

TO STUDY CONCEPT OF GENETICS IN AYURVEDA

Budruk Pramod Appasaheb

M.D. Sharir Rachna, L.L.B. (spl)

Principal Hon, Shri. Annasaheb Dange Ayurved, Medical College, Ashta, Walwa, Sangli 'Shree vardhaman' Sonai corner, Vinayak nagar, Sangli, Maharashtra, India

ABSTRACT

Now-a-day Genetic study is useful for various diseases. Also new branches are seen to show genetic configuration. Hereditary is seen from ancient times. Ayurveda is old pathy & whose principles are still applicable & proven on the basis of modern concept. Hereditary science is one of branch which is well developed now. Very ancient time heredity is one of the developed science & also advanced science. It is mentioned in all pathies and in ayurveda, it is very nicely explained in all samhitas. Heredity means to carry peculiarities of father or mother to their son or daughter. Thus to transfer genetic material is called as heredity. According to ayurveda most important carrying material of this information is *shukra* & *shonit*. *Shukra* & *shonita* is nicely mentioned in Ayurveda. Also its parts *beejbhaga*, *beejbhagavayava* described, which are similar to chromosome & gens concept of modern science. Various genetic diseases are developed due to any deformity in the of *beejbhaga*, *beejbhagavayava*, These factors also carry same type of deformity or disease in next generation. The study of *Beej* & *beejbhaga*, *Beejdosha* is useful for supraja & to cure various congenital diseases.

Keyword: Heredity, genetic, *garbhasharir*, *shukra*, *shonit*, *beej*, *beejbhaga*.

INTRODUCTION

Ayurvedic concepts are very ancient but fix & never be changed from ancient time. Now-a-day also these concepts are proved on the modern basis. Heredity is defined as peculiarities of one generation are carried to next generation. This has been finely described by the *ayurvedic samhitas* also. In *Garbha shareer* this has been explained. *Shukrashosheet jeevsanyoge tu khalu kukshigate Garbha itee abhidheeyate* |¹

Shukra & *shonita* are unites in the womb of the mother than it is called as *Garbha* or Embryo.

After formation of embryo when all parts develop then it is called as *shareer* i.e. *Garbha shareer*. *Shukrashosheet Garbhashayastha atamaprakrut vikarasamudayatma samayogavahi Garbha itichutye* |²

Samayoga means proper union of *shuksra/shonit/mana/atma* & *Panchmahabhoots*. This includes union of sixteen *vikaras* and eight *prakruti* also. This union has happens according to *ati-indriyatwatvat*, *ati-sukshmatvat*, all minute structures mix with each other. When poeter is forming soil pot, then he must mix proper proportion of water & soil & other factors then the pot

will formed properly. Soil & water mix each other according to above rule, and then these factors lost their own existence and every smaller unit mix with each other. They mix each other in proper proportion and form a new creation

Soumya shukram artavam aganeyam | ³ Shukra is soumya because of predominance of *aap mahabhut* & *artava* is *agneya* due to predominance of *Tej bhuta*. These two in their atomic or minute form combine together along with other *mahabhutas* into one another. Ayurveda told that this union takes place as butter melts near fire. | ⁴ *Sukrabhut itee shukrarup* | ⁵ Shukra prevades the entire body. It manifests in from of semen. *Shukra* or *shonit* is minixture of whole body. *Beejasha chartwyasha janko bhaga* | ⁶ The parts of the ovum or sperm is *beejabhaga*, we already seen *manushya beej*. It is nothing but *manushya beej* is sperm & ovum. These are *janak bhag*, *Janak* means those are responsible for new formation. *Manushyabeej hi pratyang beej bhag samudayatmak* Each *pratyang* is part of *anga*. There are nearly 56 *pratyang* discribed by *Charak* & 57 by *Sushrut* & these *pratyang* are present in the body. Different parts of these *angas* called as *pratyang*. The *pratyangbeejbhag* means the minute structure of *pratyang* present in the *beej*. *Beej* is collection of the all these minute beej structures of *pratyang*. *Tatra shadang shakha -Shakhachatstro madhya panchamaml Shashtham shirittee* | ⁷ *Anga* means main divisions of the body & *Pratyanga* means the various parts of the division, means there are mainly 6 parts or *Angaja* These 6parts of the body are head-neck, two upper and two lower extrimities and thorax-abdomen. The parts of the *angas* i. e. thorax abdomen like lungs, heart are called *pratyang* of the body. *Avaya-*

vamvayam prati yo avayasthpratyang uchayte | ⁸ *Arnudatta* also mentioned that small parts of the six region are called *avayava* or *pratanaga*.

