

ULTRAVIOLET RAY HAZARDS AND AYURVEDA

Amol B. Sabale¹, Vidya C. Undale²

¹Assistant Professor, ²Associate Professor,
Department of Agadtantra, SSAM, Hadapsar, Pune, Maharashtra, India

Email: amolsabale09@gmail.com

ABSTRACT

Ultraviolet (UV) radiation is a major problem of human population. Today is era of modernization with increasing industries, vehicles etc. Ultimately increase all types of pollutions, so the situation is becoming worst day by day. It has to be taken seriously, because it has a negative effect on human health and environment. 'Ayurveda' is a science of life; It offers a body of wisdom designed to help people to stay healthy realizing their full human potential, providing guidelines for ideal routines (daily and seasonal) diet, behavior and proper use of senses. 'Ayurveda' reminds that 'Health' is a balanced and dynamic integration between environment, body, mind and spirit. Today world is looking towards 'Ayurveda' for its holistic approach. This article is a preliminary approach to validate whether we can find solution for emerging environmental problems like Ultraviolet radiation hazards through our ancient knowledge provided by our great ancestors.

Keywords: Environment, Pollution, Ayurvedic view, Ayurvedic treatment

INTRODUCTION

One of the greatest problems that the world is facing today is Ultraviolet (UV) radiation, increasing with every passing year and causing grave and non-repairable damage to the earth. The main source of UV radiation (rays) is the sun, although it can come from man-made sources such as tanning beds and welding torches. Radiation exists across a spectrum from very high-energy (high-frequency) radiation like x-rays and gamma rays to very low-

energy (low-frequency) radiation like radio waves. UV rays have more energy than visible light, but not as much as x-rays. Higher energy UV rays often have enough energy to remove an electron from (ionize) an atom or molecule, making them a form of ionizing radiation. Ionizing radiation can damage DNA in the cells in our body, which in turn may lead to cancer. But because UV rays don't have enough energy to penetrate deeply into the body, their

main effect is seen on skin. With the help of *Ayurveda* we can find many remedies regarding hazardous effects of U.V. rays.

TYPES OF ULTRAVIOLET RAYS³:

Scientists often divided UV radiation into 3 types;

1. UV-A rays
2. UV- B rays
3. UV-C rays

WAVELENGTH¹:

UV-A rays have a wavelength of 315 – 400 nm (nanometers)

UV-B rays have a wavelength of 280 - 315 nm, and

UV-C rays have a wavelength of 100 - 280 nm

HELIO THERAPY(Light therapy/ photo-therapy):

It consist of exposure to daylight or specific wavelengths of light using polychromatic polarized light, lasers, light-emitting diodes, fluorescent lamps, dichroic lamps or very bright, full-spectrum light. The light is administered for a prescribed amount of time and, in some cases, at a specific time of day.

Some disorders like skin disorders, chiefly Psoriasis, Acne vulgaris, Eczema, Diabetic Retinopathy circadian rhythm delayed sleep phase disorder and Neonatal Jaundice can be treated by this therapy but hazardous effects may be seen due to sunlamps and tanning booths; They can cause skin damage and increase the risk of skin cancer.

CAUSES OF INCREASING HARMFUL EFFECTS OF UV RADIATION²:

Ozone depletion:

Ozone is responsible for filtering harmful UV rays and prevents UV radiation reaching the earth's surface. Ozone depletion increased nowadays.

Air pollution:

Most of the harmful gases like chlorofluorocarbon and other can affect environment ultimately it can harm ozone layer and can be the cause for increasing deleterious effects of UV rays.

FACTORS INFLUENCING ULTRA VIOLET RAY TOXICITY³:

The strength of the UV rays-

The strength of the UV rays reaching the ground depends on a number of factors, such as:

- **Time of day:** UV rays are strongest between 10 am and 4 pm.
- **Season of the year:** UV rays are stronger during spring and summer months. This is less of a factor near the equator.
- **Distance from the equator (latitude):** UV exposure goes down as you get farther from the equator.
- **Altitude:** More UV rays reach the ground at higher elevations.
- **Clouds:** The effect of clouds can vary, sometimes cloud cover blocks some UV from the sun and lowers UV exposure, while some types of clouds can reflect UV and can increase UV exposure. What's im-

portant to know is that UV rays can get through, even on a cloudy day.

