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Cosmetics as Gara visha: A review

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Abstract

Cosmetics are those elements which are used to improve the appearance of the human body. The demand of cosmetic products have increased in recent times, resulting in massive production without following any standard guidelines. Cosmetic products are generally combinations of chemical compounds, some being derived from natural sources, many being synthetic. Many of cosmetic products like Sunscreens, Creams, Powders, shampoos, Lipsticks etc., contain dangerous ingredients such as Hydroquinone, Talcum, Parabens, Phthalates, Fragrance, Heavy metals like Lead, Arsenic etc. Due to long term use, it accumulates in the body and can cause irritation, increased susceptibility to infections, Kidney and Liver damage, Reproductive toxicity and Carcinogenicity. *Gara visha* is a wonderful concept explained by Ayurvedic Acharyas which throw light on the changing life style and possibility of exposure of toxins. Through our daily life activities we are unknowingly exposed to one or other type of toxin.

Keywords: Cosmetics, Gara Visha, Sunscreens, Carcinogenicity

Introduction

Ayurveda Literally means “the science of life” for the promotion of positive health and prevention and cure of disease it is in practice in India and its neighboring countries since time immemorial. Ayurveda is consisting of eight branches; one of them is Agada Tantra (Toxicology). Now a day several toxins are present in foods, vegetables, water and in atmosphere. Environmental Toxins enter into human body by two different routes i.e. external or internal. Long term use of chemical products produces various toxic hazardous effects to the human body. This type of toxicity is known as Cumulative toxicity. Cumulative toxicity is like Gara Visha concepts explained by Acharya Sushruta.

In present Era thousands of hurtful toxins are accumulated in environment are taken by the human being itself. Cosmetics are one of them. Nowadays the use of cosmetic products are increasing worldwide. Demand of cosmetic products ranging from skin lightening creams, deodorants, face powder, lotion, shampoo, etc. have increased in recent times, resulting in massive production without following any standard guidelines.

Cosmetic Products like, lotion, powder etc is a proven carcinogen linked to ovarian cancer. Imadazolidinyl is a chemical found in hair dyes is also carcinogenic. Synthetic colors and fragrance contain PHTHALATES which interferes immune system. Sodium lauryl sulfate is a compound commonly seen in face creams for the removal of dirt and oil from skin is proved carcinogenic. Dibutyl phthalate, seen in nail care products is an endocrine disrupter & reproductive toxicant. BHA (butylated hydroxyanisole) and BHT (butylated hydroxytoluene) in lipsticks, moisturisers etc causes liver, thyroid and kidney problems and affects blood coagulation in experimental animals ^[1].

Conceptual Review

The word cosmetics derives from a Greek word- ‘*Kosmeticos*’ which means art of dress and ornament. FDA defines cosmetics as the substances which are intended to be applied to the human body for cleansing, beautifying, promoting attractiveness or altering the appearance without affecting the body’s structure or functions.

Around 10000 BC Egyptian were started to use scented oils and creams. Around 840 BC Romans and Greeks started to use cosmetics.

They used lead ore and copper to improve the complexion and ochre clays and red iron as lipstick. Later the toxic lead combo was replaced by zinc oxide. While coming into the Indian cosmetic history, use of turmeric, kajal, henna preparations were more prevalent at that time. They used different kinds of oil for massaging and used butter/ ghee to protect the lip from cracking. To improve complexion and to fight against acne *Chandana* (Sandal wood), *Agaru* (Agar), *Nimba* (Neem), *Kumkuma* (Saffron) etc. were used [2].

As per the classics, *Gara Visha* is mainly an artificial poison which can be prepared from the combination of substances which are not poisonous in nature or weak poisons. It can be drugs, chemicals, incompatible foods, alcohols, body parts of insects etc. It causes physical, psychological and social issues. According to Cakrapani, "as it takes much time for digestion *Gara Visha* is always *Cirakarirogajanaka*" (which does not endanger life soon) [3].

But Vagbhata says that the symptoms may manifest immediately/ after some time/ after long time [4]. In case of cosmetic toxicity also, the signs and symptoms usually manifest in different time periods. Some cosmetic ingredients produce immediate effects like non-immunological allergic contact dermatitis, immunological dermatitis, contact urticarial syndrome etc. eg: Benzoic acid, Cinnamic acid, Cinnamal, Methyl nicotinate, SLS, Formaldehyde etc. On long term usage some produces toxic effects like endocrine disruption, reproductive toxicity and carcinogenicity. eg: Parabens, Fragrance, Triclosan, Phthalates, Talc etc.

