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PREVENTIONS OF LIFE STYLE INDUCED OCCULAR DISEASES BY AYURVEDA

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ABSTRACT

Lifestyle is a major factor thought to influence susceptibility to many diseases including eye. Some of the faulty lifestyle exposures like smoking, alcohol consumption, fat and sugar rich diet, chronic eye strain etc. are notably associated with the risk of developing eye diseases. An association between such defective life style measures and subsequent eye diseases was reviewed from Ayurvedic and biomedical literature and corresponding prevention strategies were searched. Ayurveda is found to possess vivid information about the lifestyle leading to healthy living and also the preventive strategies in general. For eye diseases, a few daily regimens like Aschyotana (eye drops), Anjana (Collyrium), Nasya (nasal application of drugs), Abhyanga (Oil massage), Snana (Bath), Padabhyanga (Foot massage with oil) are promoted as high-end measures for the maintenance of eye health. Various Yogasanas, pranayamas and shatkriyas are also said to be beneficial for the same cause. A practice of such simple techniques along with suitable modification to lifestyle by due inclusion of dietand exercise can prevent a great deal of occular diseases as is seen in this review.

KEYWORDS: Ayurveda, Eye diseases, Lifestyle diseases.

INTRODUCTION

A faulty lifestyle had been linked to many human illnesses. A faulty life style is proved to work at multiple levels to influence susceptibility to many diseases. Vision is the one important sense perception which suffers with a great deal of damage as a consequence to faulty life style. Smoking, alcohol consumption, high fat and sugar diet, junk foods, chronic stress, prolonged exposure to bright light (computers etc) are few examples which exert damage to eye. A few clinical conditions which may occur due to faulty lifestyle are Age

related macular degeneration (AMD), Cataracts, Glaucoma, Diabetic/ Hypertensive retinopathy, choroid and retinal pathologies and Computer Vision Syndrome. A few researches documented the association of lifestyle choices with ocular diseases.[1,2] Associating lifestyle practices with eye diseases Smoking: Smoking is one leading cause associated with various eye ailments. It triggers the free radical generation, increases the oxidative stress and reduces antioxidant levels in the blood. This oxidative stress eventually disturbs the vision.[3.4] Smoking is consistently associated with nuclear cataract.[5] Data from the Physician's Health Study showed that stoppage of smoking decreased the risk of (any type) cataract and that, although risk did not revert to normal levels with cessation of smoking, limiting exposure seem to reduce the risk so that stopping at any time seem to be relatively beneficial.[6,7] Heavy alcohol consumption: Alcohol consumption is found associated with cataract, although the level of intake usually is not specified.[8] The investigators however found a modest protective effect of moderate drinking for any cataract. The data suggests a possible benefit to the lens by avoidance of heavy drinking. Alcohol is known to affect liver, which converts betacarotene into vitamin A which is essential for good vision. Intoxication also creates short term problems including night blindness, double vision, and accommodation paralysis (inability of eyes to bring both near and far images into focus).[9, 10, 11] High fat diet: A high fat diet harms the vision by clogging up blood vessels in the retina and the choroid which can reduce the flow of oxygen and nutrients necessary for vision; it ultimately leads to Atherosclerosis and limits the amount of oxygen and nutrient supply. Especially affected are the choroid blood vessels, which supply the retinal pigment epithelium (RPE). The RPE cells subsequently get damaged and die off. The photoreceptors, which are dependent on the RPE for their nourishment, eventually die off, resulting in vision loss. In Beaver Dam eye study, dietary intake of saturated fat was found to be associated with an 80% increased risk of AMD.[12,13] High-sugar diet: A high-sugar diet affects eye sight and contributes to cataract formation and Glaucoma. It affects through two sugar-related processes. The first is called glycosylation. Excess sugar molecules attach to the hemoglobin in the red blood cells. This makes it more difficult for the blood cells to deliver the oxygen necessary for metabolic processes to occur. The second, and more long-term problem, is vascular. When blood sugar levels fluctuate, they shock the mural cells (wall cells) in capillaries (tiny blood vessels). These capillaries gradually weaken and narrow which results in breakdown of the entire vascular system. Blood flow may be reduced and in areas prone to leaking, bleeding may occur. Chronic stress: It is caused by repeated emotional, psychological, mental or physical demands. Stress, in medical terms, is the body's

nonspecific response to the demands put upon it. Stress produces adrenaline, the "fight or flight" hormone, which is useful in times of danger Adrenaline also raises the intraocular pressure that causes Glaucoma.[14] Chronic Eye strain: The human eye is not meant to spend hours focusing at objects close to it. It is naturally in a relaxed state when looking at something at farther distances, approximately seven feet and beyond. Research has shown that long hours spent on a computer or reading can lead to permanent damage caused by this "near-point stress." Increasing use of computers and other radiation equipments results lots of burden on eyes. Computer vision Syndrome is one such syndrome which is characterized by headache, neck pain, eye strain, dry eye, loss of vision, burning eyes, light sensitivity and distorted vision.[15] Light exposures, especially in the ultraviolet B range, have also been found to be a risk factor for cataract in some studies.[16,17]

Preventive Strategies for ocular health as per Ayurveda Following are the preventive strategies of Ayurveda meant for prevention of ocular diseases and maintenance of ocular health (Table 1)

Table 1: Daily regimens and their beneficial effects.

