

**IMPACT OF MATRIJA BHAVA (MATERNAL FACTORS) IN PREVALANCE OF
ARBUDA IN PURVIEW OF EPIGENETICS**Sabharwal Pooja*¹, Dada Rima², Prakash Chetan³ and Bhardwaj Priyanka⁴¹Assistant Professor, Department of Rachana Sharir, Ch. Brahm Prakash Ayurved Sansthan, New Delhi.²M.D, Ph.D. (Genetics), MAMS Professor, Lab for Molecular Reproduction and Genetics, Department of Anatomy, AIIMS, New Delhi^{3,4}MD Scholar, Department of Rachana Sharir, Ch. Brahm Prakash Ayurved Sansthan, New Delhi.***Corresponding Author: Dr. Sabharwal Pooja**

Assistant Professor, Department of Rachana Sharir, Ch. Brahm Prakash Ayurved Sansthan, New Delhi.

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ABSTRACT

The increasing rate of congenital anomalies is a compelling problem in front of medical world to provide the healthy human race or progeny. These may be anatomical or physiological. Out of these, one such disease is Cancer which is mentioned in the classical Ayurveda texts as *Arbuda*. According to the recent data of WHO 9.6 million deaths in 2018 were due to Cancer which accounts 1 out of 6 global deaths. Out of these 30-50% is preventable. Despite of the modern scientific advancements this gigantic burden has not been reduced. Here comes the need of studying one of the unique principles of *Shadgarbhakara bhava* (Six procreative factors) in Ayurveda. The *Shadgarbhakara bhava* are *Matrija*, *Pitrija*, *Rasaja*, *Satmayaja*, *Atmaja* and *Sattvaja*. Each factor when combined together results in healthy progeny. It is mentioned in the classical texts that there is a huge impact of these factors in prevalence of diseases in the adult life. The foremost factor, i.e. *Matrija bhava* is discussed here in detail on the basis of modern scientific knowledge.

KEYWORDS: *Arbuda*, *Matrija bhava*, Epigenetic, Cancer.**INTRODUCTION**

Intra-uterine environment is a delicate phase for the mother and for the offspring as well. Since both broad and precise actions in the surrounding of pregnant female can affect "the product of conception" positively or negatively. These actions may be dietary, recreational, emotional etc. Even before the medical world was burdened by the enormous figures of the congenital anomalies as it is today. According to WHO, Congenital Anomalies are also known as Birth Defects, Congenital Disorders or Congenital Malformations. Congenital Anomalies can be defined as structural or functional anomalies (for example, metabolic disorders) that occur during intrauterine life and can be identified prenatally, at birth, or sometimes may only be detected later in infancy.^[1] The fetus may or may not be "at risk" or "sensitive" for abnormalities or disabilities – such as Congenital Heart Disorders or even Cancer. This may be because of the environmental factors, the health or condition of the mother, or iatrogenic causes, a fetus may develop a condition or other abnormality that will exist before or after birth. The concept of Genetics is clearly visible in the ancient Ayurveda texts- *Prakriti*, *Beej*, *Beejbhaga*, *Beejavyava*, *Sehej vyadhi/Adibala pravritta vyadhi*, *Shadgarbhakara bhava* to name a few.

The *Shadgarbhakara bhava*^[2] are mentioned by *Acharya Charak*, *Acharya Sushruta* and *Acharya Kashyap* as- *Matrija*, *Pitrija*, *Rasaja*, *Satmayaja*, *Atmaja* and *Sattvaja*. Each factor when combined together results not only in organogenesis but also the psychological built of the progeny. With the very first glance at the somatic factors expressed by mother and father leads to development of soft organs and hard structures respectively. The rest forms the psyche.^[3] *Ayurveda* firmly puts its principles forward by being extremely specific for the progeny or race i.e. to be carried forward must be healthy. For females and developing fetus ancient texts are having abundant concepts- *Ritukala Paricharya*^[4], *Garbhadhana Ayu*^[5], *Garbhadhana vidhi*^[6], *Garbha Mamsanumasika Vridhhi*^[7], *Douhrida*^[8], *Mamsanumasika garbhini paricharya*^[9], *Garbhoghatkara bhava*^[10], *Garbha poshan*^[11] etc. Whereas, especially for the offspring various *Garbha samskara*^[12] have been mentioned. But if these are not followed as described may lead to diseases enumerated in classics. *Acharya Sushrut* in *Sutrasthana* enlisted seven types of diseases- *Adibala pravritta*, *Janmabala pravritta*, *Doshabala pravritta*, *Samghatabala pravritta*, *kalabala pravritta*, *Daivabala pravritta* and *Swabhavabala pravritta*.^[13] The diseases that are transferred due to maternal and paternal factors (e.g. *kushtha*, *arsha* etc) are *Adibala pravritta vyadhi*. The

