

A COMPREHENSIVE APPROACH OF AYURVEDA TO ESSENTIALS OF HEALTHY PROGENY

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ABSTRACT

Pregnancy and childbirth are one of the most critical events in a woman's life cycle that maintain the continuity and existence of human species in this world. However this natural phenomenon turns in to nightmare for a family when they get abnormal offspring. Despite the advancements in diagnostic techniques and therapeutic interventions, medical science has failed to keep the incidence of congenital malformations under control. Congenitally malformed persons either have a very short life span or they suffer from dreadful illnesses throughout their life. According to Ayurveda a living being comes into existence under the influence of rajasika (passionate) and tamasika

(delusion) of psychological activities and undergoes the effect of good and bad feelings and gets entangled in the miserable series of birth and death. Only a psychologically and physically healthy person can follow the measures of attaining the salvation from this despondent series. Besides this spiritual aim, Ayurveda also emphasizes to lead a perfect life free from sufferings. Also such spirited individuals are a blessing to the society in which they live. Measures for a healthy pregnancy and childbirth begin even before conception. Ayurveda, the ancient Indian medical system has given due emphasis on this and postulated various measures to minimize the risks. The ancient science lays emphasis on physical and emotional maturity of the parents at the time of conception. Rituals and dietary modifications

are suggested to ensure optimum quality of ova and sperm as well as a balanced state of body processes and emotions. These measures start well before conception and continue till fertilization, during the antenatal period upto childbirth. The article discusses the causes of birth, basics of healthy pregnancy, causes and detail of birth defects along with basics of ayurvedic care done preconceptionally and during antenatal periods along with its contemporary aspect to obtain supreme progeny.

KEYWORDS: congenital malformation, salvation, rajasika, tamasika, preconceptional, progeny.

AIMS AND OBJECTIVES

- To evaluate the importance of attainment of healthy progeny in Ayurveda.
- To appreciate the niceties of anomalous descendants from Ayurveda as well as modern perspective.
- To explore the measures to avoid abnormal progeny.
- To explore the measures to execute excellent antenatal care.
- To explore the measures of having progeny gifted with supreme virtues.

MATERIALS AND METHODS

Meticulous contemplation of classical texts, modern medical literature and internet was done to convene the objectives of research work. The study is a literary one in which the explored literature was analyzed and interpreted.

INTRODUCTION

Birth defects (structural, functional and metabolic disorder present since birth, may be diagnosed later) are rising up as an important cause of infant mortality. March of Dimes (MOD) Global Report on Birth Defects reveals 7.9 million births worldwide annually with serious birth defects and 94% of these births occur in the middle and low income countries.^[1] According to joint World Health Organization (WHO) and MOD meeting report, birth defects account for 7% of all neonatal mortality and 3.3 million under five deaths.^[2] In India birth defects prevalence varies from 61 to 69.9/1000 live births.

Modern science expounds the causes of birth defects as advanced maternal age at conception, raised proportion of unplanned pregnancies and no antenatal care, medical disorders of mother, consanguineous marriages in the population, compromised maternal nutritional status

and exposures to teratogens before and after conception. A similar and more comprehensive approach by the ancient sages has been long ago specified regarding causes and prevention of birth defects. They emphasized the presence of qualitative sperm and ovum, a healthy genital tract, wholesome dietetics by mother, soul with functional mind and ideal nutrition to foetus as the chief factors for the attainment of ideal healthy progeny.^[3] Aberration in any of these factors was marked as cause of attainment of abnormal children.

REVIEW AND DISCUSSION

Ayurveda expounds the union of qualitative sperm and ovum in fertile period in healthy genital tract of female ultimately ensuing in successful fertilisation and development of a healthy foetus. This foetus grows excellently by the intake of wholesome dietetics by the mother and then he is endowed with excellent senses and physique and strong psyche at birth.^[4] Ancient sages have clearly mentioned the following factors as causes of abnormal descendants.

