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CONCEPTUAL STUDY OF *BEEJ, BEEJBHAG*, AND *BEEJBHAGAVAYAVA*

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ABSTRACT

Ayurveda represents the ancient art of healing that has been practiced in India for countless centuries. *Acharya Sushruta*has categorized diseases like *Kushta, Arsha* are *Adi- balpravritta* refers to sets of conditions that are attributed to inherent abnormalities in either the *Shukra* or *Shonita*, which constitute the fundamental elements of existence. Hereditary and congenital types, such as *Sthaulya, Klaibya, Prameha* that are arise from genetic anomalies.[1] In *Ayurveda*, the concept of "*Beej, Beejbhag,* and *Beejbhagavayava*are intergral to understanding the principles of Genetics and Heredity, if get vitiated then are considered responsible for Hereditary/ Congenital diseases. The concept of Genetics was in existence since the time of Ancient *Acharya*. In *Ayurveda*, these terms have been used for centuries to describe the essence of life and the transmission of traits from one generation to another. They knew the fundamentals of Genetics i.e the factor determining the sex of a child and Genetics defects.

KEYWORDS: *Beej, Beejbhaga, Beejbhagavayava*, Genetics, Hereditary.

INTRODUCTION

Ayurveda, often referred to as the "Science of Life," is an ancient Indian system of medicine that dates back over 5,000 years. It places great emphasis on holistic well-being and the use of natural remedies. In *Mahatigarbhavkranti Adhyay, Acharya Charaka*has described best about Genetics in *Sharir Sthana.*[2] *Acharya Charaka*describe the fundamental of Genetics where he has explained three components as main genetics unit: *Beeja*with Germinal cells like *Shukra* (sperm)in male and *Shonit*(ovum) in female,

Beejbhaga(chromosomes) and *Beejbhagavyava* (gene).[3] He has explained that due *Vikriti* of *Beeja, Beejbhag* and *Beejavayava* of the couple, therewill be *Vikriti* or *Vyapada* in the child depending on gender.[4]

AIMS AND OBJECTIVES

1. To collect the data available regarding *Anuvanshikisidhant* in Ayurvedic text.
2. To understand *Anuvanshiki* in light of Modern Genetics.

METHOD

All sorts of references regarding are compiled from various available *Ayurvedic* classics text like *Sushruta Samhita*, *Charak Samhita*, *Ashtang Hridya*, *AshtangSangrahaAyurvedic* commentaries and modern books like Obstetrics, Embryology etc. Review articles, journals, etc.

REVIEW OF LITERATURE

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According to *Acharya Sushruta*, embryonic growth factors are as much essential as they are required for proper growth of a seed in a cultivated land. This means good climate or season; fertile land, water and seed are four essentials for proper growth of a crop. Similarly for proper growth of an embryo these very four factors are equally essential. The term *Ritu* (fertile period), *Kshetra* (healthy reproductive organs i.e., uterus, ovary and fallopian tubes), *Ambu* (proper nutrition through mother) and *Beej* means ideals *Shukra* (sperm) and *Shonit* (ovum).[5] Embryo grows at a particular temperature, that is why *Ayurveda* believes that *'Tej' Mahabhoota* is one of the essentials for proper growth. *Teja Mahabhoot* gives *'Ushma'* or temperature.[6] *Prakriti* of a child also depends on*Shukra* and *Shonita*.[7]

Bhavas involved in the formation of embryo

There are six procreative factors which are taking part in the formation of embryo and various body parts.[8] All the soft structures i.e., heart, spleen, intestine, rectum, muscles, blood, lipid, bonemarrow, umbilicus etc. of the foetus are derived from the mother, called *Matrija bhava.*[9]

Likewise, all stable or hard parts i.e., hairs, vein, arteries, nails, bones, beard, sperm etc;

of foetus are derived from the father, called *Pitrijabhava*.[10] *Atmaja*(Soul), *Satmayaja* (wholesomeness), *Satvaja*(Psych/Mind), and *Rasaja Bhavas*(Nutritional) are equally important for the formation of *Garbha*.[11]

Beej, Beejbhag and Beejavayava* and its *Vikriti

The birth of male or female child in a twin or multiple pregnancy depends on the manner in which *Vayu* divides the *Beeja* (zygote), if *Vayu* divides the *Beeja* in such a way that one part haspredominance of *Shukra* and the other of *Artava* then from former part a male child will be bornand from *Artava* the femalechild born.[12]

Factors responsible for the abnormality in foetus have been defined by *Acharya Charaka.* Because of the defects in seeds (sperm, ovum), *karmas*associated with the soul, situation and condition of uterus, specific time, food as well as regimen of the mother, *Doshas* get vitiated and this results in the impairment of the sensory as well as motor response of the offspring.[13] *Acharya Charaka*saidthat aggravated *Doshas* may afflict the ovum and sperm which is responsible for the production of particular organ. Thus, vitiation of *Beeja, Beejbhaga* results in deformation of related organs of progeny (somatic as well as genetic anomalies of progeny) and also manifests vitiated *Beeja, Beejbhaga, Beejbhagavavyav*which results in sexual and reproductive dysfunction in offspring, *Bandya, Putipraja* and *Varta* under *Streevyapad.* Similarly, the sterile child, *Bandhya, Putipraj*and *Trunputrika* under *Purushvyapad.*[14]

