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Review Article

Alteration in *Asbabe-Sitta-Zaruriyah* (Six essential pre-requisite for maintaining health) to prevent *Intithār al-Sha'r* (Telogen Effluvium): An Insight

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ABSTRACT

With increased industrialization and urbanization, although a lot of progress has been achieved in the medical field leading to the increase in life expectancy. But simultaneously there has been an emergence of health and cosmetic related issues. Almost every individual is suffering from one or the other problem due to change in their lifestyle, dietary habits, stress, and other environmental factors such as pollution. Hair fall, among various health and dermatology problems is most common cosmetic concern experienced by everyone at any point of their life with prevalence of 50% by the age of 35 years which increases with advancing age in men and in women to 40% by the age of 50 years. Though it is not life threatening or debilitating condition but it has huge social and psychological impact as it is concerned with one's appearance. In Unani System of Medicine, hair fall is classified as *Intithār al-Sha'r* (Telogen Effluvium) and a number of local and oral drugs have been mentioned in classical Unani literature for the management of hair fall, but before starting pharmacotherapy Unani scholars recommend balance moderation in *Asbab-e-sitta zaruriyah* (Six essential pre-requisite for maintaining health), to cut down dependency over pharmacotherapy. In this paper, we have discussed the prevention of *Intithār al-Sha'r* (Telogen Effluvium) by alteration in *Asbab-e-Sitta Zaruriyah*.

Keywords: Hair fall, *Asbabe Sitta Zaruriyah*, Telogen Effluvium

Article Info: Received 02 Dec 2018; Review Completed 06 Jan 2019; Accepted 10 Jan 2019; Available online 15 Jan 2019



Cite this article as:

Ahmed Y, Jamil SS, Jahangir U, Ahmad FJ, Alteration in *Asbabe-Sitta-Zaruriyah* (Six essential pre-requisite for maintaining health) to prevent *Intithār al-Sha'r* (Telogen Effluvium): An Insight, Journal of Drug Delivery and Therapeutics. 2019; 9(1):318-322 DOI: <http://dx.doi.org/10.22270/jddt.v9i1.2325>

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INTRODUCTION

According to American Academy of Dermatology/ Association hair shedding is a natural process and it happens to everyone normally in a range of 50 to 100 hairs a day ⁽¹⁾. But if the range increases then medically it is called Telogen Effluvium, in Unani *Intithār al-Sha'r* and commonly referred to as hair fall or Hair shedding. This term Telogen effluvium was first coined by Kligman in 1961 as a disease of hair follicle ⁽²⁾

Telogen Effluvium/ *Intithār al-Sha'r* appears as a diffuse hair loss mainly after the body has undergone severe stress and it is a temporary hair problem. Although the hair starts falling out, the hair follicles remain intact and can start producing hair again resulting in hair regrowth. Every healthy hair goes through three basic phases during hair growth cycle: Anagen (growth phase), Catagen (transitional phase) and telogen (falling phase). The term Telogen Effluvium suggests loss of hair that is in Telogen or falling phase ⁽³⁾

Telogen Effluvium, by definition, are of two type; firstly acute Telogen effluvium which resolves within 3–6 months. The hair shedding ceases and the hair density returns to normal in almost all cases. Occasionally, the hair shedding continues beyond 6 months and this is the second condition, called chronic telogen effluvium ⁽²⁾. Physiologically, during normal hair cycle few telogen club hairs shed from the scalp daily and follicles retain telogen hairs until they re-entered anagen ⁽⁴⁾. Eventually the new anagen hair pushes the old telogen hair out and this shedding does not alter trichogram and does not produce hair loss.

Telogen Effluvium occurs when a significant number of anagen hairs are prompted to prematurely stop growing and enter catagen and then telogen. After 2-3 months of initial event excessive hair shedding occurs at the end of telogen phase. A temporary alopecia develops as the long club hairs are replaced by shorter new anagen hairs ⁽⁴⁾

Some more prominent symptoms of Telogen Effluvium are ⁽⁴⁾;

- Noticeable hair loss during washing or combing hair
- Healthy looking scalp
- A generalized hair thinning
- Temporary hair loss
- Losing hair that has White bulb and lack of shiny sheath
- Dry, Lusterless hair that are sparse and easily pluckable

The physical and psychological functions of hairs are immeasurable ranging from protection of head to the confidence, charm and self-esteem of an individual, not only for females but also for males as well.⁽⁵⁾

Every individual has different hair texture, hair color, hair growth, hair thickness and so on and this variation is due to different *Mizaj* (temperament) of people according to Unani Medicine. The qualities of hair of individuals with *Damvi mizaj* (Sanguine temperament) are Black, Lustrous, Thick with Rapid growth while the people having *Safravi mizaj* (Bilious temperament) have Brown, Thin with Rapid growth. Similarly Black, Thin with Slow growth are features of hair of *Balghami mizaj* (Phlegmatic temperament) persons and Brown, Thin with Slow growth are qualities of *Saudavi mizaj* (Melancholic temperament) people's hair. These are normal features of hair in different individuals with different temperament but due to some unknown causes there is an abnormal change in temperament of person which is responsible for diseases and one such disease is *Intithār al-Sha'r* (hairfall).