diseases like *Shwitra*, *Apasmara*, *Madhumeha*, *Vatarakta*, *Arbuda* etc are congenital as per both the traditional and modern world. *Arbuda* or Cancer in today's era is one of the deadliest diseases that population has come across. According to recent data of WHO, Cancer is the second leading cause of death globally. It is estimated to account for 9.6 million deaths in year 2018. On the whole, statistics shows that the leading type of cancers in the race as per mortality rates are-

- Lung Cancer – 18.4% of all cancer deaths i.e. 1.8 million
- Colorectal Cancer- 9.2% of all cancer deaths i.e. 881,000
- Stomach Cancer- 8.2% of all cancer deaths i.e. 783,000
- Liver Cancer- 8.2% of all cancer deaths i.e. 782,000
- Breast Cancer- 6.6% of all cancer deaths i.e. 627,000

As per gender the top five cancers are^[14]

- In Males- Lung, Prostate, Colorectal, Stomach and Liver cancer are the most common ones.
- In Females- Breast, Colorectal, Lung, Cervix and Thyroid cancer are the most common.

MATERIALS AND METHODS

It is a descriptive study. As source materials the classical *Ayurveda* texts along with the commentaries available in the library of Ch. Brahm Prakash Ayurved Charak Sansthan are referred. Other than this, various related research articles published are also been studied.

All the relevant matter is further compiled and analyzed for the discussion and attempt to draw a conclusion regarding the impact of *Matrija bhava* in prevalence of *Arbuda* in purview of Epigenetic is made.

Literary Review

Matrija (mother), *Pitrija* (father), *Atmaja* (soul), *Satmyaja* (wholesome practices by mother), *Rasaja* (diet of the mother) and *Sattvaja* (psychological health of the parents) are the *Shadgarbhakara bhava* described. *Ayurveda* classics broadly describes the organogenesis through *Shadgarbhakara bhava*- *Matrija* and *Pitrija bhava* are responsible for anatomical components; whereas the physiological and psychological components appear to be derived from *Atmaja*, *Rasaja*, *Satmayaja* and *Sattvaja bhava*.^[15] Hence all these *bhava* are collectively influencing the development of *Garbha* (embryo).^[16] In modern science the psychological variances are not mentioned in development of fetus. Hence, Ayurvedic concept is more beneficial for the couple to have a healthy progeny; both physically and psychologically.

According to *Acharya Charak*, *Matrija bhava* are *Twacha*, *Rakta*, *Mamsa*, *Meda*, *Nabhi*, *Hridaya*, *Kloma*, *Yakrut*, *Pleeha*, *Vrikka*, *Purishadhana*, *Amashaya*, *Pakvashaya*, *Uttarguda*, *Adharguda*,

Sthulantra and *Vapavahana*.^[17] According to *Acharya Sushruta*, *Matrija Bhava* are *Mamsa*, *Rakta*, *Meda*, *Majja*, *Hridaya*, *Nabhi*, *Yakrut*, *Pleeha*, *Aantra*, *Guda* etc.^[18] According to *Acharya Kashyap*, *Matrija Bhava* are *Rakta*, *Mamsa*, *Nabhi*, *Hridaya*, *Kloma*, *Yakrut*, *Pleeha*, *Vrikka*, *Basti*, *Purishadhana*, *Amashaya*, *Uttarguda*, *Adharguda*, *Kshudrantra*, and *Sthulantra*.^[19] The description of formation of soft organs through maternal factors is solely by *Acharya Sushruta*- "*Mriduni Matrijani*".^[20] The *panchbhautika* composition of *Mridu guna* is *Jala* and *Akasha*. *Artava* is described as *Agneya* i.e. *Agni mahabhuta*. Whatever diet and regimen the pregnant woman adopt, the child will develop the same qualities. The embryo grows from the essence of the diet that the mother consumes through *Upasweda* and *Upasneha*.^[21] Therefore, whatever diet the mother takes affects the fetus directly. This fact is well supported by contemporary science that exposure to toxins, alcohol etc. during the antenatal period may show teratogenic effects on embryo. These genetic/chromosomal abnormalities required certain other conditions/environments (interior / exterior) to be dominant or recessive.

