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PHYSIOLOGICAL ASPECT OF TWACHA VARNA: A REVIEW

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ABSTRACT

Now a day, Ayurveda is gaining wide popularity in the field of cosmetology. Many cosmetic products are prepared and used on the Ayurvedic concepts. Twacha is matruj bhava. The foetus gets varna in the sixth month of intrauterine life. The word "varna" means lustre of the body. Varna is not just colour but includes all the parameters of healthy and radiant skin. Twacha varna varies among different individuals. In Ayurveda twacha varna occurs as per prakriti. According to current medical science, skin colour depends on the amount of melanin and other factors. So here is an attempt to enlist all the factors responsible for varnotpatti.

Keywords: Twacha, Varna, Skin, Mahabhut, Melanin

INTRODUCTION

Skin is the mirror of one's health and illnesses. It reflects our physical health and mental health as well. It is the only biggest organ that first comes in contact with the outer world. Many diseases are diagnosed based on skin lustre, colour and function changes. Skin is the organ which dominates the world of beauty and radiance. Everyone wishes to have healthy and radiant skin.

Charaka Samhita mentions the colours of normal skin. It says four normal twacha varna. Other than these normal colours are vikriti. Normal twacha varna is avadat, shyam avadat, shyam, and krishna.

No discrimination is done according to the colour of the body. These colours are normal, and hence all normal people are accepted. Other than these colours, skin is termed ill underlying some changes in tridoshas. Atigaur (very fair) and atikrshna (very black), aloma (having no hair on the skin), and atiloma (having much hair on the skin) are the pairs of symptoms which are termed nindit purusha.

Twacha is matruj bhava. The foetus gets varna in the sixth month of intrauterine life. The formation of the skin is termed 'Kshirat Santanika' means as delicate as fine, as beautiful as cream of milk. The word "varna" means the lustre of the body. Varna is not just colour but includes all the parameters of healthy and radiant skin. Twacha varna varies among different individuals. Prabha (illumination) illuminates varna, and chhaya (shadow) covers varna. In Ayurveda twacha varna occurs as per prakriti. According to current medical science, skin colour depends on the amount of melanin and other factors.

Today, the world suffers from several physical, mental, psychological, and behavioural changes. These changes reflect on their skin. Stressful life, changing food habits and culture, overuse of chemicals, and sleep deprivation affects the skin.

People find Ayurveda to be a ray of hope in concern with skin health. Hence nowadays, Ayurveda is gaining wide popularity in cosmetology. Many cosmetic products are prepared and used on the Ayurveda concepts.

The word varna means the "outward appearance, colour or complexion, lustre, beauty etc. Rupa and kanti are synonyms of varna. The meaning of the varna is not just colour, but it includes all the parameters of healthy and radiant skin. The krishna, shyam, shyam-avadat and avadat are prakrit varna, shyama, nila, shyama, tamra, harita haridra, haridra – shukla are vikrut varna. [1] The abnormal skin colours are mentioned in the context of diagnosis, treatment and prognosis of the disease.

Factors responsible for the formation of varna

Role of Mahabhuta: At conception, Teja mahabhut is responsible for varnotpatti. Based on panchbhautika constitution, three skin colours such as avadat (gaur), krishna and shyam have been mentioned. [2]

Table 1: Relationship between Mahabhuta Dominance and Twacha Varna

Mahabhuta [3]	Varna
Aap Mahabhuta	Gaur Varna
Prithvi Mahabhuta	KrishnaVarna
Prithvi and Aakash Mahabhuta	Krishna shyam Varna
Aap and Aakash Mahabhuta	Gaur shyam Varna

Role of Shukra: Ayurveda is inclined to connect the complexion of the foetus with the colour of the semen of the father. According to Ashtanga Samgraha, the colour of Shukra dhatu is also responsible for the formation of colour and complexion of the embryo. Paternal factors determine the complexion.[4]