The reasons attributed to hair fall by different Scholars with regard to changes in *mizaj* (temperament) are as mentioned by:

One of the famous Unani Scholar *Zakariya Razi* that the cause of hair loss (*Sala'a* / baldness) is *Ratubat* (wetness) and this disease is not found in children, rarely occur in females and transgenders. Mainly found in males and old age people⁽⁶⁾.

Similarly, another Unani Physician, *Ibn Sina* stated that hairs grow due to *Bukhar-e- dukhani* and this *bukhar-e- dukhani* get mixed with *Badni Ratubat* and leads to healthy hair growth.⁽⁷⁾ Both Scholars point out the same thing that for hair growth and hair loss there is role of some liquid / body secretion and these body secretions if interpreted with contemporary era could be Hormones which are:

- **Testosterone:** This hormone is the most common cause for male pattern baldness called androgenic alopecia and it occur due to overproduction of byproduct dihydrotestosterone which form on breakdown of testosterone⁽⁸⁾.
- **Thyroxin:** Under active production of this hormone cause hypothyroidism leading to abnormality hair loss⁽⁹⁾
- **Estrogen:** This female sex hormone either too much or little ultimately leads to hair fall⁽¹⁰⁾.
- **Cortisol:** This hormone release during stress and long period exposure of cortisol cause hair fall⁽¹¹⁾.

The etiology of hair fall is quite controversial and multifactorial⁽¹²⁾ with contributions from Inadequate Nutrition, Intake of *Fasid Aghziya* (Putrefied diet), Subcutaneous accumulation of *Mawad Khabisa* (Putrefied matter), Dilatation of hair follicles, Excessive skin dryness / moistness⁽¹³⁾, these are the some causes which are given by Unani scholars and if interrupted with contemporary era then these are true such as deficiency of nutrition, infection, seborrheic dermatitis and so on. Other

causes are Acute mental stress⁽¹⁴⁾, Hypothyroidism and Hyperthyroidism⁽⁹⁾, Debilitating disease⁽⁴⁾, Seborrheic dermatitis, Typhoid or other febrile illness, Pregnancy and delivery⁽⁹⁾, Loss of blood due to any cause⁽⁴⁾, Over work⁽⁹⁾, Crash dieting⁽⁴⁾, Change of climate and Shifting residence⁽⁹⁾, Run down state.

Prevention of hair fall through *Asbab-e-Sitta Zaruriyah*

Asbab-e -Sitta Zaruriyah are fundamentally that six essentials of life without which life of humans is inconceivable and by maintaining these essential factors, any individual can live a healthy and prosperous life. The six essentials factors are⁽¹⁵⁾:

- Hawa-e-Muhit (Atmospheric Air)
- Makool-wa-Mashroob (Foods and Drinks)
- Harkat-wa-Sakoon-e-Jismani (Rest and Physical activity)
- Harkat-wa-Sakoon-e- Nafsani (Psychological activity and Repose)
- Naum-wa-Yaqzah (Sleep and Wakefulness)
- Istifragh-wa-Ihtibas (Elimination and Retention)

Hawa-e-Muhit (Atmospheric Air)

Air is first among the six basic essentials of life .Fresh and clean air is most important factor for healthy and successful living. But with the rapid intensification in urbanization and industrialization, the quality of air is changing causing various diseases of respiratory, allergies, skin and hair.

The skin and hair form the initial barrier which is exposed to air pollution. Large suspended particle, small particles, smoke and gaseous pollution settle on the scalp and hair, causing irritation and damage and then hair fall⁽¹⁶⁾.

Many studies were postulated on hair fall due to air pollution and these studies explained different mechanism with different pollutant. One of them stated that hair fall mainly concerned with polycyclic aromatic hydrocarbons (PAHs) which are released from vehicle exhaust, industrial smoke and industrial waste. PAHs get adsorbed on the surface of suspended particle matter in the air and repeated exposure to raised levels of particle matter can lead to skin and hair penetration through hair follicles⁽¹⁷⁾.

Misery noted that, with continued exposure to pollutants, hair follicles suffered through low grade inflammation leading to fibrosis and permanent hair loss⁽¹⁷⁾.

Fabio Rinaldi documented the effects of pollution on human hair under the title 'What your hair breaths'. The study was conducted on 300 volunteer and the concentration and deposition of particulate matter on hair was one and a half times more than the concentration in the air⁽¹⁸⁾. The traffic pollution causes hair fall by producing the inflammatory process that affects the hair follicles⁽¹⁹⁾.

