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CONCEPT OF GENETICS IN AYURVEDA

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ABSTRACT

Ayurveda is accepted as an oldest written medical system and it came into existence at least three thousand years before Christ. 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. Although the technical term Genetics does not feature in Ayurveda but the theme of genetics is vibrant repeatedly all classical text of Ayurveda especially in Samhitas. It is an outstanding contribution of Ayurveda on genetics is being described on the following heads i.e., concept of basic unit of genetics like Beeja –Beejabhag –Beejabhgavaya, concept of mutation, inheriting factors, concept of fertilization and sex determination, description of congenital diseases like Madhumeha, Arsha, Kustha etc. Prakriti and its clinical applications, therapy applied for Pumsavan kriya, how to prevent birth of a physically and mentally handicapped child. The review focuses on the various literary concept and clinical applications of genetics in Ayurveda.

KEYWORDS: Beeja-Beejabhaag-Bheejbhagavaya, Genetics, Ayurveda.

INTRODUCTION

Ancient ayurveda acharyas focussed on diseases from a personalized aspect. Susrutacharya who is believed to have lived in the period between 1200 BC -600 BC defined health as a state of equilibrium of tridosha(somatic humor), agni and dhatu, well excretion of mala and the atma, indriya, manas being in a state of bliss. This definition itself is pointing to the personalized aspects of medicine. The unique concept of prakriti which is the phenotype of distinctive genetic codes further explains this concept. The prakriti decides the sahajabala(natural immunity) which determines whether an individual is more prone to a

disease or not. Genetics emerged in Mid to Late 19th Century. But centuries before itself, the formation of garbha, role and transmission of inherited factors, different congenital anomalies, hereditary and genetic disorders are well acknowledged by ayurvedic acharya. Beeja, beejabhaga, and beejabhagavayava are the unique concepts through which the genetic materials are transmitted from generation to generation. Garbhotpadaka chaturbhava (which include ritu, kshetra, ambu and beeja) and shadbhava (six procreating factors) have a significant role in preventing birth defects and genetic disorders. Dinacharya(daily routine), ritucharya(seasonal regimens), sadvritha(code of conduct), dharaneeya and adharaneeyavega(suppressible & non suppressible urges), ritumaticharya (rituals which prepares a female physically and mentally for conception), and garbhinicharya(antenatal care) help to keep the dosha in equilibrium and thereby regulate gene sequencing and gene expression.

THE CONCEPT OF BEEJA, BEEJABHAGA AND BEEJABHAGA-AVAYAVA

The set of functional units representing the structures and features of all angapratyanga (parts & subparts) of an individual is known as Beeja. This functional unit is responsible for the transformation of characteristics from parents to offspring and is also responsible for the growth and development. Each species has its characteristic features. Hence human beings and other animals like elephants, horses etc have their distinguishing characteristics. To sustain the uniqueness of a species it is important to have a definite number of chromosomes. So, the chromosome number of a species will be unique and even the chromosome number of its zygote is also definite. As per Vaisheshika philosophers, everything in the universe is made up of paramanu of panchamahabhootha and responsible for the formation of various angapratyanga. The samyogaa(union) of the panchamahabhoota by the help of vayu, karma and swabhava leads to the formation of various angapratyanga .If we look into the history of the evaluation, we can understand that variation and heredity place an important role. Variation explains the uniqueness of an individual and heredity tells how these are transmitted to generation. Variation helps to adapt a person to present circumstances in a certain phase of time and is carried to the next generations. Hence, two kids of the same couple possess similarities as well as the uniqueness of character. This is due to three factors like beeja, beejabhaga, and beejabhagavayava possessing all the functional units signifying the structures and features of all the anapratyanga in the body. Through these, the characteristic of a parent is being transmitted to their offspring. This mechanism of transmission is known as Anuvamsaki. Acharyas explained beeja, beejabhaga and