- **Reflection off surfaces:** UV rays can bounce off surfaces like water, sand, snow, pavement, or grass, leading to an increase in UV exposure.
- **Contents of the air:** Ozone in the upper atmosphere, for example, filters out some UV radiation.

SITE OF TOXICITY³:

Site of toxicity includes the Integumentary System, the Epidermis, the Epidermal Cells, Keratinocytes, Merkelcells, Melanocytes, Langerhanscells.

BIOLOGICAL EFFECTS OF ULTRAVIOLET RAYS²⁻³:

Animal Studies:

Effects may be skin cancer, low immune response, effects on the eye Etc.

Health Effects on Humans:

Skin

The degree of damage that UV produces in skin will depend on the incident intensity and skin. Acute effects on the skin consist of solar erythema, "Sunburn", which may result in blistering, and destruction of the surface of skin with secondary infection and systemic effects, similar to those resulting from a first or second degree Heat burn. Chronic skin changes consist of Skin Cancer (both Melanoma and Non-melanocytic), benign abnormalities of melanocytes and a range of other chronic injuries resulting from UV exposure to keratinocytes, blood vessels and fibrous tissue,

often described as "Photoageing" (solar elastosis).

Immune system

A number of studies suggest that UV exposures at environmental levels suppress immune responses in both rodents and man.

Eyes

The acute effects of UV on the eyes consist of the development of Photokeratitis and Photoconjunctivitis. Chronic effects on the eye consist of the development of Pterygium and Squamous cell cancer of the conjunctiva and Cataract.

Environment

Adverse effects of increased exposure to UVB have been reported on plant growth, photosynthesis and disease resistance. Further, the impact of increased UV levels on aquatic ecosystems³.

STRATEGIES FOR PREVENTING OR CONTROLLING UV RADIATION EXPOSURE³:

Precautions

- **Avoid:** Stay away from the sun in the middle of the day. Be careful when you are on sand, snow, or water, because these surfaces can reflect 85% of the sun's rays. Avoid artificial sources of UVA radiation, including sunlamps and tanning booths: They also can cause skin damage and increase the risk of skin cancer.
- **Block:** Use a sunscreen lotion with SPF 15 or higher to protect sensitive skin.

- **Coverup:** Wear clothing that covers the skin, with hats on heads and sunglasses with UV protection over eyes.
- **Speak out:** Teach others to protect their skin from sun damage.

AYURVEDIC POINT OF VIEW:

According to *Ayurveda*, long exposure to the sun whenever you are angry, hungry or emotionally upset, as these factors increase *Pitta-Dosha* the fire element in the body and make the skin even more sensitive to sun damage. That means External heat (sun) promotes increase of internal heat (*PittaDosha*) [Su.Su. 21/9]. Exposure of UV rays occurs on body and then deleterious effects of *VikrutaPitta* (Abnormal *Pitta*) can be seen on different body parts. Direct exposure of ultra violet rays occur on skin ultimately harmful effects one can see on *BhrajakaPitta* which is present in skin in the form of *Sheetpitta*, *Udarda*, *Kotha*, *Kandu*, *Shotha*, *Shula* and *Daha*. Harmful effects can be seen on other types of *Pitta* like *AalochakaPitta* which is situated in eyes direct exposure can affect *AalochakaPitta* can cause damage to eyesight and cause *Abhishyanda*, *Arma*, *Kacha*, *Linganasha* and *Arbuda*. If general exposure occur then other *Pittas* like *RanjakaPitta* which is situated in liver and spleen, *PachakaPitta* which situates in stomach and *SadhakaPitta* which is situated in heart; then *Doshas* will become imbalanced and they also become *Vikruta* that means they start to show deleterious effects on body like Immune suppression, Impure blood, Low appetite etc.

Arbuda (Cancer) is namely the final stage of a chronic imbalance of *Doshas* and *Dhatu*s (tis-

sues). *Doshas* can be influenced by our intake of foods (*Pittavardhakaahaara-Katu*, *Tikta*, *Lavanaaahaar*), Drinks (*Madya* [Alcohol beverages] and other *Katu*, *Tikta*, *LavanaGunatmakadrinks*). The above said *Vikrutagunas* of *Pitta* increase in the body will imbalance body constitution; their natural relationship will begin to show disturbances.

