

Genetic Disorders Preventive Approach & Its Management: An Ayurvedic Review

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ABSTRACT:

The genetic disorders are the prime obstacles in the development of human being. The causative factors for these disorders are the improper formation of genotype. There are many causative factors for the derangement of genotype. Ayurvedic literature also stated about the genetic disorders as beejdosha vikara, & also there is elaboration about clearance of beej dosha. Hence in present paper the topic has been discussed.

Keywords: - genetic disorder, beejdosha, vikara.

INTRODUCTION:

With increasing ability to control infectious & nutritional diseases, there has come the realization that genetic disorders are a major cause of disability, death & human tragedy.¹

About 30% of all postnatal infant mortality in developed countries is due to genetic diseases, 30% of pediatric & 10% of adult hospital admissions can be traced predominantly genetic cause.²

In Ayurveda there is explanation about beejdosha vikara. Rutu, kshetra, Ambu, Beej³ are four things essential for formation of embryo & its development⁴. The pathological change in any one of stage leads to improper formation of embryo & its Development. To avoid this scenario the Ayurveda explained the preventive measures as purification therapy & medicine. So by considering these things a present work has been

put forth for the preventive approach for the management of the genetic disorders.

AIM:

Preventive approach for management of genetic disorder.

OBJECTIVES:

To study beej dushti in Ayurvedic approach as causative factor in genetic disorder.

To study the causative factor for genetic disorders in present era

BASIC UNIT OF GENETICS-(API)⁵-

Deoxyribose nucleic acid (DNA) is a long polymer of nucleotides. Replication of DNA is a key event for transmission of genetic information from parent cell to its progeny. The enzyme helicase & DNA polymerase are useful for separation of two strands of DNA & synthesis of DNA respectively.

TRANSCRIPTION⁶ -

It is the process whereby genetic information stored in DNA is utilized for gene function. It leads to formation of RNA which migrates to cytoplasm for synthesis of protein.

GENETIC CODE⁷:

The 20 different amino acids in protein are coded by the four different nucleotides (bases) in DNA. The sequence of triplet nucleotides bases in the DNA molecule that specifies the sequence of amino acids in the protein molecule is called the genetic code.

The human genome refers to the total genetic information in human cell i.e. entire DNA content.

MUTATION⁸:

Genetic variations originate from mutation that is defined as a change in DNA sequence that is heritable. Mutations in individual genes are classified on the bases of sequence change & its consequence on protein product & its functions.

TYPES OF MUTATIONS⁹:

Variation of genomic level- Aneuploidy

Chromosomal level- Tran's location

At gene level- point mutations.

CAUSATIVE FACTORS OF MUTATION:-

A germ line mutation affects cells that produce gametes and is transmitted from generation to generation, whereas somatic mutation is confined to somatic cells¹⁰.

Most human genetic defects can be categorized as, resulting from either chromosomal¹¹ single gene Mendelian¹², single gene non Mendelian¹³ or multifactorial causes.

The genetic damage also occurs from environmental agents such as viruses¹⁴, plants¹⁵, fungi¹⁶, bacteria¹⁷, industrial chemicals¹⁸,

Combustion products¹⁹, alcohol²⁰, ultra violet radiation²¹, ionizing radiation²², molecular oxygen.

AYURVEDIC VIEW:

The four components are essential for the formation of embryo viz., rutu, kshetra, ambu, beej²³.

1. RUTU: FERTILE PERIOD²⁴

Menstrual period in female i.e. 1st three days are unsuitable for conception & 4th day to till end of month are suitable day for conception.

2. KSHETRA: UTERUS & PASSAGES²⁵.

It is a place where conception takes place & embryo grows. Anatomical & physiological normalcy of organ uterus is important because it is a place where menstruation occurs as well as embryo grows in this cavity.

3. AMBU: NUTRIENT FLUID²⁶

This concept is closely related to Rasa dhatu which nourishes whole body; also it is important factor for mental condition of human being. Raj & Stanya are Updhatu of Rasa. Regularity of menstrual cycle depends upon Rasa dhatu.

4. BEEJ: SPERMATOZOA & OVUM^{27, 28}

Normal or shuddha purush shukra & stree shonita are essential for formation of normal individual.

Beej is key factor in formation of embryo & transformation genetic information. Beej is very much essential for transformation of parental characters²⁹.

CAUSATIVE FACTORS FOR GARBHA VIKRUTI:³⁰

The beej becomes defective / hampered because of mother diet, unknown reason, time factor, vitiation of dosha.

IMPACT OF BEEJDUSHTI:³¹

Which segments of beejavayav get affected, in later stage of development the deformity occurs in that particular organ.

MEASURES TO AVOID BEEJDUSHTI:^{32,33}

In Ayurvedic classics following measures have been told to rectify the beejdushti which is known as beejshodhan.

Snehana swedana

Vamana

Virechan

Madhuroushadhi.

Ghritksheer for male

Tail mash for female

Implication of shodhana therapy after examination of vitiated dosha.

DISCUSSION:

The genomic phenomenon & beejdushti phenomenon state that the same pattern that any disturbance or improper arrangement of nucleotide or beejbhag will lead to formation of pathological changes in developing embryo.

The drugs & procedure elaborated for beejshodhana may helpful to avoid the occurrence of genetic disorder in future generation. The beej shuddhi either may become ray of hope in the management of genetic disorder.

CONCLUSION:

Genetic disorders & there pathology is similar to that of beej theory of Ayurveda

The management of beejdushti may be applicable in genetic disorder.

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