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A CONCEPTUAL STUDY ON SKIN AGEING: AYURVEDA AND MODERN PERSPECTIVE

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Abstract:

Ayurveda considers skin ageing as one of the natural and yapyaroga. As the age advances several changes happen in the body as well as in the skin. By 2020, it is estimated that the world will have more than 1 billion people aged 60 and over more than 2/3rd of them living in developing countries. In Ayurveda, a comprehensive description has been given about ageing as ageing process is a challenging human experience common to everyone and with a desire to look young prevails in majority of people. Ayurveda accords a number of factors which determine skin health and youthfulness. These include equilibrium of doshas, dhatus and malas. And that of modern is metabolic control, resistance to stress, gene dysregulation and genetic stability. So keeping in mind all these factors this article covers the mechanism of ageing and its management. Sir James Sterling Ross commented – you do not heal old age, you protect: you promote it : you extend it.

Key words : Anti ageing, Rasayana, yapyaroga

INTRODUCTION

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The cosmetic and beauty industry is one of the world's most successful industry and oldest professions dating as far back as 1000BC. The quest for beautiful skin will bring many patients seeking expert advice. Skin ageing depends on number of factors. According to *Sharangadhara*, Chavi that is the colour and complexion starts to diminish by the age of 30 and skin loses its optimum health by the age of 50. So *acharyas* have advised to start the *Rasayana* therapies by the age of 30. The primary factor for skin ageing is the underlying genetics. Other internal factors include diet, lifestyle, drugs, alcohol, smoking, etc. Environmental exposures including weather changes and pollutants have a direct impact on skin ageing, with the most degredative changes caused by chronic UV exposure.

Chronically aged skin loses the scaffolding of the dermal structural proteins, elastin and collagen in addition to which

epidermal thinning appears loose and wrinkled. There is atrophy of the adnexal structures with a decrease of oil secreting glands and the skin's moisture retaining ability, resulting in dryness and scaling. With the continuous loss of elasticity, there will be sagging and deep furrows. Skin appearance depends on many factors including its brightness and the way it reflects light. Lack of skin care can accelerate the skin ageing process¹.

SIGNS OF SKIN AGEING

Ayurveda explains wrinkles as *vali*, which is seen as a *poorvaroopa* of jara². Wrinkles occur as a result of reduction in the muscle mass and so thickness, cross linking of collagen and elastin in the dermis and dehydration of the Stratum corneum.

Wrinkles are depressions in the skin's surface that may be coarse or fine depending on their depth. They appear on the forehead, outer corners of the eyes and either sides of the mouth. *Chavi*³ can be compared with the reduced complexion and glow.

Skin discolouration – it includes both hyper and hypo pigmentation. It occurs due to decrease in the brown melanin pigment along with a decline in red and blue capillaries. The overall skin discolouration is often accompanied by an increase in broken veins. This is due to

diminished protective capacity against UV exposure.

Decreased skin elasticity – skin thickness can loose from 20-80% during ageing process. Changes in elastin fibres can lead to a condition known as elastosis, which is a hallmark of photo aged skin. This leads to decreased skin elasticity and tensile strength.

Dehydration – the amount of Hyaluronic acid found in the dermis starts to diminish. This loss, along with comprised barrier layer in the dermis, is most likely the cause of dehydration. Also there is a reduction in the moisture content of the epidermal stratum corneum. As a result of this the appearance of fine lines and scales start.

Dull, rough skin – the prolonged stratum corneum replacement, that is slow epidermal turnover rate and slowdown in the cell cycle is combined with a less than efficient desquamation process. This accounts for the characteristic dull, roughness in the maturing skin⁴.

Modern medicine aims to combat ageing and prevent further damage by the following measures.

Antioxidants are known as spin traps. The newest antioxidants which are known as ‘spin traps’ have the ability to catch or trap the aberrant electron as it starts to spin out

of control and retain it to its orbit before it can do any damage.

Examples are

Vitamin E: This is the first line of protection against environmental stress. The use vitamin E in skin care has antiageing benefits based on its moisturisation properties and protective role.