Daily regimens

- Achamana (Purificatory rites-sipping small quantities of water)
- Pada prakshalana (washing feet)
- Mukha Netra Prakshalana with Sheetodaka
  (washing face, eyes with cold water)
- Ashchyotana (eye drops)
- Anjana (collyrium)
- Nasya (administration of drugs through nostrils)
- Dhumapana (Inhalation of medicinal smoke)
- Abhyanga (oil application with massage)
- Sheetala jala shira snana-(cold water head bath)
- Mukha lepana (facials)
- Paduka dharana (using foot wears)
- Mukha lepana (facials)
- Paduka dharana (using foot wears)
- Chatra dharana (using umbrella)

- Pushpa dharana (wearing flowers)
- Nasika jala pana (administering water through nostrils)

Beneficial effects

- Timira hara (alleviates cataracts)
- Chakshushya (Beneficial for vision)
- Drudha Netra and Akshi roga Nivarana
  (Promotes eye strength and Prevents eye diseases)
- Nirmala Drushti (increases clarity in vision)
- Prevents Netra rogas (eye diseases)
- Netra Dardhya (strengthens eyes)
- Beneficial in Akshi Shula (pain in eye)
- Drushti Prasadana (good for vision)
- Chakshushya
- Chakshushya
- Dridha chakshu (strengthens vision)
- Chakshushya

Other Preventive modalities as per Ayurveda

Along with the above said therapeutic procedures, a set of common preventive modalities termed as Netra Panchamruta are prescribed by Bhojaraja in his book Charucharya.[18]

These modalities are.

1. Filling the mouth with water and washing the face with water.
2. Brushing teeth (first the lower dental case to be brushed and then later the upper dental case.).
3. Anjana.
4. Watching moon rays.
5. Palming after consumption of food.

Pathya –Apathya[19, 20, 21]

A distinct set of pathya-apathya has also been described in Ayurveda in reference to ocular health (Table 2).

Table 2: Pathya Apathya for Eye diseases.

Ahara/Vihara(Food/Activities)	Pathya (Wholesome diet)	Apathya (Unwholesome diet)
Rasa(Taste)		Amla (Sour), lavana (Salt). Katu (Pungent), Kshara (Alkaline)
Guna		Ushna (Hot), Teekshna (Penetrating) Ati drava annapana (Excess liquid diet)
Shuka dhanya (monocotyledons)	Lohita Shali (red rice), Yava (barley)	Virudha dhanya (Over ripe, Sprouted/Germinated cereals)
Shimbi dhanya (dicotyledons)	Mudga (Green gram), Vanya Kulattha (Dolichos biflorus)	Masha (Horse gram)
Shaka varga (green vegetables)	Jeevanti(leptadenia reticulata), vaastuka (Chenopodium Album), matsyaakshi (Hincha repens), meghanada (Amaranthus polygonoides), punarnava (Boerhavia procumbens), Surana (Amorphophallus campanulatus), Patola (Trichosanthes dioeca), Vartaka (brinjal), Karavella (bitter-guard), Nava Mulaka (new radish), Kakamachi (Solanum nigrum), dhattura (Dhatura stramonium), Kumari (Aloe vera), Sita Maricha (Pepper)	Kalingaka, patra shaaka (Holarrhena antidysentrica)
Ikshu vikara (Derivatives of Sugar cane etc.)	Sita (Sugar)	Phanita (Confectionary in thick liquid)
Sugandhi dravya(aromatic drugs)	Chandana (sandal) Karpura (camphor)	Tambula
Mamsa varga (meat etc. non vegetarian food)	Mayura (peacock), Kurma mamsa (turtle flesh), Parna mriga (animals which eat leaves) sarpa (snake), Vihanga mamsa (chicken etc. flesh of birds)	Matsya (fish), Ajangala mamsa (flesh of animals living in semi arid tropics)
Phala varga (fruits)	Draksha (grapes), Kustumburu (seeds of coriander), Triphala (three myrobelons)	
Ghrita (ghee)	Streenam sarpi (Ghee prepared out of human milk), Aja ksheera Ghrita (Ghee prepared out of goats milk)	
Ahara kalpana (gruel etc food basic preparations)	Peya Vilepi Yusha (Rice gruel preparation)	
Dugdha (milk)	nari dugdha (Human milk), go (Cow), Hastini ksheera (elephant milk)	
Dadhi (curdcow milk)	Ashwa dadhi (Curds prepared out	Go dadhi (Curds prepared out of of horse milk)
Manasika Bhavas (psychological factors)	Mano nivrutti, (Self Control) Anghra Puja (Guru pooja)	Krodha (Anger), shoka (Sorrow), ashrupaata, (Continous crying) abhighata (trauma), bashpa nigraha (Withholding tears)
Viharas (habits)		Atimaithuna (Excessive sex), vata vit mutra nidra vegarodha (With holding the urge of flatus, faeces

