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Beej Dosh and Genetic Disorders-A Comparative Study

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Abstract

In our classical texts genetics is best described by *Acharya Susruta* and *Acharya Caraka* in *Sharira Sthana*. Ayurveda identified three genetic units in the form of *Beej* (Germinal cell), *Beejbhag* (Chromosome) and *Beejbhagavyyava* (Gene). *Sushruta* has classified hereditary and congenital types of disease such as: *sthaulya, klaibya, prameh* and other disease. *Acharya Charak* has described first about the component of *Beej* whether of male or female and designated them as *Beejbhag* and *Beejbhagavayav*. *Adibalapravritta* diseases, groups of illnesses which are attributed defects inherent in either the *Shukra* or *Shonita which* form the primary factors of Human being. *Acharya Charaka* has explained further that teratologic abnormalities depend upon the condition of *beeja*, not on the physical status of the couple. In other words, what so ever part of *Beeja* is defective, the body part developing from that portion of *beeja* will be abnormal. He has described that due to *vikriti* of *bija*, *bijabhaga* and *bijabhagavayava* of the couple, there will be *vikriti* in the child depending on gender. When the *Beejbhag* in ovum is responsible for the development of *Garbhashaya* is excessively vitiated, then woman gives birth to *Bandhya* (sterile) female child and similarly when the part of the *Beej* which is responsible for the production of the sperm in the foetus is excessively vitiated, then this gives birth to a male sterile child. When the Beejbhagavayav of the mother is excessively vitiated she gives birth to a *Putipraja* (who delivers dead fetus) and in case of same condition in sperm, it gives birth to a *Putipraj*.

Keywords: *Beejbhag, bheejbhagavyav, bandhya, putipraja, adibalpravitta*

Introduction

This was understood and explained by the ancient Ayurvedic Acharyas in terms of Beeja, *Beejabhaga,* and *Beejabhagavayava. Samhitas* provide an explanation of *beeja*, its function in the development of *garbha* (the foetus), and genetic illnesses. *Shareera Sthana* of the *Charakasamhita* [1] explains the ideas of *Beejabhaga* and *Beejabhagaavayava*. *Anuvanshiki* is the term for this manner of character transmission. Ayurvedic research emphasises both the causes of hereditary disorders as well as their morphological, physiological, and pathological features. Inheritance is caused by the factors *Beeja, Beejabhaga*, and *Beejabhagaavayava*. The anatomical, physiological, and pathological components of genetics are valued by ayurvedic science, but it also places a strong emphasis on preventative methods. *Sahaj* and *kulaj* categories of illnesses, including *sthaulya, klaibya, prameha*, and other conditions brought on by genetic defects, have been categorised by *Sushruta*. Heredity is the subject of genetics. A parent transmits specific genes to their offspring through the biological process of heredity, which causes the offspring to exhibit those qualities. The risk of some diseases being passed from parents to their children may also be carried via genes. Mutations or anomalies in an individual's genome cause genetic disorders to develop. The embryogenesis and development of different body parts are influenced by six variabl. The mother, also known as *Matrija bhava*, is the source of all the foetus' soft tissues, including the heart, spleen, intestine, rectum, muscles, blood, lipid, bone marrow, umbilicus, and others. Similarly, all stable or hard elements of the foetus, such as the hair, vein, arteries, nails, bones, beard, sperm, etc., are descended from the father and are referred to as *Pitrija bhava*. Similar to the *Atmaja bhava* mentioned above, *Satmayaja, Satvaja,* and *Rasaja bhavas* are also involved in the development of a foetus in the uterus.

Garbhotpattikara Samagri (Factors Essential for Conception)

This is due to four crucial factors: *Beeja* (seed or sperm and ovum), *Ritu* (season or ovulatory phase), *Kshetra* (field or reproductive system), and *Ambu* (water or sustenance). *Garbha* is created by the union of *shuddhashukra* and *shuddhaartava* (high-quality sperm and ovum) with *Atma* [2].

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Charaka not only describes the factors involved in heredity, but also how abnormalities in these elements result in abnormalities in the progeny. He said that in the *beeja*, each organ has a representative. If a certain region of the *beeja* becomes *upatapta* (vitiated), the organ created will have some abnormalities. *Charaka* demonstrated this principle with several repercussions.