(a) Purvajanmakrita Karma (Actions done in past life)

Like other spiritual sciences e. g. Srimadbhagavadgeeta.^[5] Ayurveda science also believes in rebirth of living beings.^[6] Superior prescribed actions done under satvika type of psychology in previous life and present life have good impact on this life and vice versa.^[7] Yet awful actions done in past life have stronger effect on quality of present life despite person performs righteous acts in this life.^[8] Even the birth of individual occurs to bear the fruit of those actions^[9] along with an opportunity to that individual to attain the salvation from this miserable circle of birth and death.^[10] Among various causes of congenital defects, ancient sages have pointed bad actions^[11] done under the psychology of rajasika (passionate) or tamasika (ignorant)^[12] as an important one. Today in modern sciences many diseases have been termed idiopathic in which they fail to ascertain the aetiological factor of the said disease on current parameters.

(b) Age of Parents

Though ancient sages have specified the lower limit of childbearing age as 16 years for female and 25 years for male^[13] (As S. Sh.1/3) while the upper limit for planning pregnancy has been specified as 30 years for females.^[14] During this time the body tissues are excellent for producing healthy progeny. Modern science also considers elderly gravida (age>35yrs) as high risk factor for having babies with Down syndrome. Such females constitute around 17% of the female population in India.^[15]

(c) Marriage in Tulya gotra (consanguineous)

Ayurveda clearly denies the marriages in two similar 'Gotras' due to religious causes.^[17] Now it has been observed that some diseases are seen most frequently in children resulting from marriages between close relatives. Based on recent estimates, a consanguinity rate in India varies from as low as 1% to 4% in the northern region to as high as 40-50% in the southern region.^[18] In comparison to a non-consanguineous couple, consanguineous are more likely to have (1) early age at marriage and at first birth (2) higher number of infants born (3) same or lower rates of abortion, (4) higher rates of postnatal mortality (5) higher rates of congenital malformations and genetic disorder.

(d) Yonipradosha (Unhealthy Genital tract)

Ayurveda expounds unhealthy genital tract as one of the causative factors for birth defects.^[19] Certain infections such as Toxoplasmosis, Other (syphilis, varicella-zoster, parvovirus B19) Rubella, Cytomegalovirus, herpes (TORCH), are associated with serious birth defects or recurrent pregnancy loss. Though Ayurveda gives prime importance to healthy genital tract for spontaneous conception yet it offers various local and systemic modalities to deal with its illnesses before planning pregnancy.^[20]

(e) Medical disorders of mother

Acharya have clearly mentioned the very poor quality of ovum and sperm of already ailing male and female as the prime cause of infertility or loss of pregnancy. Persons afflicted with less severity of any disease also suffer from abnormal quality of sperm or ovum or both which may lead to anomalous pregnancy.^[21] Few chronic illnesses e.g. hypertension, chronic nephritis, chronic wasting diseases, certain endocrinological abnormalities i.e. hypothyroidism, hyperthyroidism and diabetes mellitus are also responsible for abnormal pregnancy or loss of pregnancy.

(f) Unwholesome dietetics by mother (compromised nutrition of mother)

Ahara rasa (nutritive digestive juice) is the basic moiety from which various dhatu (tissues) are formed. Here rasa stands for that very fluid of the mother by which the foetus is nourished and this very factor has been recognized as one of the determinants for the development of organism. This nourishing fluid is derived from ahara rasa of mother. Mother's diet contains all the rasa, thus the rasa derived from this diet gives strength and complexion to the fetus and the fetus deriving its sustenance from this rasa remains alive and develops in the uterus.^[22] Unwholesome dietetics by male and female before planning the pregnancy renders them

infertile and during the pregnancy leads to attainment of child possessing various physical or psychological sufferings depending upon severity of vitiation of bodily tissues^[23]. Modern science also observes maternal deficiencies of iodine and folic acid and other macro and micro nutrient found to be associated with birth defects. According to NFHS 3, just over half (51%) household was using salt that was adequately iodized. Fifty-five percent of women were found to be anaemic. Anaemia is more prevalent for women who are breastfeeding (63%) and women who are pregnant (59%) than other. More than one-third (36%) of women have a BMI below 18.5, indicating a high prevalence of nutritional deficiency.^[24]

(g) Exposures to harmful agents (teratogens) before and after conception

Ayurveda denies the use of detrimental dietary agents to be used by expectant female due to their potential of causing defects not only in foetus but also to pregnant lady.^[25] Though they have not named them except for alcohol yet this generalised principle very well applies on proven disadvantages of tobacco, alcohol, X-ray and self medication with non prescribed drugs.