***Gara Visha Adhishtanas* (source/ mode of poisoning)**

Susruta mentions about various *Gara Visha Adhishtanas*. Some of them have direct link with cosmetic toxicity like *Abyanga Visha*, *Anjana Visha*, *Parisheka Visha*, *Anulepana Visha*, *Mukhalepa Visha* etc. If collyrium is poisonous, it will produce *Daha* (burning sensation), *Vedana* (pain), *Drushti Vibhrama* (visual difficulties) and *Andhyam* (blindness). *Abyanga Visha* produces symptoms like *Sphota* (eruptions), *Ruja* (pain), *Srava* (exudation), *Twakpaka* (ulcer), *Jwara* (fever), *Mamsanam Daranam* (deep seated ulcers) etc. *Mukhalepa Visha* produces symptoms similar to that of *Abyanga Visha* with additional symptoms like *Syavamukha* (blackish discolouration of the face) and thorny eruptions like those found in the *Padminikantaka* (lotus flower) [5].

Chemical– skin interactions [6]

Skin care creams & lotions: In these group products like foundations, moisturizers, hand lotions & lotions are included. FOUNDATION: The main elements in most of the foundations are talc; silica & alumina all are respiratory irritants when inhaled as powders. Aluminium salt is the constituent of some of the foundation which is toxic to the nervous system. Tri-ethanolamine (TEA) is also one of the ingredient of foundation can also be contaminated with cancer causing nitrosamines. Parabens are often used as preservatives in foundations can interrupt the hormone system & have been found in breast cancer tumours.

Lotions

These are basically a mixture of water & oils, with an emulsifier added to keep the product from separating. A variety of other chemicals are added to the mixture as

moisturing agents, thickeners & preservatives. Mineral oils & petrolatum, both petroleum products are widely used as oils in lotions to keep the skin moist & smooth by locking moisture in both can be contaminated with potentially carcinogenic polycyclic aromatic hydrocarbons (PAHS). Propylene glycol & lanolin are used for the same purpose. Propylene glycol is a recognized neurotoxin & is known to cause contact dermatitis at very low concentration. Lanolin is an animal product that can be contaminated with pesticides. It may also cause allergies. TEA a skin irritant & immune system toxicant is also a common ingredient in lotions. Retinal palmitate which is supposed to reduce wrinkles is an ingredient in many facial creams & antiaging products. It can produce free radicals & damage skin DNA. It can increase the risk of skin cancer when skin is exposed to UV light. Fragrance is added to most lotions, moisturizers. It contains many toxic ingredients including asthma triggers & hormone disrupting phthalates.

Sunscreen

Is a cream or lotion used to protect the skin from sun rays. These sunscreen creams or lotions contains toxic principles like cinnamates, salicylates, zinc oxide which may cause skin rashes as an allergic reactions & irritation of eyes is seen if the product comes in contact with eyes.

Body Powder

Body dusting powder are used to absorb sweat odours & to soothe irritate skin. Conventional body powder often contain talc or amorphous silica both of which can cause lung irritation when inhaled. Studies have shown that women using talc in the genital area & on the sanitary napkins have an increased risk of ovarian cancer. Parabens which are endocrine disruptors are used as preservatives in body powders. Talcum powder is made from purified mineral called talc. Inhalation of this produces inflammatory lung disorders including lung cancer.

Lipsticks & Lip Gloss

A woman may ingest more than four pounds of lipstick in her life even more if she used each day. Lipsticks composed of oils, petroleum waxes & synthetic colours. The colours usually come from coal tar dyes, which can cause skin irritation & allergies & some may cause malignancy. Lead is often found as an impurity in the colours used in lipsticks. This lead is enormously toxic to the nervous system & cause developmental problems for children. Lead is also detected in lip gloss & lip conditioners. Traces of lead, arsenic, cadmium & other heavy metals are found in lip tints & glosses. Petrochemicals are also used in manufacturing of lipsticks. These are harmful to the human health. In addition to this lipsticks may contain formaldehyde which is a preservative & known as cancer- causing agent.