Vitamin C: This plays a vital role in photo protection as well as in collagen synthesis which is responsible for wrinkle reducing and skin firming effects. Topical application of creams containing vitamin C have the ability to reduce hyper pigmentation by the inhibition of the enzyme tyrosinase.

Co enzyme Q₁₀ :It is a powerful free radical inhibitor that inhibits lipid peroxides from forming in plasma membranes. As we age C₀Q₁₀ levels diminish. Topical application of C₀Q₁₀ has been reported to show a reduction in wrinkles.

Alpha – Hydroxy Acids (AHAs)

These are found in common fruits such as citrus fruits, apples, grapes. The use of AHA is widely seen in facial skin care as they have the ability to reduce the cohesion of dead corneocytes to the skin,

giving the skin a smoother, less wrinkled and less mottled appearance.

Beta – Glucan: Topical Beta Glucan have photo protective properties similar to Vitamin E. They are soothing and calming to the skin through their reinforcement of skin macrophages.

Skin Respiratory Factors(SRF)

They are also called as Tissue Respiratory Factors(TRF) having ability to renew and revitalise the skin by stimulating cell respiration. The most abundant source of this is baker's yeast. The use of mitochondrial cytoplasmic yeast extracts in skin care products can result in the stimulation of cellular respiration followed by enhanced cellular metabolism, vitality and increased cell renewal.

Copper

Copper binds to the high affinity tripeptideglycyl – histidyl – 1 – lysine (GHK) complex which plays a vital role in human tissue repair and accelerate wound healing. It has the ability to stimulate extra cellular matrix proteins. Use of copper GHK in eye creams and facial creams showed to decrease skin wrinkles, laxity and roughness⁴.

Ayurveda deals with ageing in a detailed manner. Various formulations and drugs have been told to increase the colour and

complexion. *Nimbatailanasya, kumkumakesaranasya, jalanasya* have been explained to improve the complexion, prevent *vali, phalita, vyanga* and various diseases of the *urdhvajatrugata vyadhis*⁶.

Following are the drugs specifically indicated for beauty therapies in classics⁷.

Age defying activity(*vayasthapana*) - centellaasiatica

Youthful radiance(*varnya*) – *chandana, manjishtha*

Protection from wear and tear(*sandhaaneeya*) – sensitive plant

Deep healing(*vranaropana*) – *gokshura*

Enhancing and nurturing(*twachya*) – rose petals, grapefruit extract

Anti – inflammatory(*shothahara*) – aloe vera, sallaki

Strengthening skin metabolic functions – centellaasiatica

Maintaining skin health and retarding skin ageing(*twakrasayana*) – *amalaki, bramhi*.

Few *rasayanas* which are useful in the maintainance of skin health are *Amalakirasayana, Triphalarasayana, Shatavaryadirasayana, Amalakighrita, Shilajiturasayana, Indra rasayana*⁸.

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Table 1 showing the properties and action of *varnya* drugs^{9,10}

Name of the Drug	Rasa	Guna	Veerya	Vipaka	Karma	Action on skin
<i>Chandana</i>	<i>Tikta, Madhura</i>	<i>Laghu, Ruksha</i>	<i>Sheeta</i>	<i>Katu</i>	<i>Raktapittashamaka, Swedajanaka, Kustaghna</i>	Potent inhibitor of tyrosinase
<i>Rakta chandana</i>	<i>Tikta, Madhura</i>	<i>Guru, ruksha</i>	<i>Sheeta</i>	<i>Katu</i>	<i>Raktapittashamaka, Dahashamaka, Kustaghna</i>	Improves complexion
<i>Manjistha</i>	<i>Tikta, Kashaya, Madhura</i>	<i>Guru, Ruksha</i>	<i>Ushna</i>	<i>Katu</i>	<i>Raktashodaka, Kustaghna</i>	Skin whitening agent
<i>Madhu yasti</i>	<i>Madhura</i>	<i>Guru, Snigdha</i>	<i>Sheeta</i>	<i>Madhura</i>	<i>Varnya, Kandughna</i>	Controls melanin secretion and reduces dark pigmentation
<i>Naga keshara</i>	<i>Kashaya, Tikta</i>	<i>Laghu, Ruksha</i>	<i>Ushna</i>	<i>Katu</i>	<i>Raktapittashamaka, Twachya</i>	Protects against uv rays
<i>Haridra</i>	<i>Kashaya, Tikta</i>	<i>Laghu</i>	<i>Sheeta</i>	<i>Katu</i>	<i>Varnya, Kandughna, Kustaghna</i>	Photo protection, anti wrinkle and ageing
<i>Kusta</i>	<i>Tikta, Katu</i>	<i>Laghu, Ruksha</i>	<i>Ushna</i>	<i>Katu</i>	<i>Raktashodaka, Kustaghna</i>	Improves complexion
<i>Padmaka</i>	<i>Tikta, Katu</i>	<i>Ruksha, Laghu</i>	<i>Ushna</i>	<i>Katu</i>	<i>Kustaghna, Kandughna, Varnya, Vrunashodana, Vrunaropana</i>	Anti melanogenous activity
<i>Musta</i>	<i>Tikta, Katu</i>	<i>Laghu,</i>	<i>Sheeta</i>	<i>Katu</i>	<i>Kandughna,</i>	Natural

