AYURVEDIC PERSPECTIVE OF EPIGENETICS IN PREGNATAL DEVELOPMENT: A CRITICAL REVIEW

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ABSTRACT:

It is the need of the hour to establish the role of Ayurveda in antenatal care, which is under national rural health programs. Human evolution throughout the conception to adulthood is conjoined association, shaped within cells, of nature [the deoxyribonucleic acid (DNA) we inherit] and nurture (the comprehensive nutritional, social, and physical environment). The augmenting field of epigenetic has perception that environment and individual lifestyle can directly interact with genome to influence epigenetic transformation. Ayurveda sighted the urge for the physical, mental, and spiritual anticipation of the mother to be for the momentous event of childbirth and emphasis has been given on care of mother during antenatal period. Developing living being seems to have a wide range of perceptorsity to epigenetic modulation. Befitting drift in epigenetic modificaions is essential for embryogenesis, early foetal development, and early postnatal growth. Thereupon, the inappropriate endowment of epigenetic changes during critical developmental periods as a result of changes in maternal diet and other environmental components may induce paediatric developmental diseases and even influence health in adulthood. Garbha Samskara as explained in classical texts of Ayurveda involves the combination of Garbhadhan samskara (preparation of to be mother and father prior 3 months of conception), Pumsavana Samskara and Garbhini Paricharya (planned program of observation, education, lifestyle modification, nutritional and medical management of pregnant lady). By adopting the custom of Garbha Samskara, antenatal care along with epigenetic programming can be done in order to have a healthy progeny. Garbha Samskara may be considered as Ayurveda antenatal care and a novel preventive measure in the context of adverse epigenetic changes. Keywords: Antenatal care, Epigenetics, Garbha samskara, Garbhini Paricharya etc.

1. INTRODUCTION:

It is thought that germ cells and preimplantation embryos during development are most susceptible to endogenous and exogenous environmental factors because the epigenome in those cells is undergoing dramatic elimination and reconstruction. Exposure to environmental factors such as nutrition, climate, stress, pathogens, toxins, and even social behaviour during gametogenesis and early embryogenesis has been shown to influence disease susceptibility in the offspring. Early-life epigenetic modifications, which determine the expression of genetic information stored in the genome, are viewed as one of the general mechanisms linking prenatal exposure and phenotypic changes later in life. From atmospheric pollution, endocrine-disrupting chemicals to heavy metals, research increasingly suggests that environmental pollutions have already produced significant consequences on human health. Moreover, mounting evidence now links such pollution to relevant modification in the epigenome. [1]

Maternal and infant mortality reduction is an important issue under the current national rural health programs. However, at the international level, the focus has been emphasized on enhancing access to curative and emergency obstetric care only. These strategies, in India, have so far not yielded any distinguished results. There is a need to carve solutions in terms of antenatal care, which are women-centered, culturally acceptable, cost-effective, and easily accessible. Ayurveda has mentioned the effect of all these factors (diet, lifestyle) on conception, development of growing foetus, and health consequences in children. Ayurveda recognized the need for the physical, mental, and spiritual preparation of the mother and father to-be for the momentous event of childbirth. Garbha Samskara as explained in classical texts of Ayurveda involves the combination of Garbhadhan samskara (preparation of to be mother and father prior three months of conception) and Garbhini Paricharya (planned program of observation, education, lifestyle modification, nutritional and medical management of pregnant lady). The Sanskrit word “Garbha” means foetus in the womb and Samskara means “prepare, perfect, polish” something, through some actions or procedures. [2]
Human evolution throughout the conception to adulthood is conjoined association, shaped within cells, of nature (the DNA we inherit) and nurture (the comprehensive nutritional, social, and physical environment). Epigenetics refers to genetic factors that change an organism’s appearance or biological functions without changing the actual DNA sequence. In other words, gene expression changes but the genes themselves do not. The augmenting field of epigenetic has perception that environment and individual lifestyle can directly interact with genome to influence epigenetic transformation. Interactions of pregnant woman (behaviours like smoking, eating, drinking, exercise, and exposure to natural and manufactured chemicals in air, water, and food) with environment can cause epigenetic modifications that affect working pattern of genes.