According to NFHS 3, Children of women who smoke during pregnancy are found to have multiple birth defects 1.5-2 times more than expected.^[26] Alcohol, which is associated with foetal alcohol syndrome, usage among reproductive age group female was 2.2%. According to study on drug utilization pattern during pregnancy, exposures to radiation and category X drug occur in 4% and 5.71% pregnant female respectively during the first trimester.^[27] Exposures to other categories of drugs during their first trimester vary from 55.28% for category A to 6% for category D drugs respectively. Moreover, easy availability of drugs coupled with inadequate health services; compound the problem of intake of non-prescribed drugs and self-medication.^[28]

Ayurveda very well recognises the agony associated with abnormal descendants and therefore provides ample practical approaches to carry an esteemed progeny and thus to lead a composed life. A brief description of congenital defects is as follows:

Congenital anomalies and birth defects

Birth defects can be defined as structural or functional abnormalities, including metabolic disorders, which are present since birth. Acharya have clearly mentioned the cause of these defects as the aberrations in maternal or paternal chromosomes due to various above mentioned factors.^[29] Though ancient sages have given detail of birth defects primarily

related to genital system yet they have postulated the scientific principle of possibility of birth defects of any organ which can manifest due to presence of defective gene responsible to development of that particular organ.^[30] A brief description of birth defects as mentioned in Ayurveda compendium is given below:

1. Sanskarvahi (baby with deformed testes): The deformity results due to aggravation of vata dosha in uterus of mother which causes anomalous testes of baby.^[31]
2. Vatika shand (baby with demolished testes): The vitiated vata and pitta dosha in uterus of mother demolish the testes of foetus.^[32]
3. Nara nari shanda (Eunuch): Fertilization of genetically poor quality of sperm and ovum results in such deformities. They are phenotypically male or female but female lacks menstruation and males lack semen.^[33]
4. Vakri (curved): Babies born with skeletal defects are termed Vakri (bent). Acharya have assigned abnormal paternal chromosome to be responsible for this defect.^[34]
5. Vandhyaa (sterile female foetus) and Vandhya (sterile male foetus): Defective chromosomal material of mother resulting in abnormality in female genital tract due to aggravated dosha because of faulty dietary habits of female results in vandhya.^[35] Likewise defective chromosomal material of father resulting in abnormality in male genital tract results in vandhya.^[36]
6. Vartam (Female with reduced feminine characters): Mild defects in female sex chromosome may lead to female foetus with reduced feminine or secondary sexual characters i.e. vartanami.^[37]
7. Trunaputrika (Male with fewer masculine characters): Flawed paternal chromosomal material consequence in mild defects in sex chromosome of baby which leads to development of male foetus with less masculine or secondary sexual characters who are unable to perform sexual act.^[38]
8. Dvireta (Hermaphrodites): Similarly fertilisation of diseased sperm and ovum leads to equal and abnormal presence of male and female chromosomes therefore leads to attainment of dvireta (hermaphrodite baby).^[39] Similar form of true hermaphroditism has been explained in contemporary science.

In modern science among widely studied chromosomal abnormalities the Turner syndrome may resemble to vandhyaa and varta type of congenital defect. Here the nucleus possesses only 45 chromosomes i.e. 22 pairs of autosomes plus sex chromosome XO. The absence of Y

chromosome resembles the female, but these patients are like males are chromatin negative. Gonadal dysgenesis or ovarian agenesis is present. They are short statured, have webbed neck, undeveloped breasts and absent or scanty pubic or axillary hairs i.e. they are females with less secondary sexual characters⁴⁰. Likewise Vandhya and Trunaputrika may resemble to Klinefelter's syndrome (males with less reduced secondary sexual characters). The patient resembles male in general body conformity. The genital organs are small. Sterility is common and gynaecomastia is frequently present. The patient is mentally retarded and is sex chromatin positive like female due to extra X chromosome. Genetic analysis reveals their karyotype as 47 XXY.^[41] Similarly Dvireta appears a form of true hermaphroditism as has been explained in contemporary science. They have ambiguous-looking external genitalia, and have karyotype as 47XXY, 46XX/46XY, 46XX/47XXY and have both testicular and ovarian tissue. Pathogenetic similarity can also be illustrated here as fertilization of the two ova by two sperm cells (one carrying an X and the other carrying a Y chromosome), then fusion of the the two fertilized ova together results in a person having dual genitalial, gonadal (ovotestes) and genetic sex.