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		<i>Ruksha</i>			<i>Twakdoshahara</i>	antioxidant
<i>Nimba</i>	<i>Tikta, Kashaya</i>	<i>Laghu</i>	<i>Sheeta</i>	<i>Katu</i>	<i>Kandughna, Twakdoshahara</i>	Anti oxidant and thyrosinase inhibition
<i>Khadira</i>	<i>Tikta, Kashaya</i>	<i>Laghu, Ruksha</i>	<i>Sheeta</i>	<i>Katu</i>	<i>Kustaghna, Vranashodana-ropana</i>	Skin lightening activity
<i>Amalaki</i>	<i>Lavana, rahitapanha rasa</i>	<i>Guru, Ruksha, Sheeta</i>	<i>Sheeta</i>	<i>madhura</i>	<i>Vayasthapana, Dahashamaka</i>	Anti oxidant

TABLE 2.DRUGS FOR ABHYANGA AS PER DOSHAS

Type of skin	Drugs for abhyanga	Treatment required
<i>Vata</i>	<i>Jeevantiyaditamaka</i> <i>Yashtimadhutaila</i> <i>Mahamashataila</i>	Nourishing <i>tailaabhyanga</i> , use of moisturisers
<i>Pitta</i>	<i>Manjistaditaila</i> <i>Ashokaghrita</i> <i>Coconut oil</i>	Protection from sun, use of sunscreen, anti tanning treatments
<i>Kapha</i>	<i>Panchamoolataila</i> <i>Nimbataila</i> Olive oil	Warm oil massages, gentle exfoliating treatments.

DISCUSSION AND CONCLUSION

Present day life style is the main cause for pre mature ageing of the skin. Degenerative changes in the skin are caused by chronic UV exposure.

Ayurveda acharyas have explained different signs of ageing like wrinkles, skin discolouration, decreased skin elasticity, dehydration, dull and rough skin under the heading of *vali* as the *poorvaroopa* of *jaravyadhi*.

In the context of *Rasayana*, *acharyas* have advised to start the *twakrasayanas* by the age of 30 years, as this is the time when skin diminishes with its colour and complexion (*chavi*).

Drugs like *vayasthapana* (age defying activity), *varnya* (youthful radiance), *sandhaneeya* (protection from normal wear and tear), *twachya* (enhancing and nurturing), *twakagnivardhaka* (strengthening the skin metabolic mechanisms) can be included in the treatment to prevent skin ageing.

According to Ayurveda a number of factors determine skin health and youthfulness. These include proper moisture balance (*kapha balance*), various chemical and hormonal reactions of the skin (*pitta balance*) and efficient circulation of blood and nutrients to the different layers of the skin (*vata balance*).

The healthy skin needs *dhatuamyata* mainly *Rasa* (supports all the body tissues), *Rakta* (in association with liver function helps detoxification of skin) and *Mamsa* (it provides firmness to the skin).

In the field of cosmetics, cosmetic ingredients have progressed from that of cosmoceuticals to cosmoleculars. So it is the time for Ayurveda drugs which are used in the *lepa* to prove their bioavailability and skin penetrating capacity due to their larger particle size. Hence more research works are needed in this field.

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