When there is union of male and female gamets after *panchabhoutic prakriya* there is differentiation of organs like *hastha, pad, jivya, ghran, karn, nitamb, rang rup*, seen on the fetal body then it is called as fetus or *garbha-sharir*. Afterword this body or *shareer* is divided into 6 parts called *shadang* including 4 *shakha* (two upper & two lower extrimities), thorax- abdomen that is *Madhya sharir* & head- neck means *shirbhag* | ⁹

MATERIAL & METHODS

Chrak, Susarut given various references to elaborate concept of Genetics in ayurveda, both had keenly described about *shukra* or sperm and *shonit* or ovum. Also *charak* commentator *Chakrapani* explained nicely regarding genetic changes in *beej* cause various congenital diseases *Samasat beejat shukrashonitat- upatapaptat beejadwa/ Upatapaptat beejadeeti uptapta beejajanankabeejabhagat*. | ¹⁰ *Chakrapani* analyses deeply on genetic basis says that *uptapta beej* means affected genes producing seed means smaller parts of gamets affects.

Yasya yasya avayava beeje beejbhag upatapato bavati Tasya tasya angavayavasya vikruti jayate nopjayate | ¹¹ The part of body which is damaged in its genitic sources get abnormality, in that specific parts and if there is not damaged in its genetic sources there will not any abnormality. *Saddshyameva karanat karyamutpaddte / Anyata iti vijatiyata*. | ¹² Foetus can produced by similar cause as the cause same type of work will be generate. *Anyata iti vijatiyat* means it cannot be produced by dissim-

ilar cause as desired plant cannot come out from a dissimilar seed. *Tatragarbhashaya pitraja maturja rasja satavaj satamaja vyakhyasam.* |¹³ Though all six factors *matruja, pitruja, satvaj, satmaj, rasaj, aatmaj* are responsible for formation of fetus, the explicit mention of same in the context of *satmya & rasa* indicate that these two are not so much essential as other four because these are latter takes part in formation of fetus while these factors provide nourishment after it is formed.

Matruja means characters come from mother that is from *shonit* or ovum, *pitruja* means characters come from father that is from sperm. *Satvaj* means characters come from *mana*, *aatmaj* means characters come from *athama*. *Satmaj* and *rasaj* means characters come from various habits and nutrition from *rasadi dhatu*. In this way various *bhavas* or features of fetus are derived from father, mother, *ras dhatu, atama, satmya, mind* are transferred to next generation. Fertilised ovum contains above characters and grows in the uterus of mother. It is covered by *jarayu*. *Jarayu* means amniotic membrane and some says that placenta. *Cakrapani* interpret *jarayu* as *amara* but this is confused hence *apara* means placenta and *jarayu* means amniotic membrane. In 1941 Gregg's observation that congenital cataract is associated with the infection of pregnant mother by Rubella revived interest in environmental factors. This concludes that congenital abnormality has been largely concerned with genetic and also environmental factor. |¹⁴ *Na chetanadhaturup purushchikitsacha abhipret* |¹⁵ Pure consciousness is also known as *purusha*. *Chakrapani* interprets *antaratma* as pure spirit & *garbhatma* as *shaddhatuka purush* or *shaddhatwatmak purush Pavanendriya*

the *indriya* is used for *shukra*. *Mu manushya beej hee pratang beej saglmudayatmak swadshya pratyang samudayrup purushjankama indriyani cha yogsadhanani atmapratibaddhakarmadhinani* |¹⁶ The gens carry the genetic basis of all the body parts & thus produce the person having similar body parts. Senses are governed by deed enshrined in the soul. *Yadandhepatye drush-tupaghatakamshubh bhawati | tada kakataliyanaya yadandhajatoapyandho drushyate* |¹⁷ On the other hand in case of sense organ it is only by chance that offspring of a blind man comes as blind otherwise no. According to *susharut tej Mahabhoot* cause colour of skin. When *tej* units *aap* then colour will white, when unites with predominant of *pruthvi* then color will be black *pruthvi* and *akash* gives blue black color and predominant of *aap* and *akash* then the color of the fetus will white blue sometimes color of fetus will be according to color of food of pregnant women that means *rasaj* and *satmaj* factors are responsible for color. In the book riddle of sex it has been mentioned that each chromosome contain certain number of genes and they occur in pairs a set for black eyes, some for fair skin and number of them for crooked nose. |¹⁸ *tena pita yadi kushthashapi bhawati, beejamachapidushta bhaviti kushthadharvadijanak tato nikushthanyeva twagadinyapatptagad beejata saddashani jayate*) |¹⁹

If father is suffering from *kushtha vadhi* then this disease is transmitted to the offspring only if the gens are affected, otherwise if gens are not affected the disease will not transmitted to next generation.