Measures of attaining healthy progeny

A. Preconceptional care

Under the Action Plan for Global Strategy for the Prevention and Control of non-communicable diseases 2008-2013, prevention and care of the birth defects was given due emphasis.^[42] According to MOD and WHO report 70% of the birth defects are preventable if the evidence-based community genetics services are used.^[43] Community genetics services include a number of activities for the diagnosis, care and prevention of genetic diseases at the community level. The goal of community genetic services would be to maximize the chances for having healthy babies.

According to NFHS 3 report in India 22.8% pregnant female do not have any antenatal care and around 33% receive antenatal care after 4 month, when the crucial period of organogenesis (4-10 weeks after fertilization) has already passed. Considering these facts, preconceptional care becomes an important and earliest step toward the prevention of birth defects. The objective of preconceptional counselling and care should be aimed at to reduce all risk factor related to birth defects at preconception time such as:

1. Prevention of Down syndrome, neural tube defects and mental deficiency in children by instituting timely pregnancy planning and improving maternal nutrition.

2. Education regarding preventing consanguous marriages so as to prevent hereditary disorders in high risk families through genetic counselling.
3. Birth defects and stillbirths by better control of maternal disorders such as diabetes, hypothyroidism etc. prior to and during pregnancy.
4. Risk of miscarriage, birth defects and foetal growth retardation through avoidance of smoking, alcohol and other industrial and domestic teratogens exposure before and during pregnancy.
5. Birth defects due to certain genital tract infections such as syphilis and toxoplasmosis, rubella etc. through prevention, early detection and prompt treatment.

i. Ethical Counselling

In Ayurveda planned pregnancy has been given principal importance.^[44] Unplanned pregnancies and no antenatal care straightway means pregnancies not benefitted from preventive strategies against birth defects. Common reasons for unplanned pregnancies reported in studies are contraceptive failure, lack of access to family planning information and services, personal or religious beliefs, inadequate knowledge about the risks of pregnancy following unprotected sexual relations, women's limited decision making with regard to sexual relations and contraceptive use, and incest or rape. Considering all these factors in mind, Ayurveda science while bestowing the customs of living ideal life has well thought-out on such issues in detail.^[45] Morality in sexual relations like limited relation with one's own wife for planning the baby only^[46] and not merely for pleasure and strict restriction of having relations with other women have been well explained by Acharya.^[47] Today this single sexual discipline if followed can save the humanity from many Sexual Transmitted Diseases, sexual abuse, and marital disputes besides from having babies suffering from birth defects.

ii. Preconceptional measures

The aim of these measures is to attain supreme progeny.^[48] This holistic science advises the implementation of preconceptional planning measures to a disease free couple.^[49] Thus already ailing male and female either face infertility or are not able to carry a healthy baby, thus need to be primarily cured or managed. Thereafter Ayurveda advises preconceptional measures such as methodical classical snehana (oleation therapy) followed by svedana (Sudaion therapy) and then vamana and virecana (purificatory therapy) and basti (medicated enema therapy) to achieve the whole body cells excellence. Then to have a positive effect specifically on semen quality the male is advised to take milk and ghee containing the

essence of sweet or jeevaniya (rejuvenating) herbs and female to take oil and masha dala (black gram).^[50] According to texts of ayurveda this bean is heavy to digest and increases the moistness of body tissues. It is sweet to taste and hot in potency. All these properties help to normalize or calm vitiated vata which is considered the chief factor for abnormalities of female reproductive system.^[51] Nutritional qualities reveal it to be rich in vitamins, minerals and devoid of cholesterol. It is store house of calcium, potassium, iron, magnesium, copper, manganese etc.,^[52] Hence maternal nutritional status is improved.

