

CONCEPT OF ANUVANSHIKTA IN VIEW OF MODERN GENETICS***Dr. S. D. Rokade**

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Corresponding Author*Dr. S. D. Rokade**HOD, Professor, Department
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College, Nanded.**ABSTRACT**

Science of Genetics in Ayurveda may appear a new topic but ancient Ayurvedic scholars like Charaka and Sushruta understood very well, the principles of heredity and nature of traits or characters. Though the present understanding of human genetics owes much to the work of Gregor Mendel but the first scientific theme on genetics had been emphasized in ancient Indian literatures. An outstanding contribution of Ayurved on genetics is being described on the following heads i.e. concept of basic unit of genetics like Beeja, Beejabhag and Beejabhagavyav. Hereditary and congenital types of diseases are classified by Sushruta. Ayurveda mentioned different diseases like

Sthaulya(obesity), Klaibya(impotence), Prameha (diabetes) etc. The article focuses on the various literary concept and clinical applications of genetics in Ayurveda and the correlation with the modern concept of genetics.

KEYWORDS: Genetics, Beej, Beejbhaga, Beejbhagavyava, Genetic disorders.**INTRODUCTION**

In our classical texts genetics is best described by Acharya Sushruta and Acharya Charaka in Sharir Sthana. The human mind was engaged with fundamental questions on the nature of heredity long before the study of genetics became a scientific discipline. The concept of genetics dates back 6000yrs back. Haemophilia was the first genetic disorder known for about 1500yrs ago. Aristotle suggested that semen originated from the blood and has an ability to give life to embryo. In 17th century Dutch scientist demonstrated that union of the egg and sperm. A French Naturalist studied polydactyly and albinism. He proposed that heredity particles are responsible for the formation of a particular body part. In 19th century Gregor mendel discovered principles of heredity. Spencer wells said that every drop of human blood contains a history book written in the language of genes. Many traits such as

eye colour, height, complexion, disease susceptibility had been known to run in families although the chromosome, DNA structure, the genes or the combination of gene that underlies these observable characteristics were unknown. Though Ayurveda does not implicate the pure and literal aspect of genetics in much details but has taken up its applied aspect scientifically under the role of Panchamahabhuta in the formation of different organs in human body, manifestation of different genetically determined congenital disorders. Ayurveda identified three genetic units in the form of Beej (Germinal cell), Beejbhag (Chromosome) and Beejbhagavyava (Gene). Acharya Charaka has described first about the component of Beej whether male or female and designated them as Beejbhag and Beejbhagavyava.^[1]

DISCUSSION

The blossom of scientific revolution in human genetics has been started since ancient period. Recent genetic research confirms that all humans on the earth descended from a group of African ancestor who started their journey around 60000 years ago.

Concept of Genome in Ayurveda

Prakriti is the basic factor which is determined at the very time of the conjugation of Shukranu and Andanu in the presence of Beeja, Kshetra. The understanding of Prakriti plays a central role in understanding health and disease in Ayurveda. Ayurvedic literature classifies all individuals into different Prakriti types based on relative proportion of each Dosha. Prakriti remain unaltered during the lifetime determined at conception with contribution of environmental factors like Dosaja, Kalaja, Garbhasaya etc. Thus Ayurveda determined the Prakriti on the basis of the individual variation and it is proven to have strong genetic component.^[2] Prakriti assessment evaluates each dosas degree of dominance. It gives an important idea for diagnosis, prognosis and therapeutics. Prakriti of the foetus is also determined by the following factors.^[3]

1. Sperm and ovum
2. Season and condition of uterus
3. Food and regimen of the mother
4. Nature of the Mahabhutas comprising the foetus

Fertilization and Sex Determination

Ayurveda considered two factors in the development of human beings i.e. Shukra and Shonita to resemble that of sperm and ovum in modern medical science and which are

responsible for the fertilization in the human beings. In these contexts Charaka clearly stated that dominance of Shonita during conception resulting in the procreation of female child and dominance of Shukra(Sperm) leads to male child. According to modern science the sex of an individual is determined by the X and Y chromosome. Presence of Y chromosome leads to maleness regardless of the number of X chromosome present, absence of Y chromosome results in female development.^[4]