AYURVEDA TREATMENT:

According to *Ayurveda* we can consider *Pittadushti* (*Bhrajak*, *Aalochka*, *PachakaPittadushti*); so we have to focus on *Pittavridhi* accordingly treatment should be given. When one receives a *Panchakarma* treatment to prevent or restore the imbalance of *doshas* and *dhatu*s; a number of conditions can be relieved at an early stage. The following suggestions can be used to maintain a healthy body and mind and to prevent the development of Ultra violet harmful effects in the best possible way. Lifestyle changes and diet modification will certainly help to decrease the harmful effects.

ACCORDING TO SAMHITA PERSPECT:

The treatment of harmful effects of Ultraviolet rays explained by our ancient ancestors in their ancient holy books; that means in *samhitas* in the form of *Pittavridhi* on skin, in eye and in general. *Aacharyas* states that *Pittavridhi* can be control by use of *madhura*, *tikta* and *kashayadravya* and *sheetal* (cold) *upchara* (treatment), *Snehaprayoga*, *Abhyanga* and *Avagahana*, according to them *Virechana* and *Raktamokshana* are the best methods to treat *Pittavrudhi* which ultimately treats deleterious effects of Ultraviolet rays.

There are a several Ayurvedic remedies and drugs to support the body in this process explained by ancient ancestors in their *Samhitas* in the form of *Mahakashaya*, *Gana* and *kalpa*; these selected *Mahakashaya*, *Gana* and *kalpa* reduces harmful effects of *Pittavruddhi* and ultimately reduces harmful effects of ultraviolet rays.

Specific treatment according to following *Aacharyas*;

AACHARYA SUSHRUTA (SUSHRUTA-SAMHITA)⁴⁻⁸:

In *Sutrasthana*'s 12th chapter *Agnikarmaadhyaya* *Aacharya* explained about *Aatapsevana* (exposure to the sun) *janitvikar* and its treatment, as he mentioned that it should be treated with *sheetal* and *Pittagnachikitsa* [S.Su. 12/38-39]

In *Sutrasthana*'s 39th *Sanshodhansanshamaniyaadhyaya* *Aacharya* *Sushruta* states that following drugs are having *Pittasanshamaka* property;

- 1) *Pittasanshamakdravyas* [Su.Su. 39/9] and
- 2) *Adhobhaghadravya* (*Virechaka-dravyas*) [Su.Su. 39/8]

As explained in *Sutrasthana*'s 38th chapter- *Dravyasangrahaniyaadhyayagana* like

- 1) *Kakolyadigana* [Su.Su. 38/35],
- 2) *Sariwadigana* [Su.Su. 38/39],
- 3) *Anjanadigana* [Su.Su. 38/41],
- 4) *Utpaladigana* [Su.Su. 38/52]
- 5) *Parushakadigana* [Su.Su. 38/41],
- 6) *Nyagrohdhadigana* [Su.Su. 38/48], and
- 7) *Trunapanchamula* [Su.Su. 38/75], these above mentioned drugs are effective against

deleterious effects of *vikutaPitta*, Other than this effective to cure skin tone, urticarial and other rashes.

For polluted air which is the one of the cause of harmful effects of Ultraviolet rays; *aacharya Sushruta* suggested some *Dhuma* (medicinal smokes) in *Kalpasthanas* like *Lakh*, *Rajani*, *Tamalpatra*, *Tagara*, *Kutha* and *Priyangu*; these remedies can detoxify the poisoned environment. [Su.Ka. 3/16-17]

In *Chikitsasthana*'s 17th *Visarpanadistanarogachikitsaadhyaya* *Aacharya* mentioned following remedies regarding *Visarpa*;

- *KaserukadiLepa* added with ghee and spread on a pad of cloth should be applied cold on lesion. [Su.Chi. 17/06]
- *HriberadiLepa* macerated with milk, added with ghee and applied cold and thin on the lesion [Su.Chi. 17/07]
- *PrapundarikadiLepa* should be applied for giving comfort. [Su.Chi. 17/08]