iii. Periconceptional (Ritukala) planning

Ritukaala starts from the first day of menstruation and lasts for 16 days.^[53] thus it covers the bleeding / menstrual phase as well as proliferative phase of menstrual cycle. The characteristic events occurring during ritukaala are early follicular development (menstrual phase), follicular maturation and spontaneous ovulation (proliferative phase). The cervical fluid changes (thin cervical fluid and widening of cervix) are also there to receive the sperm effectively so that successful fertilization may ensue. To achieve ideal follicular development Acharya have advised the initiation of certain periconceptional measures from the bleeding phase of desirous lady which consists of intake of shali rice cooked with cow milk and ghee or barley diet.^[54] Rakthashali is a rare red rice variety. It has a high medicinal value. It pacifies dosha, such as Vata, Pita, and Kapha. This white-tipped rice with red bran is believed to have properties to slow down the process of aging. Studies say that it is rich in antioxidants, calcium, zinc, iron, and other minerals.^[55] Barley contains antioxidants such as selenium, copper, manganese, chromium, phosphorus magnesium which are important to maintain good health. Specifically, antioxidants work to slow down the rate of oxidative damage by gathering up free radicals that form when body cells use oxygen.^[56] Studies have shown that antioxidants have improved fertility rates.^[57]

Intercourse, day sleeping and performance of extreme physical activities such as excess running, loudly laughing, excessive talking etc. are prohibited.^[58] Menstrual phase is vata dominant phase and excessive physical activities during this period further aggravate the vata dosha which have deleterious effect on ovarian and uterine environment From 4th day onwards i.e. in proliferative phase after attaining proper hygiene union is permitted upto 16th day of periods (i.e. in fertile period) on alternate days.^[59] She is advised to take diet mainly consisting of barley, honey and ghee (clarified butter) curd, cow's milk and rice upto 10th day during this period. A stress free environment is also a mandatory as stressed females fail to

get expectant or carry an anomalous foetus^[60] which is probably due to irregular functioning of hypothalamo-pituitary-ovarian axis. Such dietary plan and regimen provides perfect hormonal environment of female, thereby ultimate follicular maturation and excellent ovulation. A supreme ovulation certainly follows an ideal secretory phase. In another reference to attain a baby with excellent physique and mind coitus is allowed from 11th day onwards for 8 days i.e. upto 18th day of menstruation. The ideal position is supine position of female as other positions result in vitiation of humours.^[61] In ideal 28 days cycle, ovulation occurs on 14th day and in 30 days cycle it takes place on 16th day of menstrual cycle. The life of ovum after ovulation is 24 to 48 hrs while the life of sperm in female genital tract is 48 to 72 hrs. Hence to meet such variations ancient sages have very scientifically utilized the significance of fertile period. Fertilization under ideal circumstances leads to flourishing implantation.

iv. Antenatal care

Ayurveda advises to adopt specific month wise diet and regimen whose aims are to avoid hazardous effects on foetus, to promote normal growth and development of foetus and to conduct normal delivery without any foetal and maternal complications.^[62,63] These are as follows:

- Measures in secretory phase/first month of pregnancy: The diet and regimen mentioned by Acharya to be followed in first month of pregnancy should be followed in secretory phase i.e repeated intake of nonmedicated milk in desired quantity
- Measures in 2nd month of pregnancy: Diet having milk medicated with sweet herbs is indicated (c. Sh. 8/32). Acharya Sushruta advises to take sweet, cold and liquid diet
- Measures in 3rd month: Milk with honey and ghrita. Sweet cold and liquid diet specially cooked shasti rice with milk.
- Measures in 4th month: Butter extracted from milk in the quantity of 20gms or milk with butter in above quantity. Cooked shali rice with dainty and pleasant food mixed with milk and butter and meat of wild animals.
- Measures in 5th month: Ghrita prepared from butter extracted from milk. Cooked shasti rice with milk, meat of animals along with milk and ghrita.
- 6th month: Medicated ghrita with madhura group of drugs, yavagu prepared with gokshura (*Tribulus terrestris*).
- 7th month: Ghrita medicated with prithakparnyadi group of drugs. This helps in proper growth and development of foetus.