Thus, by adopting the custom of Garbha Samskara, epigenetic programming can be done in order to have a healthy progeny. Ayurveda classics were reviewed for Garbhahadhan Samskara (before conception planning for good progeny), Garbhini Paricharya, Garbhopghatkar-bhava. A search for papers was undertaken with the following search terms: Epigenetics, epigenetic programming, epigenetic and human diseases, epigenetic and Nutrition.[3]

2. AIMS & OBJECTIVE:
- To study importance of Ayurvedic Prenatal care in achieving the healthy progeny.
- To study and see the relation between prenatal development and epigenetics.
- To suggest a protocol for healthy progeny.

3. MATERIAL AND METHODS:
- This is conceptual type of research. Various Ayurvedic classic texts and modern text have been used for this study as source materials. All sorts of references have been collected & compiled from various Ayurvedic classics like Charaka Samhita, Sushruta Samhita, Vagbhata Samhita, Laghutrayee and available commentaries on it.
- Apart from this various research article published till date are also searched from various websites are also been used for this. All relevant matter is compiled and analysed for the discussion and attempt has been made to draw some conclusions.

4. AYURVEDIC PERSPECTIVE OF PRENATAL DEVELOPMENT:

3.1 Preconception Factors: Ayurveda emphasizes on preconceptual care so as to achieve its goal of healthy progeny. For which instructions to Ritumati (menstruating woman) which is known as Ritumati-Charhiya has been recommended. During menstrual period from the very first day, the woman, observing celibacy should abstain from day-sleep and many other things. The lifestyle and behaviour of mother in the phase of Ritumati acts a crucial role for the characters of upcoming foetus.[4] Diet and Lifestyle of parent’s prior conception plays a vital role and has a direct influence on the qualities endowed by the embryo.[5][6]

3.2 Formation of Embryo & Soul: As sprout comes out by the aggregate of season, soil, water and seed, similarly conception takes place positively if these four factors [Rittukula (proliferative phase of menstrual cycle), Garbhashaya (uterus), Aahar-rama (nutrition) and Shukra-artava (sperm & ovum)] are combined properly. Thus, born worthy sons are said to be handsome, having predominance of Sattva and long-life span, free (father) from three debts and thus prove benefactors to their father.[7] The engagement of soul in the formation of embryo has been mentioned in Ayurveda. Sushruta has revealed involvement of soul, Ashta-prakriti (eight primordial nature) and Shodas-vikara (sixteen products) in the creation of embryo.[8] While clearing up the cause for certain soul to enter in specific combination of ovum and sperm, it is affirmed that it depends on righteous and unrighteous acts performed by soul in its earlier birth. In a combination of Agni (ovum) and soma (sperm) the psyche which is though imperishable, immutable and impenetrateable, under the impulse of prior deeds along with subtle body gets associated with Sattva, Rajasa, Tamasa and other Godly demonical or other impelled qualities, the soul reaches the uterus with Vayu to stay therein.[9] The analogous quotation in first chapter of Sushruta Sharir-sthana pronounces that in Ayurvedic scriptures, souls are not omnipresent but unless which transmigrate in animals, men and gods according to righteous and unrighteous work. These are infarable because of too subtlety, conscious and eternal manifesting in fusion of ovum and sperm.[10]

3.3 Sex Determination: The predominance of Shukra (semen) produces male child and that of Aartava (ovum) the female, while equality of both give rise to hermaphrodite.[11] Sexual contact on even days may result in conception of male child and female on odd days.[12] If conceived in these days three or four drops of one of the plants - Lakshmana (Ipomoea sepia), Ros, Vatashrunga (Ficus bengalensis

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The child blind; the same—physical development, strength, and valor: Aap (taste, gustatory organ, all liquidity, immensity, coldness, unctuousness and semen) & similarly those of Prithvi (smell, of factory organ, hardness and weightiness).[14]