Beeja

Beeja is slang for both gametes. This *beeja* is made up of a variety of functional components that depict the shapes and characteristics of all the body's parts and organs. The term "*beejabhaga*" refers to this functional unit that has the ability to produce an offspring that resembles the parent. *Beejabhagaavayava* [3] is one of the tiniest *beejabhaga* fragments. *Beejabhagaavayava* is, in essence, the fundamental unit of inherence. The production of *garbhashaya* in a female kid is caused by the *garbhashaya beejabhaga* in the *beeja* of the mother. She gives birth to a *vandhya* (sterile child) when this *beejabhaga* is overly vitiated. When the mother's *beejabhagavayava,* which is responsible for the creation of the uterus, becomes vitiated, she gives birth to a *pootipraja* (child dies after delivery due to congenital abnormality). *Shukra* and a part of *beejabhaaga* forming the organs characterizing a male are vitiated then the offspring will be a *trinaputrika.*

Bija, Bijabhaga and Bijabhagavayava and Its Vikriti

Acharya also had a very thorough understanding of the inherited illnesses. Some illnesses including *prameha, arsha, jatyandha, and kushta* can develop as a result of beeja [4, 5] vitiation. In the form of *Beeja* (Germinal cell), *Beejbhaga* (Chromosome), and *Beejbhagavyava* (Gene), Ayurveda recognised three genetic units. The first thing *Acharya Charaka* discusses is the *Beeja* component, which he refers to as *Beejbhaga* and *Beejbhagavayav* [6]. Different varieties of napumsaka, such as *Asekya, Saugandhik, Kumbheek, Irshyak*, and *Shand*, were described by Sushruta [7]. The hereditary sexual anomalies *dvireta, pavanendriya, samskaaravaahi, narashanda, naareeeshanda, vakree, eershyaabhirati*, and *vaatikashanda* were among the many sorts of sexual abnormalities that *Charakaacharya* also discussed [8]. The smallest unit present in sperm and ovum, respectively, can be compared to male and female gametes, or sperm and ovum, according to *Acharya Chakrapani*, who made this evident. The *Beejbhaga* is a part of the *Beeja* that is in charge of directing the growth of the body's many organs and tissues. It can be compared to chromosomes, which are passed down as individual units from one generation to the next, one from each parent. *Beejbhagavayava should be seen as a more* delicate stage of *Beejbhaga* that carries hereditary characteristics, and it may be compared to the gene, which is the functional unit of heredity that is primarily responsible for the expression of a specific trait in a person.

If both parents suffer specific disorders, such as *kushtha*, this is reflected in the *bijabhagavayava* and might induce the same ailment in the kid. According to *Acharya Caraka*, teratologic anomalies are determined by the condition of *bija* rather than the couple's physical status. In other words, whatever component of *Bija* is deficient, the bodily part that develops from that part of *Bija* will be abnormal [9]. E.g. If the component of a *Kushthi* man's *bija* responsible for skin development is faulty, the sole child born will have *kushtha* [10]. However, if that section is normal, the youngster is fine. He has stated that due to the *vikriti* of the couple's *bija* (gametes), *bijabhaga* (chromosome), and *bijabhagavayava* (gene), the infant will have *vikriti* or *vyapada* depending on gender. When the *Beejbhag* in the ovum is excessively vitiated, the woman gives birth to a *Bandhya* (sterile) female child, and when the part of the *Beej* that is responsible for the production of sperm in the foetus is excessively vitiated, the woman gives birth to a male sterile child. When the mother's *Beejbhagavayav* (a fraction of the *Beej*, i.e. ovum) is excessively vitiated, she gives birth to a *Putipraja* (who delivers a dead foetus), and when the same condition exists in sperm, it gives birth to a *Putipraj*. Puti also refers to a youngster or child with malformed limbs and organs. When *Beejbhagavayava*, who is responsible for the production of the uterus as well as the section of organs that characterise a female, such as the breast, sexual organs, and so on. When the ovum is excessively vitiated, she gives birth to a child who is not completely female but only has feminine characteristics in abundance, known as Varta [11], and similarly, when the *Beejbhagavayav*, which is responsible for the production of sperm, and also portions of the *Beejbhaga*, which are responsible for the production of the organs that characterise a male, are excessively vitiated, she gives birth to a child who is not complete male but only having masculine characteristics in abundance, known as *Trinputrika*.

Atulyagotra

According to studies, the children of first consanguineous couples who were married had an elevated risk of congenital malformations, autosomal recessive disorders, and postnatal mortality. *"Atulgotrasya rajhkhayante rahovishrshtam mithumikritasya kim syacchtushpaatprabhavatvam cha shadhabhyo yat strrshu garbhatvamutpaiti punsah*" is how *Charakacharya* expresses the same notion in the *Athulyagothreeya Shareera* [12]. He advises that a male and female should come from separate clans in order to have a healthy offspring.