In *Chikitsasthana*'s 18th chapter *Granthiapa-chiarbudagalagandachikitsa* *Aacharya* mentioned following remedies regarding *Arbuda*;

- In *Arbuda* produced by *Pitta*, Sudation, applying warm poultice and purgation to the body should be administered; the tumor should be rubbed with leaves (rough) of *Udumbara*, *Shakan* and *Gojivha* and then fine paste of *Sarjarasa* and other stated drugs mixed with honey should be applied. [Su.Chi. 18/32-33]

- Medicated *Goghruta* prepared with juice (Decoction) of *Shyama* and other mentioned drugs [Su.Chi. 18/34]

In *Chikitsasthana's* 23rd chapter ***Shophanam-chikitsa*** *Aacharya* mentioned following remedy regarding *Shotha*;

- Ghruta* prepared with decoction of drugs of *Nyagrodhadigana* should be administered. [Su.Chi. 23/11]

In *Uttartantra's* 8th chapter ***Chikitsitpravibhagvidnyaniya*** *Aacharya* mentioned following treatment regarding *Arma* the diseases of eye;

- According to *AacharyaArma* (Pterigium) are *Chedya* (to be excised/ cut and removed) [Su.U. 08/06]

In *Uttartantra's* 10th chapter ***Pittabhishyandapratishedha*** *Aacharya* mentioned following remedies regarding *PittajaAbhishyanda*;

- *Siravyadhaa* and purgative therapy to the body, *Parisheka*, *LepaandAnjana* to eyes and *Nasya* and treatments advocated for *Vissarpa* of *Pitta* origin are the methods of treatment to be adopted. [Su.U. 10/03]
- *Musta* and other mentioned drugs may be used for *Rasakriya*. [Su.U. 10/07]
- *Talisa*, *Ela*, *Gairika*, *Ushira* and *Shankha* macerated in breast milk may be used as collyrium (*Anjana*). [Su.U. 10/07]

In *Uttartantra's* 12th chapter ***Raktabhishyandapratishedha*** *Aacharya* mentioned following remedies regarding *RaktajaAbhishyanda*;

- In this type Oleation uses either *kumbhisarpi* or meat soup in more quantity; after

that *Siravyadha* should be done. [Su.U. 12/03-04]

- *Aschyotana* done with rain water in which powder of *Kasheru* and *Madhuka* kept in cloth bag has been soaked is beneficial. [Su.U. 12/10]
- If there is pain, mild fomentation around the eyes is beneficial, so also applying leeches; drinking *ghrita* in maximum dose; treatments indicated in *PittajaAbhishyanda* are also indicated. [Su.U. 12/08-09]

In *Uttartantra's* 15th chapter ***Chedyarogapratishedha*** *Aacharya* mentioned following remedies regarding *Arma*;

- *Chedana* (excision) of *Arma* Should be done as mentioned [Su.U 15/3-10]
- After excision of *Arma* the eye should be smeared with powder of *Yavanala*, *Trikatuand Saindhava*; next it is given fomentation and application of bandage. [Su.U 15/11-13]

In *Uttartantra's* 17th chapter ***Drishtigatarogapratishedha*** *Aacharya* mentioned following remedies regarding *Kacha*;

- *Sushrutacharya* mentioned that *Nilika* and *Kacha* are synonyms of *Linganasha*. (Su.U. 7/16-18)
- In *Kacha* produced by *Vata*, oil of *Eranda* added to boiled milk is ideal producing purgations; in *Raktaja* and *PittajaTriphalaghrita* is especially suitable for purgation. In that produced by *kapha*, *Trivrit* is ideal and in produced by *tridoshas* together, oil boiled with *Trivrita* is said to be ideal for producing purgation. [Su.U. 17/29]

- In *PittajaKacha*, ghee prepared from milk boiled with drugs of sweet taste (*Kakolya-digana*) is best for use as nasal drops; the same drugs along with meat of animals of arid regions is cooked by *Putapaka* method and juice obtained is useful for *Tarpana* (bathing the eye). [Su.U. 17/39]
- Juice of *Palasha*, *Rohitaka* and *Madhooka* added with honey and scum of *madira* (beer) made as collyrium is beneficial. [Su.U. 17/40]
- *Shastrachikitsavidhi*-
Shastrachikitsavidhi should be done as mentioned. When patient is able to see the objects, instrument should be removed out slowly. Bandaging should be done. [Su.U. 17/57-68]