5. Development of Embryo: Development of parts and subparts of embryo takes place by nature. The merits or defects arise therein should be known as those caused by the soul entering in the embryo.[15] When zygote is bifurcated by internal Vayu two souls, prompted by unrighteousness occupy them reaching uterus. They are known as twins.[16] The role of Panchamahabhuta in the formation of complexion of foetus and Shad-bhava (six factors influencing the growth of foetus) which are also known as GarbhhotPadak-bhava (supporting for formation of Garbha) factors is elucidated in Ayurveda. Tejas element is the causative factor of complexion. When at the time of conception, if predominantly associated with Aap element, it makes the foetus fair complexioned; that in Prithvi element causes black one. If Tejas does not reach the visual organ, it makes the child blind; the same associated with blood makes red-eyed; that associated with Pitta and Kapha makes yellow-eyed and white-eyed respectively, if associated with Vata it causes deformity in eye.[17] The parts of the foetal body originating from father, mother, Rasa (nutrition), Atma (soul), Satrva (psyche) and Satyama (suitability) are described as Shad-bhava. The hard parts like bone, nail, teeth etc originate from father: the soft parts like heart, liver, spleen etc are of maternal origin: physical development, strength, complexion originate from Rasa; sensory and motor organs, knowledge, wisdom life-span, pleasure, pain etc originate from Atma; energy, health, strength, complexion and intelligence are Satyama in origin.[18] Structural arrangement of body parts, falling and reappearing of teeth and absence of hair on palm and soles these are due to nature.[19] The person attains the same act in rebirth by which he was impelled in previous life. He also acquires the same qualities which were frequently used in the previous life.[20]

6. Fœtal Deformity: Charaka in view of foetal anomaly explains that, during fertilization in the seed (sperm or ovum), the part of the body which is damaged in its genetic source gets abnormality or else not.[21] Unrighteous acts performed by parents may result in foetus of shape like snake, scorpion and pumpkin etc. On the contrary Kubja (humped), Kuni (deformed hand), Pangu (lame), Mooka (dumb) and Minmin (muffled voice) neonates are formed either by vitiated Vata or ignoring craving of pregnant woman.[22] As in the rainy season wood, stone pieces and water current cause derangement in a tree situated in the river stream, Doshas (Bodily humour) cause abnormalities in foetus situated in the womb.[23]

5. CHILD DEVELOPMENT ACCORDING TO AYURVEDA:

5.1 Prenatal Management—Garbhadhan Samskara—Before Conception Planning for Good Progeny: For achievement of conception, proper functioning vayu (vata dosha), healthy mental status, healthy and proper functioning female reproductive system, well-prepared uterus, healthy Shukra dhatu (sperm), and Shonita (ovum) are essential factors. In nature, to have a good crop, we need proper season, proper nutrition, fertile land, good quality seed, and proper nutrition; the same rule applies to humans as we are part of nature. Four factors are given utmost importance for conception.[24]

• Ritu: Proper age and time for conception
• Kshetra: Healthy mother’s womb
• Bija: Healthy ovum and sperms
• Ambu: Balanced and quality nutrition

For attainment of all the above factors, the following procedures are to be adopted:

5.2 Purification of Shukra (sperm) and Shonita (ovum): Ayurveda recommends that for proper conception and to have offspring with optimum characteristics, the shukra and shonita should be deficient of any type of vitiated dosha. If the shukra (sperm) and shonita (ovum) are afflicted with dosha, it may lead to abnormal offspring, both physically and in behaviour. Therefore, various measures to purify shukra and shonita are described in the text. It includes Snehan (oleation), swedana (sudation) followed by panchkarma procedures.[25] Male should adopt celibacy of 1 month.[26]

5.3 Putreshti Yajna — This is nothing but preparing the couple mentally to conceive. Ayurveda states that the couple should prepare themselves before conception. Putreshti yajna is a kind of mental preparation of the parents. When prepared mentally, the couple will follow all the norms during the pregnancy to achieve
a better progeny. When an event is linked with auspicious or religious act, it has better effect on mind. Same is true with this particular event.[27] Normalcy of psychology or happiness of couple is most important for conception.[28]