Table 2: Color of Shukra Dhatu and Colour of Progeny

Colour of Shukra Dhatu	Colour of progeny
White or the colour of Ghrita or Manda	Gaur Varna (fair)
Oil	Krishna Varna (black
Colour of Honey	Shyama Varna (brownish)

Role of Aahar - Vihar of the mother: The foetus gets nourishment from the mother's aahar rasa through the placenta. It contains all the essential factors.[5] It provides strength and complexion to the foetus.[6] Maternal food and behaviour during pregnancy are also responsible for children's colour. For example, if during pregnancy mother consumes sweet foods like khshira etc. and much use of water by garbhini results in the fair complexion of the child. Use of tila and vidahi food results in the dark colour of the child. With the use of mixed diets, the child resulted in possessing shyama varna.

Role of Desha, Kula and Jati: Desha, kula and jati are also influence factors which influence varna.[7] The people of the northern provinces have a fairer complexion, and those in the southern provinces have a dark complexion, while the people of the central region of India have the shyama varna. This fact is also accepted by modern science. Varna also varies among particular kula and particular jatis. People of different races have different twacha varna (colour). Mostly muslims and brahmans have comparatively fair complexions than others, while some other races have a darker complexion. The variation in skin colour is due to genetic factors.

Role of Jatharagni: The jatharagni is a causative factor for ayu, varna, bala, swasthya, utsaha, upachaya, prabha, oja, teja etc.[8] Moreover, in sutrasthana, the same thing has been mentioned that agni, being stimulated by the antaragni, digests the various types of wholesome diet, producing thereby upachaya, bala, varna, also the arogya, bala, upacaya, varna and oja are only due to the jatharagni.

Role of Aahar: Acharya Charaka has mentioned that complexion, clarity, good voice, longevity, genialness, happiness, satisfaction, nourishment, strength, and intellect are the food conditions of all these. The great sage Sushruta states in favour of the above view. He has referred to aahar as a root cause for all the animate objects and their strength and complexion.[9] The dietary pattern has the same importance as the food. Acharya Charaka has emphasised rules regarding the intake of various drugs and diets.[10] According to him, wholesome food consumed in the prescribed manner rules is said to be a complexion promoter.[11]

Relation of Varna with Dosha - Dhatu - Mala

Udana Vayu is responsible for varnotpatti. Varna is mentioned as a function of Udana Vayu.[12] According to Dalhana, Vayu is formless and not supposed to contain any colour, but the Shukra defected by Vayu manifests aruna, or krishna complexion seems to be the function of Udana Vayu. Thus, Udana Vayu is responsible for the distribution of the complexion.

One of the main functions of Agni is to provide twacha varna. Agni, situated in the Pitta (Bhrajak Pitta), gives normal varna in a normal and abnormal one in an abnormal state. So, normal and abnormal varnas are the functions of Pitta. Chakrapani further comments that variations in the heat and varna of the body are the functions of Bhrajaka Pitta.[13] Acharya Sushruta states that Bhrajaka Pitta is mainly responsible for the varna as twacha is stana of Bhrajaka Pitta, and it digests all the materials applied locally to the skin in different ways like abhyanga, parisheka, avagaha, avalepana etc.[14]

Ranjaka Pitta gives the red colour to the Rasa dhatu and then forms the Rakta dhatu, which nourishes the twacha[15]. The lohita layer of twacha has been considered a site of varna. Pitta bestows grace on the other Pitta. So Pachaka Pitta plays an essential role in the formation of varna. Acharya Charaka describes twacha-related few lakshanas while describing the prakriti lakshana. Avadatagatrata (fair complexion) and prasanna- snigdha varna (clear and unctuous complexion) are the main lakshanas of Kaphadhika prakriti[16]. Snighdha guna of Kapha is also responsible for the lustre and texture of the skin.