Vitiation of *Dosha* because of defect in *Gabhotpattikar bhava (ritu, kshetra, beej and ambu)*^[22] leads to the impairment of the shape, colour, sensory as well as motor organs of the offspring. In *Sushruta samhita*, *Sutrasthana*, the seven types of diseases as *Trividha dukha* are mentioned. Among these *Adibala pravritta vyadhi* are the diseases which are congenital in origin and genetically determined like *Dusta arsha*, *Prameha* etc., are manifested due to vitiation of *Shukra* and *Sonita* of father and mother respectively. The *Acharya* well states that it is the *Beej* that causes the congenital or hereditary disorders. Therefore, to prevent this *Shodhana* followed by *Rasayana sevana* is indicated so as to produce the healthiest possible offspring. During gametogenesis there is crossing over of genes between the chromosomes i.e. mutation and also the human body is constantly in interaction with the environment that can lead to some phenotypic changes which one some level may be beneficial by helping in adaptation; but may also be responsible for causing various congenital or hereditary disorders. Negative emotions release neurochemicals that strain and damage the organs, whereas positive emotions release health-promoting chemicals.^[23]

Epigenetic referred to all molecular pathways modulating the expression of a genotype into a particular phenotype. Over the following years, with the rapid growth of genetics, the meaning of the word has gradually narrowed. Epigenetic has been defined and today is generally accepted as "the study of changes in gene function that are mitotically and/or meiotically heritable and that do not entail a change in DNA sequence".^[24] As *Vogelstein et al.* point out, in a colorectal cancer there are usually about 3 to 6 driver

mutations and 33 to 66 hitchhiker or passenger mutations.^[25] However, in colon tumors compared to adjacent normal-appearing colonic mucosa, there are about 600 to 800 heavily methylated CpG islands in promoters of genes in the tumors while these CpG islands are not methylated in the adjacent mucosa.^[26] Popular approaches for measuring CpG methylation in cells include:

- Bisulfite sequencing
- Combined bisulfite restriction analysis (COBRA)
- Methylation-specific PCR
- Pyrosequencing

Amongst these the Bisulfite sequencing is the gold standard one. Various components such as diethylstilbestrol, arsenite, hexachlorobenzene and nickel increase the rate of epigenetic mutations leading to increased incidence of tumors. Further researches are carried out to diagnose the cancer-causing agents and hence methods to prevent it and cure it at an earliest possible stage.

RESULT AND DISCUSSION

“Genes are the gun and the environment is the trigger.” *Gabhavikriti* is multifactorial in which aggravation of *dosha* through diet and mode of life, the aggravated *dosha* reaches the *shonita* and *garbhashaya* causing some malformations or diseases. Interestingly, all the above accounted Cancers are soft organs’. If we relate it to the concept of *Shadgarbhakara bhava* or *Matrija Bhava* to be more precise; *Mriduni Matrijani* i.e., soft organs are formed by *Matrija Bhava*; then it is well observed that the WHO commonest cancers for both the genders are all soft organs’ ones. Hence, there is need to promote the healthy environment to build strong *bhava* that are to be “passed on” to the progeny so as to prevent the risk of carcinoma in later period of life. Since mother being the sole “supplier” for all the aspects i.e. to be passed to the developing embryo; it must be ensured that maternal factors ought to be pure enough to be carried forward to prevent diseases.

CONCLUSION

Shadgarbhakara Bhava are not only the factors that bring the similar new one into this universe, but they are responsible for organogenesis and transferring other traits to the offspring. These traits are similar to the ones carried by chromosomes/genes as per contemporary concepts of embryogenesis, fetal growth, and development. Any changes in these traits may lead to certain diseases like *Arbuda*. As stated earlier, *Arbuda* or Cancer has emerged as second leading cause of death globally, there is need to emphasize on ancient saying-“Prevention is better than cure”. Since environment plays a pivot role in prevalence of *Arbuda*, therefore it seems mandatory to provide the healthiest possible environment during the intrauterine period and after that as well. Pregnancy should be by choice not instance. Hence, proper mind makeup of the mother and ante-natal care is essential so that healthy genes are transmitted and the

occurrence of dreadful disease like *Arbuda* can be prevented.

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