		urine and sleep), ratri jagarana (waking till late nights), danta vigharshana (Brushing teeth with pressure), surya vilokana sukshma ekshana (Viewing Sun and minute things directly), Chardi nigrahana (Withholding the urge of vomiting), Avak shira shayana (Sleeping prone), Ucchita shira Shayana (Using high pillows), Ati sheeghra yana (riding fast), Adhyayana during yana (Reading during travelling)
Loha varga	Swarna (Gold), Kamsya (Bronze)	
Ratna varga	Mukta (Pearl), Vidruma (Coral), Vajra (Diamond), Vaidurya (Cats eye), Sphatika (Alum)	
Chikitsa karma	Prapurana,Seka, Pratisarana, Lepana, Ajya pana Virechana, Nasya, Langhana, Rakta mokshana	
Yogasanas	Sarvangasana, Bhujangasana, vajrasana, Ushtrasana, Matsyasna	
Eye exercises	Palming, Candle gazing, Focusing, Cleansing (prakshalana)	
Pranayama- Shatkriya	Nadi Shodhana, Sheetali Jala neti, Trataka[22,23]	

Contemporary concept of eye health

Proper eye health care helps slow down the processes associated with ageing such as macular degeneration, reduces likelihood of premature vision loss through strain and diseases. Vitamins A, E and C, Some minerals and supplements offer benefits for over all eye health by reducing the risk of cataracts and night blindness. Supplements such as carotenoids counteract the prolonged exposure to certain light.

DISCUSSION

Lifestyle has changed from being an indicator of the overall well being of an individual to a cause of disease and now “lifestyle” has itself become an object of medical attention and thus the cause of concern. Some of them include Atherosclerosis, Asthma, Cancer, Chronic liver disease or cirrhosis, Chronic Obstructive Pulmonary Disease, Type 2 diabetes, Cardiac disorders, Metabolic Syndrome, Osteoporosis, Stroke, Depression and Obesity. Lifestyle practices are strongly associated with eye and its health. Present day lifestyle choices i.e. low activity level, sedentary lifestyle, and progressive weight gain also contribute significantly to the risk of developing the metabolic syndrome, which consequently have their ill effect on

the most vital organ Eye. The research data suggests that the metabolic syndrome is associated with micro vascular changes in the retina. And the finding reflects, in part, the associations of individual syndrome components with retinal micro vascular abnormalities.[24] On keen observation we find a close similarity between the Netra Roga Nidanas and the lifestyle choices of the present era. The netra roga nidanas (causative factors for eye diseases) explained in the classical texts exactly fit the present day Lifestyle choices which in turn generate eye disease. To name a few Aharatah (Food habits)- Shukta aranaala, amla, kulattha, maasa, ushna, kshara, katu rasa pradhana dravyas. These resemble the spicy and junk foods Viharatah (Activities)- Swapna viparyayaat (Night shifts), atimadyapaana (Alcoholism), dhumanishevana (Smoking), atidravannapaana (cool drinks), pratata ekshana atideepta darshana, ati sameepa darshana (Spending long hours in front of computer). Manasika- Kopa, shoka, klesha (Stress induced agony).

Along with these nidanas some of the apathyas quoted such as sleeping prone, and using high pillows seem to alter the gravity of circulation thus producing eye ailments. Other apathyas such as reading while travelling produces difficulty in accommodation and thus causes ailments of vision. As Prevention Strategies many of the yogasanas (or a sort of physical activity) have been said to be beneficial in eye diseases. There are researches supporting this fact. It was found that persons with an active lifestyle (Defined as regular activity three or more times weekly) were 70% less likely to develop neovascular AMD compared with persons without an active lifestyle. Physical activity also reduces systemic inflammation and endothelial dysfunction.[26] Physical activity would be expected to have a beneficial effect on diabetic retinopathy through an attendant reduction in weight and decrease in blood pressure and systemic inflammation.[27] Prevention modalities have an equal role in combating the emergence of disease as that of treatment modalities. Prevention of Diseases is possible by Lifestyle regulation and adopting Ayurvedic principles.[28] Kriya kalpas have a major role as a remedy for Lifestyle induced eye diseases. Kriya Kalpas such as Aschyotana, Anjana, Nasya etc are both prevention as well as treatment modalities. Aschyotana (Eye drops) is a basic therapeutic intervention which is beneficial in wide variety of Eye diseases. For example A Study reveals that, Triphala eye drops along with Saptamrita Lauha is highly beneficial in Computer Vision Syndrome which is a major lifestyle induced Eye disease.[29]

CONCLUSIONS

Thus various lifestyle exposures are found closely associated with eye diseases. Their causes are pursued to be the result of metabolic changes influenced by processes of growth and aging. The prevention modalities advocated in Ayurveda such as Aschyotana, Anjana, Nasya, Netra panchamruta etc. along with a few positive life style modifications may help considerably reducing the impact of ocular diseases in general population.

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