AACHARYA CHARAKA (CHARAKA SAMHITA)⁹:

In 4th chapter of *Sutrasthana Kshadvirechan-shatashritiyaadhyaya* Aacharya states *Mahakashayalike*

1. *ShothharMahakashaya*[Ch.Su. 4/38],
2. *DahaprashamanMahakashaya*[Ch.Su. 4/41],
3. *UdardaprashamanMahakashaya*[Ch.Su. 4/43],
4. *VedanasthapanaMahakashaya*[Ch.Su. 4/47],
5. *KandughnaMahakashaya*[Ch.Su. 4/14] these are effective against atrocious effects of *vikruta pitta*

In *Sutrasthana's Aaragvadhyaadhyaya* he explains several *Dahashamak Lepas* by using one can cure swelling and burning of skin, urticarial rashes, itching etc.

In *Sutrasthana's* 12th chapter *Vaatkalakaliyaaadhyaya* Aacharya explains about *prakut* and *vikutpitta* and its treatment.

In his *Chikitsasthana's* 21th *Visarpachikitsaadhyaya* he mentioned following remedies regarding *Visarpa*;

1. *Mustadikashaya*[Ch.Chi.21/54]
2. *SariwadiKashaya*[Ch.Chi.21/54]
3. *ChandanadiKashaya*[Ch.Chi.21/54]
4. *Kaliyadipralepa*[Ch.Chi. 21/74]
5. *Udumbaradipradeha*[Ch.Chi. 21/72]
6. *Baladiaalepa*[Cha.Chi. 21/79]

In *Chikitsasthana's* 23rd *Vishachikitsaadhyaya* he mentioned *Panchashirishagada* used internally and externally (*Lepa*) for all types of *visha*. [Cha.Chi.23/218]

AACHARYA VAGHBHATA (ASHTANG-SAMGRAHA)¹⁰⁻¹²:

In 15th chapter *Mahakashaysangraha* of *Sutrasthanaaacharya Vagbhata* mentioned that following *Mahakashaya* are effective against harmful effects of *vikutaPitta* are;

- 1) *ShothaharaMahakashaya*[A.Su. 15/41],
- 2) *DahaharaMahakashaya*[A.Su. 15/37],
- 3) *UdardashamanMahakashaya*[A.Su. 15/39]and
- 4) *VedanasthapakaMahakashaya*[A.Su. 15/43].

In 16th chapter *Vividhravyagansangrahaadhyaya* of *Sutrasthana Aacharya* mentioned about *gana*;

- 1) *Vidaryadigana*[A.Su. 16/10],
- 2) *Sariwadigana*[A.Su. 16/11],
- 3) *Padmakadigana*[A.Su. 16/12],

- 4) *Parushakadigana* [A.Su. 16/13],
- 5) *Anjanadigana* [A.Su. 16/14],
- 6) *Guduchyaadigana* [A.Su. 16/16],
- 7) *Nyagrodhadigana* [A.Su. 16/41-42] and
- 8) *Eladigana* [A.Su. 16/43-44]

These are effective against harmful effects of *vikrut pitta* like burning sensation, anorexia, thirst, itching sensation, petichae, rashes.

In *Chikitsasthana's* 19th chapter **Shvayathuchikitsam** Acharya Vagbhata mentioned following remedies;

- Ghee medicated with the drugs of *Nyagrodhadigana* [A.S.Chi. 19/13]
- Consumption of *Tiktakaghrita*. [A.S.Chi. 19/13]
- *AbhayadiKwatha* relieves *Shotha*, *Visarpa*, *Daha*, *Trushna* and *Vishajanitavikara*. [A.S.Chi. 19/13]
- Oil for *Snehana* etc. should be prepared with substances of cold potency such as *Ghrita*, *Kshirivriksha* (trees yielding milky sap) *Vetasa*, *Manjishtha*, *Mrunala*, *Chandana* etc. [A.S.Chi. 19/13]
- *Ashtashatarishta* cures *Shotha*, *Kushtha* (and other skin diseases), Emaciation, *Kikkasa* (stretching of skin), Abdominal enlargement, Duodenal diseases etc [A.S.Chi. 19/15]
- The body should be given warm coating with paste of old *Pinyaka* (oil cake), bark of *Krishna Shigru*, *Atasi* and *Sikata* macerated with cow urine. [A.S.Chi. 19/15]
- In case of swelling is in any one part, application of *kaladiLepa* should be done [A.S.Chi. 19/15]

