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A View on Genetics through Ayurveda

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ABSTRACT

History of Ayurveda has been glorious and Ayurveda explained all the concept in beautiful manner either it is genetics or any other. There are many concepts like *Atulya Gotriya Vivaha*, preconceptional care, *Beeja*, *Beejbhaga*, *Beejbhagavayava Vikara* and other *Beeja Dushtijanya Roga* etc. which shows that genetics is not a novel concept for Ayurveda. The present work is an effort to collect, compile and analyze the references related to genetics in Ayurveda.

KEYWORDS

Genetics, Atulyagotriya Vivaha, Beeja, Beejbhaga, Beejbhagavayava



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INTRODUCTION

Scientist Gregor mendal find out the concept of genetic in 19th century. He told about the concept Trait inheritance i.e. how the different characteristics passed on from one generation to the next. After gregor mendal researches are going on continuously on this concept. Recently a newer concept emerges in the form of epigenetics. Epigenetics is the changes in phenotype without change in genotype. These phenotypic changes influenced by different factors like environment, diseased condition etc. Ayurveda being an oldest science covers all the concepts whether its genetics or epigenetics. During embryo formation Acharya Charaka described six factors in the form of *Shadbhava* which affects the growth and development of an embryo¹. These factors are *Matrija* (maternal), *Pitrija* (paternal), *Atmaja*, *Satmyja*, *Rasaja* and *Sattvaja*. *Matrija* and *Pitrija* factor that means ovum and sperm directly affect the embryo. Rest all the factors like *Rasaja* (nutritional), *Satmyaja* (environmental), *Sattvaja* (Psychic) influence the gene expression. Disorders like *Sthoolta* (obesity), *Kleebta* (impotence), *Prameha* (diabetes), *Arsha* etc., has one of its causes as a flaw in genetic traits of a person. Which indicate about the hereditary and congenital types of

disease. There are many references in Ayurvedic texts regarding the concept of genetics but in scattered form.

AIMS & OBJECTIVES

1. To explain the concept of genetics through Ayurveda
2. Collection of different genetics concepts in Ayurveda

MATERIALS AND METHODS

Material compiled from the *Ayurvedic Classics* and available commentaries on it. Various publications, text books, research papers, and websites considered to collect the literary material. Collected material was analyzed to built the concept in view of aim & objectives of the study.

DISCUSSION

The blending of sperm, ovum and the Soul in the womb is known as embryo². According to Acharya Sushruta a collective state of “*Shukra*” and “*Shonita*” in the *Garbhashaya* (uterus), melded with the “*Prakritis*” and “*Vikaras*” and ridden in by the *Atma* is known as “*Garbha*”. So here is two basic factors for the foetus that is sperm and ovum. Any element which cause harm to these two factors will be harmful for foetus. Different perception of genetics in Ayurveda are like-



1. ***Atulyagotriya Vivaha*** (non-consanguineous marriages)

According to *Acharya Charaka* marriage are permitted between the male and female who are of separate *Kula* or *Gotra*³. Chakrpani commented that same *Gotra* marriages are considered as *Adharma* and it is prohibited in *Dharma Shastra*. Due to inheritance parents and children, brothers and sisters, commonly share 50% of their genetic make-up. Similarly uncle and niece share 25 % and first cousins 12.5 % of their inherited genetic material as it originates from a common ancestor. In such situations if there are any silent genetic defects, then such errors may manifests as a disease in the child of a consanguineous parents⁴.

2. **Preconceptional care**

For the procreation of progeny having excellent qualities, man should have unaffected *Shukra* (semen) and the woman should have unimpaired *Shonita* (ovum) and uterus. Man should be administered with *Ghrita* and *Dugdha* (milk) simmered with sweet taste medicine. The woman should be given *Tila* oil and *Masa* to eat⁵. Drugs with sweet taste promote the quality of *Shukra* and *Taila* and *Masa* are good for *Shonita* due to their *Agneya* property. Concept of preconceptional care is also there in modern medical science, which was given by our *Acharyas* so many years ago.

A new WHO report shows that preconception care has a positive impact on maternal and child health outcomes. Its ultimate aim is to improve maternal and child health, in both the short and long term. Opportunities to prevent and control diseases occur at multiple stages of life; strong public health programs that use a life-course perspective from infancy through childhood and adolescence to adulthood are needed. Preconception care contributes to these efforts⁶.