Rasa dhatu is aadya dhatu, expressing their excellent quality on twacha (skin). We can see lakshanas of Rasa sara purusha are maximum expressed on twacha. Kashyap called Rasasar purusha twaksara purusha. Acharya states that the skin of the twaksara purusha is snigdha, slaksana, mrudu, prasanna, suksma and prabhayukta, So Rasa dhatu must have a role in varnotpatti. Rasa dhatu plays an essential role in forming colour, lustre and complexion.

Vishuddha Rakta provides bala, varna, sukha and ayu[17]. As per Acharya Sushruta, Rakta increases colour and complexion[18]. Acharya Charaka describes a few lakashanas related to twacha in medosara, majjasara and sukrasara purusha[19]. As per Acharya Sushruta, there is a relationship between varna with ojas. Varna has been enlisted among the functions of oja, so when oja is diminished, the person has the deranged lustre.[20]

The prakriti parikshana has its importance. Its formation depends upon the dominancy of dosha during the phase of garbhavakranti. The different kinds of varnas according to the types of prakriti, such as priyangu, durva, sharakand, gorochan, padm, suvarna etc, are mentioned in samhitas[21]. Overall, acharyas has given particular importance to the varna in prakriti. Pitta prakriti and Kapha prakriti have gaur varna, while Vata prakriti persons have krishna varana.

Dermatological View Skin Colour

The Cell of the skin contains a brown pigment called Melanin. It is responsible for the skin colour. Skin colour reflects the number of stains (melanin and carotene) in the skin and the oxygenated blood. The skin colour is due to melanin, but the difference arises from how melanin is packaged within the skin. This difference in melanin packaging gives rise to light and dark skin and also to the skin sunburn characteristic. Skin colour varies according to gender and various stages of life [22]. Studies demonstrated that women have lighter skin. The change in skin colour that occurs with ageing varies according to gender. Asian skin is reported to have weaker skin barrier function. Several studies indicate that Asian skin may be more sensitive to exogenous chemicals due to thinner stratum corneum and higher eccrine gland density. Alterations in standard skin colour may indicate specific diseases like jaundice, anaemia etc.

Human skin has red, yellow, brown, or blue tones. The red is due to oxygenated haemoglobin, and the yellow is due to carotenoids. A carrot contains beta-carotene. The blue colour is due to the haemoglobin in the veins, which is called reduced haemoglobin. The primary brown colour is due to the presence of melanin.

Factors affecting skin colour

- Melanin
- Haemoglobin

- Carotene
- Hormonal
- Environmental sun exposure

Melanin: Melas is a Greek word meaning black. Melanin is a skin pigment that forms in melanocytes. It is the primary colour determinant of human skin. Skin becomes dark when melanin content increases. It is a protein in nature synthesised from the amino acid trypsin via dihydroxy phenylalanine (DOPA). A deficiency of melanin leads to albinism**.** These cells are in the basal layer of the epidermis. One melanocyte will provide melanin pigment to about 36 keratinocytes. The association of the melanocyte with these keratinocytes has been called the epidermal melanin unit. Melanin produced in the melanocyte is transferred to the keratinocytes in melanosome packets. The melanosomes are transferred to the keratinocytes by the dendritic projections of the melanocyte. Dendrites are spidery-like projections that extend in all directions from the body of the melanocyte. Langerhans cells are also called dendritic cells. The action of the dendrites transferring the melanosomes into the keratinocyte is very similar to the injection process with a hypodermic needle.

Several internal and external factors control melanin production in the skin. Both stimulatory and inhibitory forces must be constantly in play. As per the literature, two types of pigmentation compounds in the skin are responsible for skin colour. Constitutive skin colour and facultative skin colour. Constitutive skin colour is the basic melanin inherited according to a genetic program and is without any direct effect by solar radiation. It is the original skin colour. Facultative skin colour is the inducible result of sun exposure, including immediate and delayed tanning. As a result, it is reversible and will decrease the level of constitutive skin colour [23].