- *Shunthi* and other mentioned drugs and cow urine should be used for preparing the water for bath. [A.S.Chi. 19/15]
- Powder of *Chandana* and *Aguru* used for *Vilepana* (anointing). [A.S.Chi. 19/15]

In *Chikitsasthana's* 20th chapter **Visarpachikitsitam** Acharya mentioned some remedies which may be helpful for the harmful effects of U.V. rays.

- Cold *Tiktakaghrita*, *Trayamanaghrita* should be given to drink. [A.S.Chi. 20/03]
- *Kamala* and other mentioned drugs and drugs of *Nyagrodhadigana* should be made use of (for external application and fomentation). [A.S.Chi. 20/05]

In *Uttarsthana's* 14th chapter **Sandhisitarogapratishedha** Acharya mentioned remedies regarding *Arma*;

- *Shastrachikitsavidhi* should be done as explained and bandaging should be done afterwards. On second day, warm decoction of *Madhuka* added with ghee should be sprinkled both in the morning and evening over the head and the eye with bandage remain intact. [A.U. 14/14-17]
- On the third day, bandage should be removed and eye given fomentation with milk boiled with seeds of *Karanja*. [A.U. 14/18]

In *Uttarsthana's* 17th chapter **Linganashapratishedha** Acharya mentioned remedies regarding *Linganasha*;

- *Shastrachikitsavidhi* should be done as explained and bandaging should be done afterwards. [A.U. 17/7-8-9-10]

- After removal of bandaging after seventh or tenth day; patient should be given liquid food mixed with *vyosha*, *amalaka*, little fat and salt; or *vatya* (thin gruel) added with warm water or *vilepi* (thick gruel). By adhering to these, there will be no recurrence of pain, redness etc. [A.U. 17/12]

In *Uttarsthana's* 19th chapter **Abhishyanda-pratishedha** *Aacharya* mentioned remedies regarding *Abhishyanda*;

- *Tikshnashirovirechana*, *Tikshnakavalagraha*, *Dhoomapana*, *Upvasa*, *LepaBidalaka*, *Avagunthana/ Avachurnana*, *Sechana*, *Aschyotana* therapies are useful. (except in *Vatajarogas* should not do) [A.U. 19/02]
- In all *AbhishyandaLepa* or *bidalaka* of *C-handana* and other mentioned drugs; due to this *Daha*, *lalima*, *Ashrustrava* and *Shotha* will be reduced.) [A.U. 19/03]
- Fruit of *Shigru*, *Manovha* and *Shabarlodhra* each increased four times in succeeding order (1:4:16) are powdered; nicely tied in a bundle of fine threads (cotton cloth) and sprinkled into the eyes. [A.U. 19/03]
- *Putapaka* (bathing the eye) should be done with the juice obtained from cooked liver of goat, camel, boar, or any other animals, added with powder of *Pippali*, *Saindhava* and honey and ghee. [A.U. 19/21]
- If there is no improvement, *Siravyadha* should be done; making the patient oleated again he should be given purgative therapy using the decoction of *Triphala* and *Kashmarya* added with sugar and powder of *Trivritta*. [A.U. 19/33]

- Scum of ghee cooked with *Sharkara*, *Madhuka*, *Nilotpala*, and breast milk should be used as nasal drops. [A.U. 19/58]

U.V. RAYS TOXICITY AND PANCHAKARMA:

In *PanchakarmaRaktamokshana*, *Virechana*, *Vamana* sometime *Basti-upakrama* can be done hazardous effects of U.V. rays. *Virechana* is best treatment for Skin disorders like *Kandu*, *Visphota*, *Kushtha*, *Garvishajanittwakvyadhi*, *Udarda*, *Kotha*etc. In *Basti* we can give *RajyapanBasti*, *PichaBasti*, *AnuvasanBasti* for *Bruhan* purpose. In UV rays toxicity one can found signs & symptoms like *Shir-kapalshool*, *Shirojadya*, *Ardhavbhedak*, *Bhrama*, *Timir* for that *Nasya* will be the suitable treatment. For *RaktamokshanaAlabu*, *Shringa*, *Jalauka* and *Siravyadha* can be used, according to extent of disease. *Ghrita* is best treatment for *Vata* and *Pitta* generated diseases [Cha.Su.13/14]. *Snehana* can be done by *ghrita* medicated with *Pittashamaka* medicines after that mild *Swedana*, *ghrita* can be used in the form of *Abhyanga*, *Lepana*, *Udvar-tana*, *Mardana*, *Parisheka*, *Samvahana*, *Gandusha*, *Kavala*, *Netratarpana*, *Nasatarpana*, *Karnapurana*, *Mastiskasnehan* and *Avgaha* etc. [Cha.Su. 13/99]

Some remedies mentioned in *Samhitas* are as follows-

For *Daha* –

- *Snehana* by *Shatadhauta* or *Sahastradhautaghrita*[Cha. Ka. 8/8]

- *Virechana* by *Aaragvadha* and *Draksha rasa* or *Manuka Kwatha* and other *Virechaka dravyas* [Cha. Ka. 8/8]
- In *Raktamokshana Siravyadha* are recommended

Shitapitta, Udarda and Kotha-

- *Snehana* with *Mahatiktakaghrita* [B.P.M.K.55/14] and *Nimbataila* [B.P.M.K. 55/12]
- *Swedana* [B.P.M.K.55/14]
- *Abhyanga* with *Mustard oil* [Y.R. 62-63-64]
- *Vamana* with *Madanphal yoga* and *Madhu, Patol* and *Nimbadaala*. [B.P.M.K. 55/14]
- *Virechana* with *Triphala, Pippali* and *Guggulu* [Y.R. 62-63-64] and other *Virechaka dravyas*.
- *Raktamokshana* with *Siravyadha*. [Y.R. 62-63-64]
- *Vamana* taken with *Kwatha of Patol, Nimba* and *Adulasa & Virachana* taken with *Triphala, Guggulu* and *Pippali*

Visarpa-

- *Vamana* with *Madanphaladi dravya*. [Cha.Chi. 21/51]
- *Vamana* with *Patolpatradidravya*. [Cha.Chi. 21/52]
- *Madana* and other mentioned drugs should be used for producing *Vamana*. [A.S.Chi. 20/03]
- *Drakshadidravya* can be used for *Virechana*. [A.S.Chi. 20/03]

Visphota- *Vamana* with *Patolpatra, Nimbavalkala, Vacha, Madanphala, Indrayava* [V.S.29/12-13]

Shotha-

- *Virechana* with *Tivaka Ghrita*. [Su.Chi. 23/12] & [Su.Chi. 04/27]
- In case of *Shotha* is confined to any one part, *Vamana*, other therapies and *Raktamokshana* should be done. (To eliminate the *doshas* from the nearest route) [A.S.Chi. 19/16]

DISCUSSION

Urbanization and industrialization can be considered as two main causes for pollution. Environment is deteriorating day by day due to industrial pollution, toxic chemicals, automobile emission and natural resource depletion. As industries increases and ultimately all types of pollutions increases. Pollution takes major role in ozone destruction, as result of ozone destruction Ultraviolet rays comes directly to earth which leads to deleterious effects on human health and environment. UV rays have more energy than visible light and ionizing property. Ionizing radiation can damage DNA in the cells in our body, which in turn it may lead to skin disorders and Cancers. The main source of U.V. radiation is Sun but it can also come from man-made sources like tanning beds, treatment tools U.V. rays in and from welding torches.

'Ayurveda' is a science of life; hence *Ayurveda* has answers of all the questions. In *Sushruta-samhita* and in another *Samhitas* there are reference of *Aatapsevanajanyavyadhi* and its treatment. *Ayurveda's* principle is "Swasthasyaswasthrakshanam"; that means *Ayurveda* believes that 'Health' is a balanced and dynamic integration between environment, body, mind and spirit. Through our ancient know-

ledge provided by our great ancestors we can find solution for emerging environmental problems.