Sahaja Prameha

The term *Adibala Pravritta Vyadhi* refers to disorders that are genetically predisposed and congenitally inherited, such as *Dusta Arsha*, *Prameha* etc. These are a result of the father and mother's *Shukra* and *Shonita* becoming vitiated. *Sahaja Prameha* is an illness that has a hereditary component. *Kulaja* and *Garbhaja Prameha* comprise it. Due to certain faults in *Beeja* (ovum and sperm), also known as *Matra-Pitra Beejadoshakrita*, *Kulaja Prameha* (hereditary) occurs. A parent or both parents may be the source of the *beeja dosha*. It is transmittable from one generation to the next. When a pregnant woman consumes too much *Madhura Rasa,* it is called *Garbhaja Prameha*, which might harm or modify the foetus [13]. *Roopas* are connected in *Sahaja Prameha* as *Alpasheetva*, which results in *Krushata* and *Rookshata*. These *Rupas* could lead to *Madhumeha*. Prakriti is the fundamental element that does not change throughout the course of a person's lifespan and is decided at conception with the assistance of external influences like *Doshaja, Kalaja*, and *Garbhashaya*. The *Sahaj Prameha* contains *Shukradhatu* as well [14]. Maintaining *Dehabala* is its primary duty. Depletion of *Shukra Dhatu* and subsequently *Prameha* might result from *Vata* vitiation.

***Beeja Doshaj Pandu* in *Bala Roga* to Thalassemia**

A variety of mutations in the genes that produce the globin chains of haemoglobin cause this heterogeneous condition, which is recessively inherited and results in diminished or

nonexistent globin chain synthesis [15]. *Aacharya Charaka* described *Beeja Dushti Janya Vikaara* in terms of *Ayurveda*. He *Yoni* represents the disease *Moolabhoota*. *Beeja Dushti* is the thalassemia *moolakarana.* Here, the Beeja stand for *Shonita* and *Shukra* [16]. Whether certain *Beejas* or *Beejabhaagas* are affected by *Doshas*. Due to the *Pitta* and *Rakta's* comparable characteristics and sites, when Pitta becomes vitiated, Rakta also becomes vitiated. Such a condition falls within the category of *Asadhya Vydhi*. The Ayurvedic classics on *Kulaja Vikara* already acknowledge the *Asadhya* character. In Thalassemia the prime center of affliction is *Beejabhagavayava* (gene), which is responsible for the formation of *Rakta Dhatu*. Thalassemia syndromes are among the most common.

Discussion

Ayurveda Since the very beginning of science, before concepts like chromosomes, genes, DNA, and genomes, among others, existed, genetics has been the subject of basic or fundamental knowledge. According to our ancient scholars-a fact that is now generally accepted-genetic disorders are not caused by flaws in either the mother or the father but rather in the parents' ovum or sperm. *Vikar, deha prakruti, dosh prakruti, panchamahabhoota*, and *dosh prabhalya* are passed down from one generation to the next. For the genetic transfer of genetic information, *panchbhautik* material is also crucial. In *Charak Sharer Sthana*, *Charak* describes *beej, beejbhag,* and *beejbhagavayava* in exquisite detail. Numerous references about gamets' structures and roles were provided by *Aurveda*. The fundamental divisions of *shukra* and *shonit* are *beej, beejbhag*, and *beejbhagavayava*. *Beej* refers to the nucleus of an egg or sperm. Beejbhag is an informational term that means chromosomes. *Beejabhagavayava* is known as nucleopeptides, aminoacids, or polypeptides in modern terminology. These components are located in the sperm or ovum nucleolus. To pass on a parent's traits to a child or grandchild is known as heredity. Thus, heredity is the process of passing genetic information from one generation to the following. Sperm and eggs are the most significant carriers of this information, respectively. 'Garbha' is formed when *shukra* and *shonit* combine. The many varieties of *Napumsak* have also been described by *Acharya Shusrut* based on the vitiation of *beej*.

Conclusion

Modern science also demonstrates that the parent germ cell mutation or epigenetic factors influences the genotype and phenotype; understanding these concepts and adhering to these regimens may help the future generation be free of these anomalies. The descriptions so far mentioned prove that ancient Ayurvedic Acharya's had sound knowledge about the minute parts of the gametes, which is now known as genetics.