5.4 Diet before conception — Madhur varga medicated milk with Ghrita consumption by male and oil and Masha by female before having sex.[29] Sushruta opines that whatsoever pattern of diet, etiquettes, and conduct are followed by the couple at the time of coitus, the born child will possess similar character.[30] Appropriate conception with all the elements in balance gives rise to a Rupavanta (handsome), Satavanta — full of Sattvik quality (virtuous, possessed with analytical knowledge, mercy, satisfaction, clarity of mind, and senses) and Chiraya (long-lived) progeny.[31]

5.5 Garbhini Paricharya: Ayurveda advocates the concepts of Garbhini Paricharya for well-being of foetus and event-free delivery of a healthy neonate. The term Garbhini Paricharya is a made up of two separate words, i.e., Garbhini and Paricharya. Garbhini means a woman in which Garbha is present, “char” or “charya” refers to the “service” or “nursing,” and Paricharya means caring in all aspects. Garbhini Paricharya is an all-round care of pregnant women.[32] In other words, we can say that a planned program of observation, education, lifestyle modification, nutritional medical management of pregnant woman directed toward safe pregnancy and delivery of healthy progeny. In modern science, systemic supervision of pregnant lady, including the examination and advice, is called antenatal care.

6. DISCUSSION:

6.1 Management for Garbhini according to Ayurveda:

6.1.1 Dietary Advice: Dietary advices of Garbhini include Samanya Ahara and Masanumasika pathya. The Samanya Ahara (daily diet) should be Hridya (pleasing to heart), Dravam (liquid), Madhuraprayam (sweet), Snigdham (oily), Deepaniyam (appetizer), and Samskritam (processed as per the need).[33]

6.1.2 Masanumasika pathya (Month-wise Dietary Regimen for Pregnant Women): During intrauterine life, foetus draws its nutrition from mother through placenta. Adequate and specific nutrition is needed for appropriate development of embryo. The need of nutritional component varies according to development phases of foetus. In view of these specific change in nutritional requirements, the Ayurveda classical text has explained detailed month-wise dietetic regimen known as masanumashika paricharya (monthly regimen) for woman throughout 9 months of pregnancy.

6.1.3 Lifestyle Modifications: It includes Pathya-apathyo do’s and don’ts during pregnancy [Aahar (diet), Vihar (physical activities), and Vichar — (psychological and emotional activities) to be adopted and avoided during pregnancy].

6.1.4 Pathya (Congenial): Pregnant women should remain in high spirit, pious, decorated with ornaments, wear clean white garments, moonlight bath, soft bed, cool air, anabolic or gratifying edibles, embracing beloved, and other pleasing mode of life along with desired food.

6.1.5 Garbhopaghatakara Bhavas (Contraindications): Garbhopaghatakara bhavas are the factors including ahara (diet) and vihara (behaviour and conduct) which are harmful to the garbha (foetus). These may induce some congenital defects in the child and are not favourable for the birth of a healthy child, with all the good attributes. Use of contraindications during pregnancy leads to vitiation of dosha and the part which is afflicted in the mother, the same part is afflicted in the foetus.[34]

6.1.6 Epigenetics: The term epigenetics, derived from the Greek word “epigenesis,” means the influence of genetic processes on development.[35] Epigenetics is the study of potentially inheritable alterations in gene expression (active vs inactive genes) without affecting underlying DNA sequence. Epigenetics ultimately affects how cells read the genes. Epigenetic change is a usual and indigenous happening but can also be affected by several factors, including age, the environment/lifestyle, and disease state of the individual. The word “program” demonstrates the notion that the environmental stimuli received during critical periods of early foetal development can generate permanent changes in body structure and function, ultimately affecting the homeostasis of specific organs in the adult life.[36]

The DNA specifies the structure of proteins, but it is the cell’s circumstances that ultimately determine when, where, and how much of these proteins are produced. That conditional response may be a temporary adjustment, but sometimes cells change for life. These epigenetic changes may be reflected at various stages throughout a person’s life and may be transmitted in later generations.