1. *Beeja*

The fundamental unit of Genetic information i.e., *Beej*, often refers to a 'seed'[15] containsDNA, which carries the blueprint for building physical as well as psychological attributes of an organism. *Beeja*viz *Matrija* (female gametes, ovum) and *Pittaj* (male gametes or sperm) as described by *Acharya Sushruta*[16] has11 *Shukra* and *Shonita Doshas* where *Dushti* of *Beej*causes formation of defects in the foetus.[17] *Acharya Charaka* has described 8 *Shukra Dushti*.[18]

2. *Beejbhag*

When the *Beejbhag* (part of the *Beej*) in the ovum of the mother which is responsible for the production of the foetus is excessively vitiated then she gives birth to a *Bandhya*child.[19]

3. *Beejavayava*

Beejbhag carrying hereditary characters are compared with the chromosomes is mainly responsible for a particular trait in an individual.[20] When the *Beejbhag* (a fraction of part of the *Beej*) in the ovum of the mother which is responsible for the production of the foetus is excessively vitiated, then she gives birth to a ***Putipraja***.[21]

BeejbhagAvayava should be taken as the furthermore subtle stage for carrying *Beejbhag* carrying hereditary characters and may compare with the gene which is the functional unit of hereditary.[22] When the *Beejabhagavayava* which is responsible for the production of the foetus also the portion of the *Beejbhagas* which are responsible for the production of the organs that characterizes a female viz. breast, genital organs, hair etc. in the ovum of the mother gets excessively vitiated then she gives birth to a child who is not complete female but only having the femi-nine characterstics in abundance. Such a type of child known as *Varta*.[23]

DISCUSSION

Acharya Charaka states that anatomical anomalies are developed in those parts of the body whose part of the chromosomes/Gene is defective and explained that the teratologic abnormalities depend upon the condition of *Beeja*, not on the physical status of the couple. It appears that the Genetic chromosomal material was known in those days, which they might have visualised with help of some kind of instrument like the presently existing microscope. Our Ancient *Rishees* even also correlated diseases like diabetes mellitus with Genetic defects.[24]

The concept of *Beej*, *Beejbhag*, and *Beejbhagavayava*constitutes a remarkably advanced Geneticnotion, encapsulating even the tiniest elements of modern Genetics. The study of Genes, Heredity, and variation in living organism which is strongly linked with the study of information systems is called as Genetics.[25]

Table 1: BEEJ.

***Ayurvedic* Aspect**		**Modern Aspect**	
Beej	Vitiated	Gametes	Vitiated
Artav	*Bandhya Jayanti*	Ova	Infertility in female
Shukra	*Bandhya Jayanti*	Spermatozoa	Infertility in male

Table 2: *Beejbhag.*

***Ayurvedic* Aspect**		**Modern Aspect**	
Beejbhag	Vitiated	Chromosomes	Vitiated - Chromosomal abnormalities
Stree	*Putipraja*		Numerical like:-
Purush	*Putipraja*		Monosomy, trisomy
			Deletion, inversion,
			ring chromosomes,
			isochromosomes,
			translocation.
			Down syndrome,
			Edward syndrome and
			Patau's syndrome.
			Turners' syndrome,
			Klinefelter syndrome,
			Cri du chat syndrome

Table 3: *Beejbhagavayava.*

Ayurvedic Aspect		**Modern Aspect**	
Beejbhagavayava	Vitiated	Gene/ chromosomes	Vitiated
Stree	*Varta*		Gene:
Purush	*Trunputrik*		1. Autosomal inheritance
			a). Autosomal
			inheritance
			b). Autosomal recessive
			2. Sex- linked
			inheritance
			a) X-linked- colour
			blindness, haemophilia
			A, Duchenne muscular
			dystrophy.
			b) Y-linked- Hypertrichosis of theears, webbed toes, porcupine man.

CONCLUSION

Acharya has described the facts that genetic disorders are not due to any defect in the mother or, the father but in the ovum or sperm of parents. In *Garbhaj Vikriti*, described anomalies by *Acharya Charaka* are indicating towards the fetal anomalies related to chromosomal disorders.

Women conceived when her ovum and uterus were not completely vitiated but simply

afflicted by the circulating *Doshas* aggravated because of indulgence in *Dosha* aggravating regimens, oneor many of the organs of the foetus derived from the maternal source (ovum), viz. skin, blood etc; get deformed. These vitiated *Doshas* may afflict the *Beeja*(sperm or ovum) or the *Beejabhaga*(chromosomes) by which the corresponding organs derived from these *Beejas* and *Beejabhaga* get deformed. When the *Beejabhagavayava*(gene) in the ovum of the mother which is responsible for the production of uterus is excessively vitiated, then she gives birth to sterile child.

Our classical scholars have elucidated that genetic disorders do not stem from any flaw in the mother or the father, but rather from the germinal cells (sperm and ovum). Therefore, they recommended certain ritualistic therapies and purification (*Shodhana*) of the male and physiquebefore contemplating parenthood, as well as undertaking rejuvenation treatments to regain health, thus averting the onset of Genetics disorders.[26]

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