The distribution of epidermal melanocytes in different body parts varies, with a greater population density in the face and genital areas than in the trunk. The range is 2900 ± 249 per mm^2 for the face to 1100 ± 215 per mm^2 for the upper arm. The density of melanocytes is about two-fold higher in exposed than in unexposed skin.

Total population of Melanocytes: It is estimated that the total epidermal melanocyte population is about 2×109 cells. Because the number of melanocytes is about the same in all people, skin colour differences are mainly due to production and its dispersion to keratinocytes.

Genetic control: Genetic factors are involved in the migration of melanoblasts and their development and differentiation in the skin. The morphology of melanocytes, the structure of the melanosome matrix, the tyrosinase activity and the type of melanin synthesised are all under genetic control. Also, the patterns of melanosome transfer and their subsequent degradation are determined by different genes. Both amount and type of melanin are determined by four to six genes which operate under incomplete dominance. One copy of each gene is inherited from the father and one from the mother. Each gene comes in several alleles, resulting in a great variety of different skin tones.

Haemoglobin: The amount of haemoglobin in the cutaneous blood vessels plays a vital role in skin colour. When little melanin or carotene is present, the epidermis appears translucent. Thus, the skin of white people seems pink to red, depending on the amount and oxygen content of the blood moving through the capillaries of the dermis. The red colour is due to haemoglobin, the oxygen-carrying pigment inside the red blood cells, while skin appears bluish because of the reduced state of haemoglobin. Skin becomes pale when haemoglobin content decreases; skin becomes pink when blood rushes to the skin due to cutaneous vasodilatation, and bluish skin during cyanosis is caused by an excess amount of reduced haemoglobin [24].

Carotenoids: Carotene, a yellow-orange pigment, is the precursor of Vitamin A, synthesising pigments needed for vision. Carotene is found in the stratum corneum and fatty areas of the dermis and subcutaneous layer. It contributes a yellow component to the normal colour of skin.

Hormonal influence: The hormone increases the thickness of the skin in post-menopausal women because of changes in skin blood flow and trans- epidermal water loss. Pregnancy and birth control pills will produce a temporary change in skin pigmentation.

Environmental sun exposure: Melanin has a photo-protective role. Melanin acts as a neutral density filter reducing all the wavelengths of light. The superior photoprotection of the black epidermis is due to its increased melanin content and the packaging and distribution of melanosomes. A classification of sun-reactive types based on sunburn and tanning history is now in general use. Two kinds of pigmentation of the skin occur in response to sun exposure. The first is immediate pigment darkening (IPD), the Meirowsky phenomenon. This is best observed in those with hyper-pigmented skins and is most effectively induced by long-wave UV light (UVA). It is transient and, through rapidly induced, soon fades. The second is the increased pigmentation that follows the erythemal response. This is the delayed tanning response (DT) and can be seen 48-72 hours after skin exposure to UV light.

DISCUSSION AND CONCLUSION

The Teja mahabhuta plays an essential role in varna utpatti. The mother's aahar, vihar, thinking as well as the colour of Shukra, the dominance of other mahabhut with Teja mahabhut, desha, jati, and kula are also responsible in determination of prakrit varna in garbhavasta. Consumption of Shad rasatmak aahar by following proper aahar vidhi vidan in garbhaavasta, the quality of ahar rasa is also significantly important. Twacha and other dhatu get nourishment and nourishes the colour and complexion of twacha. jatharagni also plays an important role in varnotpatti as it controls aahar pachan process. Pachak pitta controls another Pitta, while Ranjak Pitta and Bhrajak Pitta helps determine colour. Other factors like Kapha dosha help maintain skin health with its normal colour. Oja, Rasa dhatu, Rakta dhatu, Meda dhatu is also important role. As per modern science, melanin packaging in cells, haemoglobin, carotene, hormones, and environmental factors are responsible for determining skin colour in extrauterine life.

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