Concept of BEEJ, Beejbhag and Beejbhagavyava

Beej may be compared to the male and female gametes i.e. the sperm and the ovum. These two carry complete set of instructions on how the body is supposed to be built. This genetically coded instructions is the Genetic constitution of an organism which determines different traits of an individual such as Eye colour, Haircolour, Height, Weight, skin colour etc.^[5] Beejbhaga may be compared to a chromosome. The genomes are the set of chromosomal complements which are passed on as units from generation to generation one from each of the parents. These carry the hereditary information in the form of genes. Thus Beeja bhaga is held responsible for the expression of different characteristics of individual and origin of different organs and tissues of the body.^[6] Beejbhagavyava is the most fundamental entity which can be grossly compared to a gene. It is the basic physical and functional unit of heredity which are mainly responsible for expression of a particular trait in an individual that are transmitted from one generation to another. These are specific sequences that encode instructions on how to make proteins which in turn are responsible for the expression of a trait.^[7]

Concept of Inheritance Pattern in Ayurveda

The factors responsible for the procreation of foetus or human being derived from the following sources like one is mother(Matrijabhav), Father(Pitrijabhav), Soul(Atmaja), Wholesomeness(Satmaja), Proceeding from chyle Rasaja and mind(Satmaja). The factors derived from mother- the most of the soft organs like skin, blood, flesh, fat, heart, liver, kidney, stomach. The factors derived from father are as follows scalp, hair, nail, teeth, bones, veins, ligaments, arteries etc. Some functional factors derived from Atma like desire for happiness, courage, intellect, memory and voice. Other factors derived from Satmya are growth, strength, satisfaction, enthusiasm etc. The emotional factors derived from sattva – fear, anger, softness, vigor and memory.^[8]

Genetic Diseases in Ayurveda

Due to defects in seed(sperm, ovum) and associated with the soul, uterus, time and food as well as regimen of the mother, Doshas get vitiated and leads to the impairment of the shape, colour, sensory as well as motor organs of the offspring.^[9] In Sushruta samhita the seven fold of disease consider on the Trividha dukha. Among these Adibala pravritta vyadhi indicates the diseases which are congenital in origin and genetically determined like Dusta arswa, Prameha etc. are manifested due to the vitiation of Shukra and Shonita of father and mother. Vitiation in the beej, beejbhaga and beejbhagavyava of male and female can lead to different congenital anomalies. Vitiation in the beej of female leads to vandhyatva (infertility) in the foetus, vitiation in the beejbhaga of female leads to Putipraja in the foetus and vitiation in the bheejbhagavyava of female leads to varta in foetus. Vitiation in the beej of male leads to vandhyatva (infertility) in the foetus, vitiation in the beejbhaga of male leads to putipraja in the foetus and vitiation in the beejbhagavyava of male leads to trunputrika in foetus.^[10]

Need for Genetic Knowledge

To understand the fundamental biological makeup of the organism, For better understanding of the disease process, For actual prevention of the disorder and for the effective disease treatment. Keeping Ayurvedic principles in view, the couple should be instructed beginning from the Vivaha, followed by Garbhadhana upto to the Prasava. Genetic counselling may aid at different levels of formation of prakriti. Atulyagotriya vivaha, and appropriate age for marriage. Counselling to avoid Consanguineous marriage. Counselling to consume healthy diet Shadrasa yukta ahara for the proper Growth of the foetus which will determine Maaturahara vihara prakriti. Following specific garbhini charya for each month for healthy growth and development of the foetus.

CONCLUSION

Ayurvedic scholars had a fundamental knowledge on genetics much before modern geneticists. Though Ayurved does not implicate the pure and literary of genetics in much details but has taken up its applied aspect scientifically. Thus the concept of Beeja, Beeja bhaga and Beeja bhaga avayava is a highly evolved concept of genetics representing even the minutest entity of genetics of contemporary science. Human genome project is an effort to unfold each and every beej bhaga avayava responsible for a particular trait and thus benefit the society by preventing the occurrence of genetic disorders.

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