DISCUSSION

Ayurveda had given lot of references

regarding gametes and its structures and functions. These gametes again divide into smaller parts called as *beejbhag* afterword these parts divide into smaller parts called as *beejbhagavayava* in case of *shukra* as well as *shonit*. Male or female gametes divide into nucleus and nucleolus. Nucleus is again divided into chromosomes and genes etc. The head of the sperm has several enzymes including acid phosphate hyaluronidase. *Shukra* & *shonit* these are mainly divided as *beej*, *beejbhag*, *beejbhagavayava*. *Beej* mean sperm or ovum & its nucleus. *Beejbhag* means chromosomes & its information. *Beejbhagavayava* in case of modern aspects called as nucleopeptide or aminoacids or polypeptides. These material is found in nucleolus of sperm or ovum. *Charak* has finely described about *beej*, *beejbhag*, *beejbhagavayava* in *charak sharer sthana*. Heredity means to carry peculiarities of father or mother to their son or daughter. Thus to transfer genetic material from one generation to next generation is called as heredity. Most important carrying material of this information is *shukra* (sperm) & *shonit* (ovum). *Shukra* & *shonit* unit together to form 'Garbha'. *Charak* say that this *shonit* & *shukra* is formed by *paramanu* & these *paramanus* are minute, infinite & these are not seen by naked eyes. The *paramanusamucchaya* of sperm or ovum represented minute structures of specific organ the body. The body components according to division in smallest unit are due to overabundance or *atibahhtwat* (parmanubhedan) over minuteness (*atisukshmatwat*) & transcending perception (*ati-indraiyatwat*). The causative agent in conjunction & disjunction of cells is due to *vayu* & also nature of activities. (*karmaswabha*).

We are able to observe gross things of the body by naked eyes (*charamachakshu*) but we can see same parts of the body by *dhanchakshu* (*dnyanchakshu*) or *tapchakshu*. In ancient time there are not microscopic instruments to see micro things. Hence these

things are concluding according to their knowledge or thinking so keenly on it. They are seeing these matter by divine vision (*divyachakshu*), philosophical eye, scientific eye. Gregg's observed that congenital cataract is associated with the infection of pregnant mother by Rubella. This concludes that congenital abnormality has been largely concerned with genetic and also environmental factor. Ayurveda explains that these genetic abnormalities occur due to *satmaj* or *rasaja* factors. Hemophilia, Klinefelter syndrome, Turner syndrome these diseases cause due to sex linked chromosomal abnormality. Ayurvedic scholars mentioned other six factors which affects the process of fertilization. These factors are *matruja*, *pitruja*, *satvaja*, *rasaja*, *satmaja* & *atmaja*. *Matruja* means qualities coming from mother. *Pitruja* means qualities coming from father. *Satvaja* means qualities affect by mana. *Rasaja* & *satmaja* means qualities coming from ahara or from food. *Atmaja bhavas* comes from *atma*. These all factor take part in case of fertilization or in *Garbha-nirman* process. In ayurveda action of various components like living standard, dosh, temperature, ahar & other factor also effect on the *Garbha*, also age, sex, caste & family atmosphere effects on the *Garbha sharer*.

In this way considering all above points human should think for *supraja*. Ayurvedic consultants should aware of all these above points & he should convince various aspects of ayurveda for birth of good child. Psychologically, physiology & anatomically healthy child is future of our nation.

CONCLUSION

1. *Panchamahabhoota*, *deha prakruti*, *dosh prakruti*, *dosh prabhalya* or *vikar* are carried from one generation to next generation. when *shukra* (sperma) & *shonita*