beejabhagaavayava with the help of certain diseases. When beejabhaga in the ovum of the mother which is responsible for the production of garbhashaya excessively vitiated then she gives birth to a vandya (sterile child). When the beejabhagavayava available in the ovum of the mother is responsible for the production of uterus is excessively vitiated then she gives birth to puthipraja (who delivers a dead foetus).When the beejabhagavayava which is responsible for the production of garbhashaya and also the portion of beeja which is responsible for the production of organs that characterize a female in the ovum of the mother get excessively vitiated then she gives birth to a child who is not a complete female but only having feminine characteristics in abundance. This kind of child is known as Varta. Beejabhaga is vitiated in antarmukhi and Suchimukhi Yonivyapath and results in defects of garbhashaya of the foetus. As there is upataptavasta(vitiation) of beeja in Vamini yonivyapath, the product of conception is eliminated. In Putraghni yonivyapad, there will be repeated abortion. Shanti is a condition where there are upahataasaya due to garbhashayadosha. Napumsaka occurs due to defects in beejabhaga and beejabhagavayava. Klaibya also occurs due to beejadosha. The male and the female genital system develop from the mesonephric duct and paramesonephricduct respectively. Studies show 0.001 to 10% of prevalence of defect in the fusion of Mullerian duct. Average 8-10% of women with congenital uterine anomalies affect fertility and some other researches show that women can conceive but difficult to sustain normal pregnancy. In 44 XY ambiguous woman -have external genitalia female but chromosomal constitution and reproductive organ of a male. In the case of Turner's syndrome, sex chromosome X0 has female genitalia and Klinefilters syndrome with XXY with male genitalia, sex organs do not mature at puberty. All these points towards the beejabhaga and beejabhagavayavadushti.

KARMAJAVYADI (DISEASES BASED ON DEEDS)

Susrutacharya, has explained another classification of disease as karmajavyadhi. When the person indulges in wrong activities, the guilty or negative feeling may even influence the gametogenesis which may be carried into the next generation. So based on dharmadharma(good and bad deeds) we do, the genetic information is stored in the gamete. He also advised doing good deeds to reduce the effect of karmaphala (result of deeds). Adibalapravritta diseases are groups of illnesses that attribute defects inherent in either the Shukra or Shonita. Prameha, arsha, sthaoulya, Ashtaninditha purusha, jatyandha and kushta may occur due to the vitiation of beeja, hence they are categorized under adibalapravritta vyadhi's. The inauspicious action of a couple in their previous life is one of the major causes

for foetal abnormalities. Here comes the role of daivavyapasrayachikitsa which reduces the severity of karmaphala. Different terms are used to denote genetic diseases in different treatises of Ayurveda. Vaghbata uses the term Sahaja/ Kulodbhava. Susruta uses Adibalapravritta and Charaka uses kulaja.

DISEASES

Sushruta has mentioned seven types of diseases e.g. hereditary, congenital, traumatic, ecological, humoral, supernatural, natural. Suchimukhi yonivyapat is due to maternal defects. Due to genetic defect in female foetus vayu destroys the ovary, the women has aversion to males and is devoid of breasts. This is known as sandi and is incurable. Klaibya (impotency) is of four types is described due to genetic defects. Obesity is also described due to genetic defect. Morbidity in shukra and shonita manifests diseases like kustha (skin diseases including leprosy), arsha (haemorrhoids), prameha (urological diseases including diabetes mellitus) and yakshma (Tuberculosis).

CONCLUSION

Ayurveda described about genetic concept while classifying the diseases in various seven groups. It has been nomenclature as adibala pravritta or sahaja vyadhi. There are references available in respect to prameha as kulaja vikara. Beeja (chromosome), beejabhaga(genes) and beejabhagavayava (fraction of part of chromosome) were described while explaining the morbidity of sperm and ovum. Ayurveda also says that hereditary diseases are incurable. To name a few diseases like prameha, arsha, manifest due to morbidity in sperm and ovum.

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