



CONCEPT OF GENES AND GENETIC DISORDERS IN AYURVEDA

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Article Received on 21/07/2023

Article Revised on 11/08/2023

Article Accepted on 01/09/2023

ABSTRACT

Genetic is the science of inheritance it came into existence at least 2500 B.C. The blossom of scientific revolution in human genetics has been started since ancient period. The genetic factors which are responsible for procreation of human being, concept of *Beeja (germ cells)*, *Beejabhag (chromosome)* and *Beejabhagabayab (gene)* *Upotapta, (mutation) determination of sex, concept of eugenic principle etc.* *Prakriti* is one of the outstanding contributions in Ayurveda in the field of genetics. *Prakriti* is the basic factor which is determined at the very time of the conjugation of Sukranu and Andanu in the presence of Beeja, Kshetra. The concept of the *Prakriti* plays a central role in understanding health and disease in Ayurveda. Sex chromosomal abnormality one of the congenital abnormalities having strong genetic susceptibility. Due to defects in seed (sperm, ovum) and associated with the soul, uterus, time and food as well as regimen of the mother, Dosas gets variously vitiated and leads to the impairment of the shape, colour, sensory as well as motor organs of the offspring. In order to create acceptable scientific evidence on genetics described in Ayurved, a scientific and systemized approach is needed for scientific validation on the subject.

KEYWORDS: Genetic, Ayurveda, Tridosha, Panchamahabhoot.

INTRODUCTION

The human mind was engaged with fundamental questions on the nature of heredity long before the study of genetics became a scientific discipline. Genetic is the science of inheritance it came into existence at least 2500 B.C. 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.

Spencer Wells said that every drop of human blood contains a history book written in the language of genes. Many traits such as height, eye colour, complexion, disease susceptibility had been known to run in families although the chromosome, DNA structure, the genes or combination of gene that underlies these observable characteristics were unknown.

The Ayurvedic scholar had a fundamental knowledge of genetics much before the modern genetic scientist. Though Ayurveda does not implicated the pure and literally aspect of genetics in much details but has taken up its applied aspect scientifically under the following heads i.e. the theory of evolution, the role of *Panchamahabhuta* in the formation of different organs in

human body, manifestation of different genetically determined congenital disorders.

The genetic factors which are responsible for procreation of human being, concept of *Beeja (germ cells)*, *Beejabhag (chromosome)* and *Beejabhagabayab (gene)* *Upotapta, (mutation) determination of sex, concept of eugenic principle etc.*

Concept of Genome in Ayurved

Prakriti is one of the outstanding contributions in Ayurveda in the field of genetics. *Prakriti* is the basic factor which is determined at the very time of the conjugation of Sukranu and Andanu in the presence of Beeja, Kshetra. The concept of the *Prakriti* plays a central role in understanding health and disease in Ayurveda. *Prakriti* has a genetic connotation that can provide knowledge for classifying human population based on phenotype characteristics.

Ayurvedic literature classifies all individuals into different *Prakriti* types based on relative proportion of each Dosa. The human phenotype can provide a genetic basis for the three major constitutions. The concept of *Prakriti* in Ayurveda should be considered from genomic perspective. Permutation and combination of Vayu, Pitta

and Kapha attributes characters along with other factors like different types of Purusha. Involvement of *Manas Dosa, Desa, Kala, Vayas, and Pratatmaniyata* which gives sufficient variant for a unique constitution for every individual.

Prikriti is remain unaltered during the lifetime and determined at conception, with contribution from environmental factors, Prakritis are 7 types; i.e. Vata, Pitta, Kapha, Vata-pitta, Vata-Kapha, Pitta- Kapha, and Tridoshaja(Sama). Almost every individual has one Dosa dominant with one or both the others subdominant. Subtle combination of the three Vata, Pitta, Kapha Prakriti types are specific and individualized as the DNA sequence based genetic background.

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*).

Concept of Chromosome, Gene and Chromosomal Abnormality

Sex chromosomal abnormality one of the congenital abnormality having strong genetic susceptibility. In this context Charak described regarding sex abnormality like Dwireta such type of abnormality may considered as true hermaphrodites, most patient of true hermaphroditism having 46XX Karyotype. In this extremely rare condition an individual has both testicular and ovarian tissue.

The other like Pavanendriya it may consider as Klinefelter's syndrome (47 chromosome 44XXY) having unexplained involuntary infertility and evidence of azoospermia in the male partner causing several mechanical disruption in meiosis that complete failure of gametogenesis occurs. Other one is Narashanda having normal male karyotype (XY) but the external phenotype is essentially that of a normal female, it may consider as male pseudohermaphroditism, Narishanda having karyotype is female (XX) but the external genitalia is virilized so that they resemble those of a normal male. The others are Samskarvahi (anaphrodisia), Vakri (hypospada), Irsyabhirati (mixoscopia) and Vatikshanda (eviration).

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, Dosas gets variously vitiated and leads to the impairment of the shape, colour, sensory as well as motor organs of the offspring. In Susruta 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 (diabetes mellitus) etc., are manifested due to vitiation of Sukra and Sonita of father and mother respectively.

Eugenic Principles in Ayurveda

The suitable age of conception of mother, father and physical condition of the mother has been recommended by Susruta. In this regard Susruta mentioned that the mother below the age of 16 and in case of father below the age of 25 does not allow conceiving to avoid birth of a undesirable quality of children.

Recent study has shown that maternal age plays a key role in various genetic abnormalities. This concept was established in clinical medicine by Dr. Langdon Down, as named Down's syndrome, now it is well established that there is a strong association between the incidence of Down's syndrome and advancing maternal age.

The Ayurvedic scholar has emphasized specific daily routine of the mother during menstrual, period, before coitus to give birth of a desirable quality of child. All the factors are derived under the heading of Eugenic principle stated by different Ayurvedic classics two types of Eugenic principle categorically described in Ayurvedic compendium one is the positive Eugenic principles are. *Pumsavan prakriya, Regimen from pregnant woman, regimen for achieving excellent progeny and measure before cohabitation. Negative Eugenic principles are Consanguineous marriage and age of conception etc.*

CONCLUSION

Ayurvedic scholars had a fundamental knowledge on genetics much before modern geneticists. Though Ayurved does not implicated the pure and literary aspect of genetics in much details but has taken up its applied aspect scientifically under the following heads i.e. concept of Prakriti and its utility in clinical medicine, genomic concept in perspective of Tridosa, evolution theory and outstanding work on eugenic principles. In order to create acceptable scientific evidence on genetics described in Ayurved, a scientific and systemized approach is needed for scientific validation on the subject.

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