Cleansers & Body Washes

Profitmaking cleansers rely on alcohol & petroleum products to remove dirt & clean the skin. However, these ingredients also take away natural oils & cause drying. To counteract this producers may add mineral oil to make the skin feel soft. The chemicals that form foam are also added to cleansers to allow them to spread more easily. The foam creating chemicals include sodium laurel sulphate, ammonium laurel sulphate & myreth sulphate. These chemicals are known skin irritants &

may be contaminated 1, 4 dioxane a probable carcinogen. Common preservatives in cleansers comprise parabens which can disrupt hormone system along with methylisothiazoline & methylchloroisothiazoline which are immune system toxins. Many also have bouquet which generally includes phthalates which have been linked to reproductive complications.

Nail Polish

Nail products are among the most toxic cosmetics in the market nails can absorb the chemicals used in polishes, removers & cuticle creams. Nail polish contains three most harmful ingredients. They are toluene, formaldehyde & dibutyl phthalate. These are named as “toxic trio” by the US Environmental working group. Toluene may contain up to 50% of the volume of nail polishes which is known as neurotoxin & may put pregnant women at risk of having a baby with birth faults or late growth. Breathing large amounts of toluene for a short period of time can damage kidneys, liver & the heart. Dibutyl phthalate (DBP) is an oestrogen representing plasticizer that may disrupt thyroid function & accelerate sexual development in young girls. Animal studies have found that DBP may result in birth deformities like cleft palate & undescended testicles. DBP has been also linked to low sperm count in males. Conventional nail polishes may contain other chemicals such as ethyl acetate which infuriates the respiratory system, benzophenone 1 which is an endocrine disruptin chemical & triphenyl phosphate which is neurotoxic. Chronic poisoning of these toxins produce a syndrome called “Painter Syndrome”. It includes symptoms like walking & verbal problems, memorial loss, headache, tiredness, temper turbulences, sleep maladies.

Nail Polish Remover

Orthodox nail polish removers contain acetone. Long term dealings to acetone may harm the liver, kidneys & nervous system & may increase the danger of birth shortcomings.

Permanent Waves

Using permanent waves to whorl straight hairs is just as popular as straightening of curly hair. The active components in waves & in some straighteners is the toxic ammonium thioglyconate. It can cause eye & skin irritation & allergic reactions in some people.

Permant wave solutions can also result in first degree burn & even hair loss. They can cause hair to become injured & debilitated, making it more vulnerable to chemical & ultraviolet damage.

Hair Colours & Hair Sprays

Hair colours & hair sprays are often used for colouring hairs & also for setting a hair style. But these products contain many harmful toxic components. A study by Harvard school of Public Health suggested that women who use hair dyes five or more times a year have twice the risk of developing ovarian cancer. Darker more permant dyes pose a greater risk. Studies have shown that using permanent hair dyes regularly over a long period of time is associated with an increased risk of bladder cancer, non-Hodgkin's lymphoma & multiple myeloma. Use of permant hair dyes could be linked to 20 % of all cases of non- Hodgkin's lymphoma in women. Also women using hair dyes at least once a month doubled their risk of bladder cancer.

Deodorants & Antiperspirants

Deodorants & antiperspirants both fight body odour. Deodorants work by inhibiting the growth of bacteria that cause odour. Antiperspirants actually stop perspiration by blocking the sweat ducts. Most conventional antiperspirants contain aluminium compounds such as aluminium trichlorohydrate gly as active agent. These aluminium compounds are toxic to the nervous system. Also these compounds interfere with oestrogen & play role in rising incidence of breast cancer. Deodorant & antiperspirant contain antibacterial agent triclosan which I suspected of disrupting the endocrine system & has been shown to harm the thyroid system in animal studies. Talc is also an ingredient in some deodorants & antiperspirants. It is used in some aerosol products, it may cause lung irritation. Isobutene a gas which can be contaminated with carcinogenic butadiene is often used as a propellant in aerosol sprays. Aerosol sprays break chemicals in to minute particles can be more deeply inhaled than larger particles & this may increase their harmful effects.

