till the completion of implantation, after implantation till the formation of placenta and after the formation of placenta. After fertilization the zygote formed undergoes cleavage during this stage the growing embryo receives nutrition from the contents of cytoplasm of the ovum. Also as the growing embryo

which is travelling from the site of fertilization to the site of implantation is lubricated and nourished by the uterine tube secretions through diffusion. As the process of implantation commences the secretions from the trophoblast cells contribute the nourishment of the embryo¹⁰. After implantation the nutrition for the embryo is mainly by the secretions from the trophoblast cells which get collected inside the yolk sac¹¹. After the formation of placenta the fetal circulation is established. Placenta provides the growing embryo with nutrition and with oxygen¹².

RESULTS:

All the *bhrihatrayees* have explained the relation between the child and mother is the formers dependency on the latter for its nourishment through *aahara rasa* and a save environment for its development inside the uterus. In the modern embryology the fetus receives nourishment by means of cytoplasmic contents of ovum, trophoblast cells, uterine secretions and placenta.

DISCUSSION

Concept of *garbha poshana* (fetal nourishment)

Garbha poshana is mainly occurring through the *rasa* obtained from the mother. *Garbha* requires *rasa* from mother because of its *apakwa dhathu* (under developed organs). *Aahara rasa* forms the *ambu* part of the *garbhotpathi samagri*¹³ (*Ritu, kshetra, ambu and bija*). It refers to lymph- chyle containing nutritional substance and is formed in the *amapakwashaya* (stomach along with intestine), later reaches the *hrdaya* where after it's called as *rasa dhathu* and this *rasa* is directed to the whole body through *rasavahadhamanis*. During pregnancy this *rasa* also reaches the *apara* which conveys the essenceto the *garbha Nabhi nadi*. The umbilical veins (*sira-* according to Charaka Acharya), carries the *rasa* to the *garbha Nabhi* and enters the systemic circulation of fetus. This *rasa* nourishes the *shareera dhathu* of *garbha*.

In modern explanation nutrient materials absorbed through intestinal villi are brought to the liver via portal vein. Inside the liver it undergoes detoxification

and later it reaches lungs via heart and gets oxygenated. This oxygenated and nutrient rich blood is then given to systemic circulation by the pumping action of heart. The supply of nutrition to the fetus is from different sources in different stages of development. Soon after fertilization till implantation the cytoplasmic contents of ovum as well as the secretions from the uterine tube provide the necessary nourishment to the embryo. From the time of implantation till the formation of placenta the secretions from trophoblastic cells, uterine tube and endometrial cells provide nourishment. After the formation of placenta the fetal circulation is established, which becomes the major nutritional source for the fetus.

Concept of *garbha matru parathantrata*:-

From the time of conception the *garbha* is dependent for its moistness and dryness upon the food of the mother. The connection between the mother and child is via the *apara* and the *garbha Nabhi nadi*. Acharya Susrutha comments that the fetus receives all the nourishment it needs from the metabolic products of the mother and also breathes and sleeps in unison with the mother. Acharya Charaka remarks that the child depends on its mother for its *shud pipasa* when inside the womb. Also there is no *aahara paka* hence so no *malaor mutra* formation. Inside the *garbha* since there is *apakwa dhathu* no metabolic activities takes place. Major activities like oxygenation and digestion and absorption is not yet started. These will start after birth-nutrition through feeding and oxygenation through breathing. Other than *Garbha-vridhi* the *Rasa* of the pregnant woman also serves as *Swa-shareera pushti* (Nourishment of her own body) and *Stanyaaya* (Lactation). Being supported by that food, the fetus is dependent upon the mother keeps living inside the uterus. The nourishment is mainly through the *upasneha, upasweda* and *romakupa*.

Concept of *upasneha* and *upasweda*:-*Upasneha*-Term refers to exudation, the process of discharging through pores as moisture or other liquid matter. Here the process of diffusion may be taken between the maternal and fetal blood in the region of placenta. *Upasweda*- the word refers to sweating. Here as

thermo-regulation, as creating a warm cozy environment for the developing fetus inside the uterus which promotes comfort and protection and thrive like in incubator. Concept of nourishment through *romakupa*:- Some amount of *rasa* is said to be absorbed into the fetus through the hair follicles but in the modern absorption through hair follicles is mentioned to be negligible.

According to Acharya Vagbhata the concept of action *kaya Agni* of garbha in the region of *pakwaashaya* for digestion is mentioned. Since there is only *Sara bhaga* (essence) of *aahara rasa* of mother is entering the fetus the action of *kaya Agni* is not clear. In *Aṣṭāṅga Hrdaya* the process of nourishment is explained with the example of *kedaara eva kulya nyaya* which can be referred to the systemic fetal circulation. All the *bhrihatrayees* have explained the relation between the child and mother as the former's dependency on the latter for its nourishment and a safe environment for its development.

Other than *rasa*, the development of fetus is also influenced by *Matrujadi shad bhava* and *panchabhootatmaka bhava*. Their influence is more towards the neurological aspects like faulty of sense, tactile sensations and individuality development.

Acharya Charaka mentions *Maatruja aahara vihara dosa*¹⁴ refers to improper diet and regimes of mother during *garbhadana kala* (pregnancy) as one of the contributing factors for *garbha vikruti* (fetal deformities) and *Anuvamshika vyadhi* (congenital disorders). Since *rasa* is the major source of nourishment for the fetus, the knowledge about *garbha poshana* can be used in both prevention and treatment of *garbha vikruti*. Incorporating the regimes such as *garbha raksha vidhi*, *garbhini raksha vidhi*, *garbhini charya*, *garbha raksha kashaya*, etc. in ante natal care can also help in increasing the quality of the future progeny.

CONCLUSION

The concept of *garbha poshana* propounds about the *aahara rasa* from mother being conveyed to the *garbha* via two the anatomical structures namely *apara* and *garbha Nabhi nadi* for its growth

and development. The concept of *garbha matru parathantrata* relates to the dependency of the child on its mother for its *shud, pipasa, moisture and dryness*. The process of nourishment is explained in terms of *upasneha, upasweda and kedaara eva kulya nyaya*. The knowledge about the various sources for nutrition may help in ante-natal care for the prevention and treatment of *garbha vikruti*.

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