- 8th month: Ghrita mixed yavagu should be given. And in this month, for clearing the retained feces and anulomana of vayu, the aasthapana basti followed by use of anuvasana basti of oil medicated with milk and decoction of drugs of madhura group.
- 9th month: Anuvasana basti with oil prepared with the drugs of madhura group.

a. Significance of Ayurvedic Antenatal Care from Modern Perspective

During first trimester of pregnancy most of women experience nausea and vomiting, thus can not take proper diet. Use of cold and sweet liquid diet and milk will prevent dehydration and supply required nourishment, besides the drugs of madhura group being anabolic will help in maintenance of proper health of mother and foetus. Fourth month onwards muscular tissue of foetus grows sufficiently requiring more protein which is supplied by use of meat soup. By the end of second trimester most women suffer from oedema of feet and other complications of water retention of water as well as its complications. The drugs of vidarigandhadi group are diuretic, anabolic, relieve emaciation and suppress pitta and kapha. Use of gokshura, a good diuretic, in sixth month will prevent retention might help in maintaining health of mother and foetus. Most women experience constipation in late pregnancy due to pressure of gravid uterus over the bowel and effect of progesterone. Use of basti (enema) in eighth month will relieve this constipation, besides this may also affect the autonomous nervous system governing myometrium and helps in regulating their function during labour. Tampon of oil may destroy pathogenic bacteria of vaginal canal and prevent puerperal sepsis, besides this tampon may also soften vaginal passage thus help in normal labour. It is just possible that the regular use of tampon might influence autonomic fibers governing myometrium and help in its relaxation during labour.

Milk and drugs of madhura group have been advised for entire pregnancy period. Milk is a whole diet and good source of calcium. The drug of madhura group are anabolic, thus use of these will help in maintenance of proper health of mother and growth and development of foetus.

b. Foetal saving medicines

Ancient sages have mentioned certain herbs which promote the normal intrauterine growth of foetus. These medicines can either be used as oral decoction or locally by carrying them on head or on right hand during antenatal period. These medicines are endri (*Baccopa monneri*), Brahmi (*Centella asiatica*), Shatvirya, Sahastravirya, Amogha (*Steriospermum suaveolens*),

Guduchi (*Tinospora cordifolia*), Haritaki (*Terminalia chebula*), Katuki (*Picrorrhiza kurro*), Pitabala, Priyangu and herbs of jeevaniya group.^[64]

c. Precautions from Foetal damaging factors

Ayurveda clearly states that antenatal care of pregnant lady should be done with utmost precautions. Certain factors have been specifically mentioned in classical texts from which the expectant mother should take precautions as they have deleterious effects. Few of these are.^[65]

- Sitting in squatting position on uneven places and taking uncomfortable posture as these may increase pelvic pressure and hence may cause abortion.
- Performing vigorous exercises and travelling for the above reason.
- Intake of less quantity of food, spicy and difficult to digest foods.
- Taking alcohol to avoid congenital defects.
- Direct injury or pressure to gravid uterus.
- Sleeping in supine position which causes pressure on inferior vena cava and hence may hamper uteroplacental circulation.
- Keeping jealousy to others Listening terrifying sounds, quarrelling, excessive intercourse and remaining sad all the time which may cause abnormal neurohormonal secretions having damaging effect on foetus and mother.
- Excessive sleeping.
- Taking either diets primarily of single taste e.g. excessive sweet diets/salty/sour/bitter/spicy/astringent may lead to nutritional deficiency and thus IUGR.

Hence the female should stay away from such diets and life style and adopt wholesome diet and lifestyle so as to acquire a baby endowed with paramount qualities.^[66]

CONCLUSION

Ayurveda science promotes life to be free of any kind of sufferings and thereby postulates many principles regarding prevention and cure of illnesses. Acharaya were very well aware of miseries of abnormal progeny hence they gave a detailed description of causes, varieties and prevention from birth defects. The month wise antenatal care promotes optimum growth and development of foetus which is helpful in obtaining healthy babies and thus reducing infant mortality rate. The portrayal provided by them thousands years ago appears proved on modern scientific parameters. To achieve the goal of having maximum number of healthy

babies Ayurveda should also be made a part of providing community genetic services at primary health levels. The awareness regarding timely planned pregnancies, avoiding consanguineous marriages, improving maternal nutrition, preconceptional, periconceptional and antenatal care of women on Ayurveda principles can be an important and earliest step towards the prevention of birth defects.

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