Shampoo

Shampoos frequently contain harsh detergents, chemical fragrances & numerous irritating & carcinogenic compounds. Formaldehyde is a known human carcinogen which is used in many shampoo & conditioners to kill bacteria & reduce the risk of skin infections. Parabens endocrine disrupting chemicals which have been found in breast tumour tissue are also used as preservatives in many shampoos & hair products. In addition sodium lauryl sulphate & sodium laureate sulphate which are used to create foam in the shampoos are also ingredients of concern. Both are irritants which can be contaminated with ethylene dioxide which is known carcinogen.

Carcinogen coal tar may be added as a biocide to some anti-dandruff shampoos.

Hair Removal

For centuries women in some cultures have used depilatories, usually liquid or creams to remove unwanted hairs. Chemical depilatories can burn skin & eyes & cause severe allergic reactions & pustular outbreaks. Depilatories use high Ph thioglycolic acid is commonly used as the active ingredient, sometimes in combination with lye to boost the effectiveness of the product.

Scrubs

Scrubs contain exfoliating ingredients that remove dead skin. They are also used to unclog pores & moisturize the skin. Many conventional scrubs use micro beads which are actually fine granules of polyethylene plastic & are listed as “polyacrylamide” on the list of ingredients conventional scrubs also contain a variety of chemicals of concern including potential carcinogenic coal tar colours, harsh alcohols & detergents, the surfactant TEA that can be contaminated with cancer causing nitrosamines, the skin irritant sodium lauryl sulphate & the antibacterial triclosan. They are also likely to contain harmful preservatives like hormone disrupting parabens, methylisothiazolone & methylchloroisothiazolone both of which are immune system toxins.

Shaving Creams

Conventional shaving creams are usually based on water & a

combination of synthetic chemicals. These include chemicals that can be contaminated with traces of carcinogenic residues like TEA, which can be contaminated with nitrosamines & PEG-90 a binding agent that can be contaminated with ethylene dioxide a known carcinogen. Propylene glycol, which acts as a moisture carrying ingredient in many skin products is used in shaving creams. It is known skin irritant. Isobutene & Isopentane are the two most popular gases used as propellants in aerosol shaving creams. Out of these two isobutene is most widely used which can be contaminated with the carcinogen butadiene. Shaving creams are often preserved with hormone disrupting parabens or BHA which are classified as “reasonably anticipated to be a carcinogen” by the US National Toxicology programme. Potentially toxic fragrance & FD & C colours are common additives in shaving creams.

After Shave

After shaves are designed to soothe irritated skin. They are usually based just on water & denatured alcohol, but are heavily fragranced. Many individual ingredients in fragrances are irritant & some have been associated with neurotoxicity & cancer. Diethyl phthalate used to prolong the scent of products. It is suspected of interfering with endocrine system & causing reproductive problems.

Sun Protection

Sun protection are used to protect against sunburn & skin cancer. Sunscreens works in two different ways. Chemical sunscreens work by absorbing ultraviolet rays before they reach the skin's surface. Mineral blocks work by physically blocking the sun's rays from reaching the skin. The most common ingredients in chemical sunscreens are oxybenzone, cinnamates & retinyl palmitate. Out of these oxybenzone disrupts the body's hormones. It penetrate the skin & enter the bloodstream & increase sensitivity to the sun. cinnamates which are often used in waterproof sunscreens also concern. They also disrupts the body's hormones, cause allergies & may be toxic to the immune system. Retinyl palmitate a synthetic form of vitamin A is another popular sunscreen ingredient. According to a US Food & Drug Administration study, retinyl palmitate is suspected of increasing skin cancer risk when skin is exposed to sunlight.

Conclusion

As per Ayurveda *Garavisha* can be correlate with cumulative toxicity.

Garavisha is not acute condition its effect seen gradually on the body if it is accumulated in the body frequently. It definitely produce the toxic effect in the body. *Garavisha* shows various types of toxic symptoms & disorders on different systems of the body which mainly includes skin, G.I tract, nervous system & many more. Cosmetics can be embraced under the cumulative type of toxicity. Long term use of cosmetics gives rise to hazardous toxic effect & multiple system disorders. The widespread use of cosmetic products is increasingly recognized as a public health, environmental justice, and social justice issue. There is a great demand of application of Ayurveda principles in this field. Awareness of the toxic ingredients and utilizing the natural products will help to reduce the incidence of cosmetic toxicity.

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