We found that use of chemical based treatment (Ointments and other remedies) having great adverse effects than positive effects so, we can go through *Ayurveda* treatment.

CONCLUSION

U.V. rays can cause non-repairable damage to environment of earth and human health; hence it is our duty to find out the solution through our ancient knowledge. In *Ayurveda* we have so many remedies and measures given by our great ancestors to detoxify our body. Those remedies if checked for their efficacy for existing conditions and on today's parameters can be proved very helpful in eradication of harmful effects of U.V. rays. *Ayurveda* provides various remedies (various *Lepa*, *Kwatha* etc.) and *Panchakarma* treatment like *Snehana*, *Swedana*, *Vamana*, *Virechana* and *Raktamokshana* through which we can cure harmful effects of U.V Rays like *Sheetpitta*, *Udarda*, *Kotha*, *Kandu*, *Shotha*, *Shoola*, *Daha*, *Abhishyanda*, *Arma*, *Kacha*, *Adhimantha* and *Arbuda*.

REFERENCES

1. World Health Organization (WHO). The known health effects of UV. Accessed at www.who.int/UV/faq/UVhealthfac/en/ on May 29, 2015.
2. Health and Environmental Effects of Ultraviolet Radiation A Scientific Summary of Environmental Health Criteria 160 Ultraviolet Radiation ((WHO/EHG/95.16)
3. Exposure to environmental hazards. 2003. <http://www.enhs.umn.edu>
4. Sushruta Samhita with Aurved TatvaSandeepika edited by Kaviraj Ambika data shastri, vol-I Chaukhamba Sanskrit Sansthan Varanasi, reprint 2009.
5. Sushruta Samhita with Aurved Tatva Sandeepika edited by Kaviraj Ambika data shastri, vol-II Chaukhamba Sanskrit Sansthan Varanasi, reprint 2009.
6. Sushrutasamhita of Sushruta with the Nibandhasangraha commentary of Sri Dalhanacharya, edited by Vaidya Jadvji Trikamaji Acharya and Narayan Ram Acharya 'Kavyatirtha', Chaukhambha-Sanskrit Sansthan, reprint 2009.
7. Illustrated Susruta Samhita, with English translation, vol-II, edited by Prof. K. R. Srikantha Murthy, Chaukhambaorientaliya, Varanasi, reprint 2010.
8. Illustrated Susruta Samhita, with English translation, vol-III (Uttartantra), edited by Prof. K. R. Srikantha Murthy, Chaukhambaorientaliya, Varanasi, reprint 2010.
9. CharakSamhita with Charaka-chandrika, edited by Dr. Brahmanand Tripathi, Chaukhamba Surbharatiprakashan, Varanasi, reprint 2009.
10. Shrimadvruddhavagbhatvirachit Astasangraha with Induvirachit Shashilekha-Vyakhya, edited by Dr. Shivprasad Sharma, Chaukhamba Sanskrit series office Varanasi, reprint 2009.
11. Astanga Samgraha of Vagbhata with English translation, Vol-II, Translated by Prof. K.R. Srikantha Murthy, reprint 2001.
12. AstangaSamgraha of Vagbhata with English translation, Vol-III (Uttarsthana),

Translated by Prof. K.R. Srikantha Murthy, reprint 2000.

13. Vangasena Samhita with 'Hari' hindi-vyakhya, edited by Pandit Hariharprasad-Tripathi, Chaukhamba Sanskrit series, reprint 2009.
 14. Harita Samhita with Sanskrit moola and 'Nirmala'hinditeeka edited by VaidyaJaymini Pandey, Chaukhamba Vishwabharatiprakashan, Varanasi, reprint 2010.
 15. Bhavprakasa Nighantu of Prof. K.C. Churnekar, edited by Dr.G.S.Pandey, Chaukhambabharti academy, Varanasi, 2010.
 16. Yog Ratnakara, edited by Vd. Laxmipati-Shastri, Chaukhamba Sanskrit Sansthan, Varanasi, 7th ed. 1999.
 17. Netrarogavidnyana, edited by Dr. Narayan Vidvans, Anand prakashan, reprint 2010.
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