ULTRAVIOLET RAY HAZARDS AND AYURVEDA

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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 a stunning 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 RAYS:
Scientists often divided UV radiation into 3 types;
1. UV-A rays
2. UV- B rays
3. UV-C rays

WAVELENGTH:
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/ phototherapy):
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 RADIATION:

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 ULTRAVIOLET RAY TOXICITY:
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-
important 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 TOXICITY**

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

**BIOLOGICAL EFFECTS OF ULTRAVIOLET RAYS**

**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 ecosystems.

**STRATEGIES FOR PREVENTING OR CONTROLLING UV RADIATION EXPOSURE**

**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 BhrajakPitta which is present in skin in the form of Sheetpitta, Udarada, 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 (tissues). Doshas can be influenced by our intake of foods (Pittavardhakaahaara-Katu, Tikta, Lavanaaahaar), Drinks (Madya[Alcohol beverages] andother Katu, Tikta, LavanaGunatmakadrinks). The above said Vikrutagunas of Pitta increase in the bodywill 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 Pittavriddhi accordingly treatment should be given. When one receives a Panchakarma treatment to prevent or restore the imbalance of doshas and dhatus; 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 Pittavriddhi on skin, in eye and in general. Aacharyas states that Pittavriddhican be control by use of madhura, tikta and kashhayadravya 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 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 (SUSRUTA-SAMHITA)**:48:

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 Pittaghnachikitsa [S.Su. 12/38-39]

In Sutrasthana’s 39th Sanshdohanshamaniyaadhyaya Acharya Sushruta states that following drugs are having Pittasanshamaka property;
1) Pittasanshamakdravyas [Su.Su. 39/9] and 2) Adhobhaghardravya (Virechaka-dravyas) [Su.Su. 39/8]

As explained in Sutrasthana’s 38th chapter-Dravyasangrahaniyaadhyayaganalike
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) Nyagrodhadigana [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 Kalpasthana like Lakh, Rajani, Tamalpatra, Tagara, Kutha and Priyangu; these remedies can detoxify the poisoned environment. [Su.Ka. 3/16-17]

In Chikitsasthana’s 17th Visarpanadistananarogachikitsaadhyaya 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]
- PrapundarikadiLepashould be applied for giving comfort. [Su.Chi. 17/08]

In Chikitsasthana’s 18th chapter Granthiapachiarbudagalagandachikitsa 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 Shophonam-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 PittajaAbhisyanda;
- Siravyadhaa and purgative therapy to the body, Parisheka, Lepa and Anjana to eyes and Nasya and treatments advocated for Vi-sarpa 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 Raktabhisheyandapratishedha Aacharya mentioned following remedies regarding RaktajaAbhisyanda;
- 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 PittajaAbhisyanda 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, Trikatu and 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 PittajaTripha-laghrita is especially suitable for purga-tion. 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 (Kakolyadigana) 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, RohitakaandMadhooka 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]

ACHARYA CHARAKA (CHARAKA SAMHITA)9:

In 4th chapter of Sutrasthana Kshadvirechanshatashritiyaadhyaya Aacharya states Mahaakashayalike

1. Shothharmahakashaya[Ch.Su. 4/38],
2. Dahaprasrashamanmahakashaya[Ch.Su. 4/41],
3. Udaradaprasrashamanmahakashaya[Ch.Su. 4/43],
4. Vedanasthapamahakashaya[Ch.Su. 4/47],
5. Kandughnamahakashaya[Ch.Su. 4/14] these are effective against atrocious effects of vikrutha pitta

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

In Sutrasthana’s 12th chapter Vaatkalakaliyaaadhya Aacharya explains about prakut and vikutpitta and its treatment.

In his Chikitsasthana’s 21st 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. Baladiapela[Ch.Chi. 21/79]

In Chikitsasthana’s 23rd Vishachikitsaadhyaya he mentioned Panchashirishagadaha used internally and externally (Lepa) for all types of visha.[Ch.Chi.23/218]

ACHARYA VAGHBHATA (ASHTANGSAMGRAHA)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)Udarashamamahakashaya[A.Su. 15/39]and
4)Vedanastathapakamahakashaya[A.Su. 15/43].

In 16th chapter Vividhadyagansangrahaadhyaya 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* Aacharya Vaghbhata 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* Aacharya 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 *Sandhisitarogapratisiedha* Aacharya 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* Aacharya 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 ofChandana 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, Siravyadh 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, Vanama sometime Basti-upakrama can be done hazardous effects of U.V. rays. Virechana is best treatment for Skin disorders like Kandu, Visphota, Kushthha, Garvishajanittwakvyadhi, Udartha, Kothaetc. In Basti we can we can give RajyapanBasti, PichaBasti, AnuvasanBasti for Bruhan purpose. In UV rays toxicity one can found signs & symptoms like Shir-kapalshool, Shirojadya, Ardhavbhedak, Bhrana, Timir for thatNasya 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, Udvarthana, Mardana, Parisheka, Samvahana, Gandusha, Kavala, Netrarpana, 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, Udarada 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 Nimbadala. [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 Madanphaladidravya. [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, Nimba valkala, 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 another Samhitas there are reference of Aatapsevanajanyavyadhi and its treatment. Ayurveda’s principle is “Swasthya syaswasthrakshanam”; 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 Rakta-mokshana 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.

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