3. **Concept of *Beeja Beejabhaga Beejbhaga Avayava Dushti***⁷

This concept of *Acharya Charaka* clearly gives the idea about the genetic perception in Ayurveda. If a woman is conceived when her ovum and uterus were not completely vitiated but simply affected by the aggravated *Dosas* because of her indulgence in *Dosa* aggravating regimens, single or various other organs of foetus derived from the maternal source (ovum), viz. skin, blood etc., get deformed. These vitiated *Dosas* may afflict the *Beeja* (fertile part i.e. sperm and ova) or the *Beejabhaga*, (a part of the *Beeja*-the nearest term in the parlance of modern genetics is chromosome) by which the corresponding organs derived from these *Beejas* and *Beejabhagas* get deformed. When the *Beejabhaga* (part of the *Beeja*) which is the cause for the formation of uterus is



excessively vitiated, then female delivers a sterile child. When the *Beejabhagavayava* (a portion of the part of the *Beeja* that may be considered as gene) in the ovum of the mother got vitiated, then mother produces a *Putipraja* offspring. When the *Beejabhagavayava* is responsible for the production of the uterus and also the portions of the *Beejabhagas* which are causative factors for the formation of various body parts or organs that characterize a female, viz. breasts, genital organ, hair etc., in the ovum (*Beeja*) of the female gets extremely vitiated then she delivers a child, not a complete female child but only having the woman like features in abundance- such a type of child is known as *Varta*. These all sicknesses occurs due to abnormalities of the female's genes.

Similar concept is also for the male. Deformities occurs due to blemishes in male gamete in the form of *Vandhyam*, *Putipraja* and *Trinaputrika*.

Causes like *Beeja*, *Beejabhaga* and *Beejabhagaavayava* impact the manifestation of inherited disorders which distresses the forthcoming generations. Diseases like *Prameha* (congenital diabetes), *Sahaja Arsha* (congenital hemorrhoids) and *Kushta* (congenital leprosy) are given which occurs due to vitiation of *Beeja*.

4. *Bala Vridhikara Bhava*

Out of thirteen types of *Bala Vridhikara Bhava Balavatpurushe Deshe Janma* is one of them⁸. *Balavat Purushe* means naturally healthy parents and *Balavat Deshe* means a place with healthy environment. It is the concept which is basically related to genetics. People who are naturally strong having good genetic trait will pass their characteristics through genes to the next generation.

5. *Prakriti*

Genotype and phenotypic characteristics of an individual is known as *Prakriti*. It is formed at the time of fertilization due to involvement of *Dosha*. Six types of *Prakriti* discussed by *Acharya Charaka* in *Indriya Sthana* and *Kulaprasakata* is one of them⁹. It means traits passes from generation to generation. There is a correlation between *Prakriti* and gene related symptoms. Y Ghodke, K Joshi and Partwardhan et al. describe *Prakriti* on the basis of CYP2C19 gene polymorphisms on the basis of metabolic activity. Partwardhan et al. shows relation between *Prakriti* and HLA DRB1 allele frequencies¹⁰.

Other References

Acharya Sushruta classified disease into seven types and *Adibalapravrita* is one of them. Further, *Adibala Pravrita* diseases are those produced by the abnormalities “of *Shukra*-(semen vis-a-vis sperm) and



Shonita (menstrual blood a vis-a-vis ovum) such as leprosy, piles etc. These are again of two types viz- *Matrja*- derived from the mother and *Pitrja*- derived from the father¹¹.

Yonivyapada

Twenty types of gynecological disorders are described by *Acharya Charaka*. There are four basic causes for all type of *Yoniyapada* i.e. wrong regimen, menstrual morbidities, defective genes and *Daivakarma* (result of the evil actions of the past life)¹². The genetic morbidity described here specifically refers to that of the mother i.e. her ovum.

Klaibya

According to cause different types of *Klaibya* are given in the classical texts. Four types of *Klaibya* are explained by *Acharya Charaka*¹³, whereas six types are given by *Acharya Sushruta*. Out of them *Beejopaghaataja* and *Sahaja Klaibya* occur due to *Beeja Dushti* which can be correlated with genetic deformity.

Sexual abnormalities

There are the eight types of sexual abnormalities described by *Acharya Charaka*¹⁴. Out of them followings occurs due to defect in *Beeja* of either mother or father.

Dvireta- Various parts of the human body are represented in the sperm or ovum. If that fraction of the sperm and ovum which is

liable for the creation of the germinal cells in the foetus is affected and if these sperm and ovum are equally divided during the process of conception, then the offspring will be hermaphrodite¹⁴. Such progenies will have the characteristic features of both the sexes.

Kliba

The congenital lack of strength and passion results in the weakening or inefficiency of sperm and ovum which leads to male and female sterility respectively¹⁴.

Vakri

During coitus uneven position of the female produces the hypospadiac offspring¹⁴.

Other than these *Sushruta* has described *Asekya*, *Saugandhika* and *Kumbhika* as sexual abnormalities where *Beej Dushti* considered as contributing factor.

CONCLUSION

Above concepts were given by Ayurveda millions of years ago, even before the discovery of genes. So, the concept of genetics is already there in our *Samhitas* but in a scattered form. Due to modernization and development of sophisticated instrument there is well defined vision of genetics in modern medical science. But the root of this genetic is already there in our ancient system of medicine.



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