6.1.7 Developmental Plasticity: Developmental plasticity is the responsiveness of a growing body to external cues. It is derived from the capability of genes to coordinate various ranges of physiological or morphological states as reaction to environmental conditions during foetal development. Different cells and tissues attain various programs of gene expression amid the development of organisms. The successions of precisely gauged and systematized epigenetic changes are cardinal for the apt development of multicellular organisms like humans. [37,38]
Growth pattern during early human life has its effect on many diseases that appear in adulthood. Nutrition and environmental factors in early life play key roles in the pathogenesis and in the likelihood of specific human ailments. Epigenetic alteration imparts a potential interconnection between the behaviour in the course of critical stages in development, nutrition status, lifestyle, and changes in gene expression that may lead to disease phenotypes.

6.1.8 Evidences showing Influence of Maternal Diet during Pre-conceptional, Natal, and Antenatal Period on Epigenetic Changes from One Generation to the Next Generation: Ayurveda advocates the concepts of Garbhini Paricharya for well-being of foetus and event-free delivery of a healthy neonate. By following these prescribed dietetic regimens, the pregnant lady remains healthy and delivers a healthy child having good strength, complexion, and voice. Along with Pathya (Do’s), some Apatham (Don’ts) are explained as Garbhapagathakara-bhavas (aahara and vihara which are harmful to the growing foetus). These may induce some congenital diseases in the child and are not favourable for the birth of a healthy child, with all the good attributes. Different studies have shown the effect of Dutch famine on children born during the period of 1944 to 1945. There was rise in the rates of coronary heart disease and obesity after maternal exposure to famine during early pregnancy compared with those not exposed to famine.[39] Incidences of schizophrenia have been reported to be significantly higher in adults prenatally exposed to famine conditions.[40] Low maternal protein diet for one ovulatory cycle prior to mating in mouse has shown abnormal anxiety related behaviour and elevated systolic blood pressure in the offspring.[41] Supplementary folic acid use in human beings during periconceptional period has shown higher methylation of the Insulin-like growth factor 2 differentially methylated region.[42] Maternal overnutrition and undernutrition have shown altered hypothalamic DNA methylation affecting the overall metabolism in the adult.[43]

6.1.9 Effect of Lifestyle of Parents on Growing Foetus and Future Progeny: It is stated that whatever the diet, lifestyle, and the actions the mothers follow, the progeny becomes accordingly. For example, if the parents are taking vata-dominant diet and practicing vata increasing lifestyle, the progeny will result in character of vata dominance. Similar will be the result in case of other dosha.[44] Also, atheism of parents, inauspicious deeds of previous life, and vitiation of Vatadi dosha lead to abnormality in foetus (both at physical and mental level).[45] Epigenetic changes caused by environmental exposures can be transmitted down several generations. The lives of ancestors can directly affect health of an individual. Individuals can be more susceptible to disease because of his/her ancestors’ exposure or behaviour. Grandchildren can be less healthy because of the choices made by forefathers or what they are involuntarily exposed to. Lifestyle of both the partners before conception and after conception has effect on growing embryo.

6.1.10 EFFECT OF DIET AND MODE OF LIFE DURING PREGNANCY:

The foetus is wholly dependent on mother; therefore, her diet and other activities may affect the growing foetus during pregnancy. By keeping this fact in mind, the woman desirous of having an ideal offspring, In Brhadaranyakopanishad, there is description of dietetic regimen prescribed to both the partners, for better progeny. The detail of specific diet as well as its effects on child is given hereunder. Charakah Samhita has mentioned that the effect of harmful diet as well as activities of the mother, causes congenital anomalies which are as follows:[46]