- (ovum) units & embedes on wall of the uterus is called as *Garbha*.
- When it develops fully then it is called as *Garbhashareer* or fetus , thus the embryo, fetus is formed by the union of the *Beej beejbhag* and *beejbhagayavayava*.
 - Panchbhautick* material is also important for genetic transfer of genetic information. For color and also structure of new embryo *panchbhautic* factors are responsible.
 - According to Ayurveda *shukra* (*Pitaruja* factor) and *Shonita* (*Matruja* factor) are responsible for formation of *garbha* that is sperm and ovum forms fertilized ovum.
 - These seeds are subdivided into *beejbhag*, *beejbhagayavayava* . Similarly sperm and ovum divided into nucleus and nucleolus. Nucleus is subdivided into gens, chromosomes neucleopeptides, polypeptides and are responsible for genetic transfer as *Ayurvedokta beejbhag*, *beejbhagayavayava*.
-
- ## REFERENCES
- Charak samhita cha. Sharer staanam-vol -1 4\5 – by-prof p.v. smama- paga428 chaukhamba Orientalia Golgghar Maidhan edition-1- 1981
 - Susrut samhita – Dr B. G. Ghanekar-meherchand lakhmandas Publications- Ansari road, New Delhi Reprint 2006 - sharir sthan Shloka 5\2 - Page no.- 146
 - Susrut samhita – Dr B. G. Ghanekar-meherchand lakhmandas Publications- Ansari road , New Delhi Reprint 2006 - sharir sthan Shloka 3\2 - Page no.- 60
 - Susrut samhita – Dr B. G. Ghanekar-meherchand lakhmandas Publications- Ansari road , New Delhi Reprint 2006 - sharir sthan Shloka 2\38 - Page no.- 42
 - Charak samhita cha. Sharirstaanam-chakrapani tika-vol -2 - 4\7 – by-prof p.v. smama- chaukhamba Orientalia Golgghar Maidhan edition-1- 1981 page-364\ck7
 - Charak samhita cha. Sharirstaanam-chakrapani tika-vol -2 - 4\7 – by-prof p.v. smama- chaukhamba Orientalia Golgghar Maidhan edition-1- 1981 page-367\ck6
 - Susrut samhita – Dr B. G. Ghanekar-meherchand lakhmandas Publications- Ansari road , New Delhi Reprint 2006 - sharir sthan Shloka 5\2 - Page no.- 147
 - Sarthe Vaghabhat-by Dr p n garde Reprint January 2006 published by anamol prakhashan budhwar peth pune Maharashtra arundatta tika -3\1 page 132
 - Susrut samhita – Dr B. G. Ghanekar-meherchand lakhmandas Publications- Ansari road , New Delhi Reprint 2006 - sharir sthan Shloka 5\2 - Page no.- 147
 - Charak samhita cha. Sharirstaanam-chakrapani tika-vol -2 - 5\4 – by-prof p.v. smama- chaukhamba Orientalia Golgghar Maidhan edition-1- 1981 page-378\ck6
 - Charak samhita cha. Sharer staanam-vol -1 3\17 – by-prof p.v. smama- paga426 chaukhamba Orientalia Golgghar Maidhan edition-1- 1981
 - Charak samhita cha. Sharirstaanam-chakrapani tika-vol -2 - 3\9 – by-prof p.v. smama- chaukhamba Orientalia Golgghar Maidhan edition-1- 1981 page-362\ck1

13. Susrut samhita – Dr K. R. Sharikanta murthy - Chaukhamba Orientalia Golgghar Maidhan Varanashi Uttar-pradesh, India Reprint 2010 ISBN-978-81-7637-067-7 Shloka 3\33 Page no-47
14. Greeg's anatomy- Edited by P. L. Williams and Roger Warnwikk, published by Churchill Livingstone 37 edition 1989
15. Charak samhita cha. Sharirstaanam-chakrapani tika-vol -2 - 1\16 – by-prof p.v. smama- chaukhamba Orientalia Golgghar Maidhan edition-1- 1981 page-350\ck1
16. Charak samhita cha. Sharirstaanam-chakrapani tika-vol -2 - 3\17 – by-prof p.v. smama- chaukhamba Orientalia Golgghar Maidhan edition-1- 1981 page-363\ck1
17. Charak samhita cha. Sharirstaanam-chakrapani tika-vol -2 - 3\17 – by-prof p.v. smama- chaukhamba Orientalia Golgghar Maidhan edition-1- 1981 page-363\ck1
18. Susrut samhita – Dr B. G. Ghanekar-meherchand lakhamandas Publications- Ansari road , New Delhi Reprint 2006 - sharir sthan Shloka 3/3 - Page no.- 63- reference
19. Charak samhita cha. Sharirstaanam-chakrapani tika-vol -2 - 3\17 – by-prof p.v. smama- chaukhamba Orientalia Golgghar Maidhan edition-1- 1981 page-363\ck1.

CORRESPONDING AUTHOR

Dr. Pramod A. Budruk,

M.D. Sharir Rachna, L.L.B.(spl)

Hon.Shri. Annasaheb Dange Ayurved

Medical College, Ashta. Walwa, Sangli.

Maharashtra, India

Email: pramodbudruk@rediffmail.com

Source of support: Nil

Conflict of interest: None Declared