References

1. Trivikramatmjena Yadavsharmana, editor, (1st ed.). CharakaSamhith of Agnivesha, revised by Charaka and Dridhabala with Sri Chakrapanidatta Ayurveda dipika Commentary in Sanskrit, Shareerasthana; Mahathi Garbhavakranthi Shareeram: Chapter 4, Verse 30. Varanasi: Choukambha Orientalia, 2014, 321.
2. Pt Harisadasivasastri Paradakara Bhisagacarya, editor, Ashtanga Hrudaya of Vagbhata with Sarvangasundari of Arunadatta & Ayurveda rasayana of Hemadri, Shareerasthana; garbhavakranthishareeram: Chapter 1, verse 1. Varanasi: Chouhkamba Sanskrit Samsthan, reprint, 2012, 361.
3. Trivikramatmjena Yadavsharmana, editor, (1st ed.). Charaka Samhith of Agnivesha, revised by Charaka and Dridhabala with Sri Chakrapanidatta Ayurvedadipika Commentary in Sanskrit, Shareerasthana; Mahathimgarbhavaj kranthi Shareeram: Chapter 4, Verse 30. Varanasi: Choukambha Orientalia, 2014, 322.
4. Trivikramatmjena Yadavsharmana, editor, (1st ed.). CharakaSamhith of Agnivesha, revised by Charaka and Dridhabala with Sri Chakrapanidatta Ayurvedadipika Commentary in Sanskrit, Chikitsasthana; Arshachikitsitham: Chapter 14, Verse 5. Varanasi: Choukambha Orientalia, 2014, 501.
5. Trikamji Acharya and Narayanaramacharya Kavyathirtha, editor, Sushruta Samhitha of Susruta with Nibandhasangraha Commentary of Sri Dalhana Acharya (and Nyayachandrika Panjika of Gayadas Acharya on Nidhanasthana), nidanasthana; Pramehanidanam: Chapter 6, Verse 28. Varanasi: ChoukambhaKrishnadas Academy; Reprint, 2008, 288.
6. Caraka Samhita of Agnivesa, elaborated by Caraka and Drdhbala with the “Ayurved Dipika” Commentary if Cakrapanidatta, Edited by Vaidya Jadavji Trikamji Acharya,Chaukhambha Subharati Prakashan,Varanasi, Ed. Reprint, 2005, 322.
7. Trikamji Acharya and Narayanaramacharya Kavyathirtha, editor, Sushruta Samhitha of Susruta with Nibandhasangraha Commentary of Sri Dalhana Acharya (and Nyayachandrika Panjika of Gayadas Acharya on Nidhanasthana), Shareerasthana; Shukrashonithashudhishareeram: Chapter 2, Verse 33. Varanasi: Choukambha Krishnadas Academy; Reprint 2008, 348-349.
8. Trivikramatmjena Yadavsharmana, editor, (1st ed.). CharakaSamhith of Agnivesha, revised by Charaka and Dridhabala with Sri Chakrapanidatta Ayurvedadipika Commentary in Sanskrit, Shareerasthana; Athulyagothreeyamshareeram: Chapter 2, Verse 19-21. Varanasi: Choukambha Orientalia, 2014, 303.
9. Caraka Samhita “Vidyotini” Hindi Commentary by Pt. Sastri Kasinatha and Chaturvedi Gorakhanatha, edited by Pt. Rajeswara Datta Sastri, Chaukhambha Bharti Academy, Varanasi, Ed. Reprint, 2005. Part I, Sharira Sthana 3/17, p.n.865.
10. Caraka Samhita of Agnivesa, elaborated by Caraka and Drdhbala with the “Ayurved Dipika” Commentary if Cakrapanidatta, Edited by Vaidya Jadavji Trikamji Acharya,Chaukhambha Subharati Prakashan,Varanasi, Ed. Reprint 2005, Commentary on Sharira sthana 3/17 shloka, p.n.315.
11. Caraka Samhita of Agnivesa, elaborated by Caraka and Drdhbala with the “Ayurved Dipika” Commentary if Cakrapanidatta, Edited by Vaidya Jadavji Trikamji Acharya,Chaukhambha Subharati Prakashan,Varanasi, Ed. Reprint 2005, Commentary on Sharira sthana 4/30 shloka, 322.
12. TrivikramatmjenaYadavsharmana, editor, (1st ed.). Charaka Samhith of Agnivesha, revised by Charaka and Dridhabala with Sri Chakrapanidatta Ayurvedadipika Commentary in Sanskrit, Shareerasthana; Athulyagothreeyamshareeram: Chapter 2, Verse 3. Varanasi: Choukambha Orientalia, 2014, 302.

13. Vaidya Jadavji Trikamji Acharya, Charaka Samhita, (Nidanasthana 4/5), Reprint, Varanasi, Chaukambha Prakashan, 2013.
14. Sharma PV,editor.Susruta Samhita of sushruta. First edition. Sutrasthana, Ch. I, Ver. 1-41. I. Varanasi: Chaukhambha Visvabharati, 1999.
15. Borgna-Pignatti, Caterina, and Maria Rita Gamberini. "Complications of thalassemia major and their treatment." Expert review of hematology. 2011; 4(3):353-366.
16. Shukla V, editor, (2nd ed.). Charaka Samhita of charak, Shair Sthan: Chapter 3, Verse 17. Varanasi: Chowkhambha Sanskrit Series, 2002, 362.