- The woman, who sleeps in the open air or is addicted to night walking, gives birth to a congenitally insane offspring.
- A woman of quarrelling nature gives birth to an epileptic.
- A nymphomanic woman gives birth to an ill formed or shameless or effeminate offspring.
- A hypochondriac woman gives birth to a coward, emaciated or short-lived offspring.
- A scheming woman (jealous inwardly but not showing it apparently) woman gives birth to anti-social, envious or effeminate offspring.
- A thievish woman, gives birth to a fierce, deceitful and envious offspring.
- An intolerant woman, gives birth to a fierce, deceitful and envious offspring.
- A woman, who sleeps so much, gives birth to sluggish, a dullard or a dyspeptic child.
- A woman, addicted to wine, gives birth to an offspring with polydipsia, having weak memory and possessing unbalanced mind.
- A woman, who eats ‘iguana’s’ flesh habitually, gives birth to an offspring suffering from urinary gravel or calculi or having dribbling micturition.
- A woman, who is addicted to hogs’ flesh, gives birth to an offspring suffering from blood shot eyes, sudden apnoea or coarse hairs.
A woman, who is fond of the meats of fish, gives birth to a slow winking or unwinking offspring.

A woman, constantly given to eating sweets, given birth to an offspring subject to urinary anomalies or a mute or obese offspring.

A woman who is fond of sour things, gives birth to an offspring having bleeding diathesis or diseases of the skin and eyes.

A woman, who is fond of saltish preparations, gives birth to an offspring whose hair turn grey very early, has wrinkled face or bald-headed offspring.

A woman, who is addicted to pungent things, gives birth gives birth to a weakling or to one who is deficiency to semen (Sterile).

A woman, who is addicted to bitter things, gives birth to consumptive, weak or emaciated offspring.

A woman, who is addicted to astringent things, gives birth to an offspring having muddy complexion, constipated or suffers from reversed peristalsis.

A woman, who is addicted to any of the recognised causative factors of disease, gives birth to an offspring who has a great tendency to suffer from corresponding diseases.

6.1.11 EFFECT OF DIET OF PARENTS ON CHILD:

Table. No. 01: Showing effect of diet of parents on child [47]

<table>
<thead>
<tr>
<th>Diet</th>
<th>Effect on child</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Rice cooked with milk sweetened and mix with Ghrita (Both partners)</td>
<td>Fair complexioned son with longevity of 100 years and having capacity to study one Veda.</td>
</tr>
<tr>
<td>2. Cooked rice with curd and Ghrita (both partners)</td>
<td>Tawny or yellowish complexion, longevity of 100 years and with ability to study two Vedas.</td>
</tr>
<tr>
<td>3. Cooked rice with Ghrita (wife only)</td>
<td>Dark complexioned, red eye able to learn three Vedas and longevity of 100 years.</td>
</tr>
<tr>
<td>4. Olea made with Tila and rice mix with Ghrita (wife only)</td>
<td>Erudite daughter with 100 years life span.</td>
</tr>
<tr>
<td>5. Pulp of medicine Uska and Resabhaka with rice and Ghrita (both partners)</td>
<td>Erudite bold son, pleasing sweet voice, learning all Vedas, longevity of 100 years.</td>
</tr>
</tbody>
</table>

Sushruta has described almost similar things under the heading of Dauhrīda, as described by Charaka, under the heading of Garbhaghatkara-bhava. Vagbhatta has also followed by Charaka, but he has mentioned the effects of various diets having power to vitiate Doshas of foetus.

6.1.12 EFFECT OF GOOD CHARACTER, HABITS, DIET ON FOETUS:

Women who have clean and pure habits and character, and are religious-minded and worship learned Brahmins, give birth to children of extraordinary virtue, those who do not do so, beget children devoid of virtues. The child born to a couple partakes of their habits, behaviour, activities and food tendencies.[48]

Table No. 02: Consumption of diet (Vitiating Doshas) by woman and its effect on her foetus.[49]

<table>
<thead>
<tr>
<th>Use of Dosha vitiating diet</th>
<th>Effect on foetus</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Vata vitiating diet</td>
<td>Juda (idiot), deaf, dumb, having hoarse or nasal voice, lame, hump back, dwarf, possessing less or more body parts etc.</td>
</tr>
<tr>
<td>2. Pitta vitiating diet</td>
<td>Baldness, premature greying of hairs, absence of hairs on face, tawny colour of skin, nails and hairs etc.</td>
</tr>
<tr>
<td>3. Kapha vitiating diet</td>
<td>Kustha (skin disorders), Kilasa (a type of skin disorders) and congenital presence of teeth etc.</td>
</tr>
<tr>
<td>4. Tridosha vitiating diet</td>
<td>Mixed type of anomalies.</td>
</tr>
</tbody>
</table>
5.1.13 EFFECT OF PSYCHOLOGY OF WOMAN ON FOETUS: The psychology of pregnant woman may also affect the foetus growth in her womb. Vedas considered the fact that for achievement of conception, happiness and good psychology of woman is an important factor. In Garbhopnishad also, the importance of the normal psychology of woman is considered, as psychological anomalies of mother may result in birth of a blind, bald, dwarf and hump backed child.[50] Ayurvedic scholar like Charaka and Sushruta were also aware of this fact, therefore, a pregnant woman has been advised to always think about the person throughout her pregnancy like whom she wants to have the child. She should also follow the diet, mode of life, cloths and acts of the desired person.[51] Charaka Samhita further clarify this fact and says that the born child simulates the characters of creature who come in thoughts of woman during fertilization.[52] Other scholars of Ayurveda have followed Charaka and expressed similar views. Ayurvedic text have much stressed on ‘Dauhrida’. Actually, the word Dauhrida means desires of foetus expressed through mother. Charaka opines that on appearance of Indriyas, Mana also gets associated, therefore, at the same time foetus expresses feeling of happiness and sorrow. He starts quivering due to this reason and express his desire accordingly (based on experiences of its previous life) through mother.

6. CONCLUSION: Garbha Samskar along with Garbhini Paricharya may be considered for inclusion in national health program as it helps to save the lives of mother and children not only by promoting and establishing good health before childbirth but also helpful to the mother’s health in postnatal period. Developing organisms have a wide range of sensitivity to epigenetic alterations. Inapt setting up of epigenetic alterations during critical developmental periods due to maternal diet or other environmental factors may result in paediatric developmental diseases and even affect health in adulthood. Potentially reversible epigenomic state of a gene can be entrenched with behavioural and nutritional programming. Unlike genetic mutations (irreversible), epigenetic changes are inherently reversible. Drugs and diets have the potential to restore normal epigenetic status. It is also evident from research that diseases caused by epigenetic alterations may be treatable and preventable. By adopting the rules of Garbha Samskara, epigenetic programming is possible in order to have a healthy progeny. Appropriate dynamics in epigenetic modifications are possible with the help of Garbha Samskara. Further research is needed for better understanding of the interplay between genetic and epigenetic interaction in critical time windows of development and its effect on susceptibility of individual to a wide range of diseases.

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8. SOURCE OF FUNDING: NIL
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6. Ibidem Sushruta samhita (3), Shariristhana, Chapter 3, verse -35, p. 44
8. Ibidem Sushruta samhita (2), Shariristhana, Chapter 5, verse -2, p. 146
9. Ibidem Sushruta samhita (4), Shariristhana, Chapter 3, verse -4, p. 140
10. Ibidem Sushruta samhita (3), Shariristhana, Chapter 1, verse-16, p. 9
11. Ibidem Sushruta samhita (3), Shariristhana, Chapter 3, verse -5, p. 30
12. Ibidem Sushruta samhita (6), Shariristhana, Chapter 3, verse -10, p. 279
13. Ibidem Sushruta samhita (2), Shariristhana, Chapter 2, verse -33, p. 33
14. Ibidem Sushruta samhita (6), Shariristhana, Chapter 1, verse 26, p. 9
15. Ibidem Sushruta samhita (6), Shariristhana, Chapter 3, verse 34, p. 36
17. Ibidem Sushruta samhita (6), Shariristhana, Chapter 2, verse: 37-38, p. 20
20. Ibidem Sushruta samhita (4), Shariristhana, Chapter 2, verse: 57-58, p. 139
22. Ibidem Sushruta samhita (2), Shariristhana, Chapter 2, verse: 53-54, p. 23
23. Ibidem Charaka samhita (22), Shariristhana, Chapter 2, verse -29, p. 415