Philpott demonstrated that the pollution levels proliferates the oxidative stress on the hair follicle similarly as in the androgenic alopecia leading to hair fall⁽²⁰⁾.

From all these studies, it is comprehensible that there is effect of air pollution on hair fall. But it can be prevented by applying some gels and oils. Some studies mentioned the use of coconut oil on hair shaft which act as barrier on it and prevent hair fall^{(21) (22) (23)}

Makool-wa-Mashroob (Foods and Drinks)

After fresh air, every individual basic need is food and water, without which life is not considered. Proper nutrition or a balanced diet is necessary for normal body function. If the individual do not take essential nutrition then various unhealthy condition occurred, due to deficiency of these nutrition in the body, and one of them is hair fall. Deficiency of nutrition has negative impact on hair structure and growth.

Zakariya Razi stated that if the cause of hair fall is Anemia then improves its nutrition supplement by giving *lateef umdah ghizayen* ⁽⁶⁾. Ali Ibn Abbas Majoosi, recommended some food items for hair fall in his book, which have a good nutritional value such as *Zardi Baiza Murgh* (Egg Yolk), *Amla* (Indian Gooseberry), *Bhuna hua Gosht* and *Kanjushq ka gosht* (Meat/ Bird meat) ⁽²⁴⁾

Nutritional deficiencies that could be responsible for hair fall are discussed below:

- Protein and Amino acid is main component for healthy hair and it composed about 88% of protein ⁽²⁵⁾. Protein malnourished individuals usually have hair loss and hair thinning problems.
- Iron is most common nutritional deficiency in people and it is well known cause of hair fall. The mechanism of action through which its deficiency cause hair fall is not clearly known, but it is believed that hair follicle cells are rapidly dividing cells in a body and iron act as a cofactor for ribonucleotide reductase which is a DNA synthesis enzyme for rate limiting ⁽²⁶⁾. Some studies also postulated that there is multiple genes on hair follicle ⁽²⁷⁾ and some of which are also, regulated by iron ⁽²⁸⁾
- Zinc is a necessary mineral for protein synthesis and cell division by acting as an enzymes and as a component for Hedgehog signaling pathway (hair follicle morphogenesis pathway) ⁽²⁹⁾ ⁽³⁰⁾ ⁽³¹⁾
- Niacin deficiency also causes hair fall ⁽³²⁾ but there is no study is found in which only its deficiency cause hair fall.
- Essential Fatty acid such as linoleic acid, arachidonic acid also play a role in hair growth by enhancing hair follicle proliferation ⁽³³⁾
- Selenium is an essential element which is required in very low quantity but it has important role in hair follicle morphogenesis and it also protect from oxidative stress ⁽³⁴⁾
- Vitamin D is not only necessary for bones but also play a role in hair follicle cycling, and it is postulated by some animal studies ⁽³⁵⁾ One of the study on vitamin D-dependent rickets, the resultant mice developed hair loss, that means deficiency of vitamin D cause hair loss ⁽³⁶⁾.
- Vitamin A is a complex vitamin which has many compounds such as retinol, retinoic acid, provitamin A, carotenoids, retinal. Retinoic acid are needed to activate hair follicle stem cells ⁽³⁷⁾ However, its deficiency has not any direct linked to hair fall but its over-supplementation has a strong relation with hair loss ⁽³⁸⁾.
- Vitamin E is a potent antioxidant and one of the study showed significant results on hair gain by giving tocotrienol supplementation (a vitamin E compound) ⁽³⁹⁾

- Vitamin H or Biotin deficiency is rare due to its adequate production by intestinal bacteria. But some studies showed its role on hair loss, one of the studies is on infant nourished formula, in which, the child does not have the sufficient biotin in diet, reported with patchy hair loss and it resolved with daily biotin supplementation (Fujimoto, Inouki, Fukui, Inoue, & Kuhara, 2015). Another study showed positive result in protein synthesis and DNA concentration by incubation in biotin containing solution in isolated sheep hair follicles ⁽⁴⁰⁾.
- Vitamin B or Pantothenic acid helps in restoring natural color of hair and prevents early greying. It also takes part in hair growth and has moisturizing properties ⁽⁴¹⁾
- Fats have influence on keeping hair in skin integument by synthesizing steroid hormones and sebum secretion.
- Carbohydrates stimulates sebum secretion by sebaceous gland and sebum has a beneficial role on hair fall but only when sebum secretion occur within physiological limits, otherwise excessive sebum secretion becomes medium for micro-organism growth and leads to further hair fall ⁽⁴²⁾.

Harkat-wa-Sukoon-e-Jismani (Rest and Physical activity)

Rest and physical activity both are needed in an equal amount for healthy living. Physical activity improves blood circulation and provides proper absorption of nutrients to the demanded part of the body while rest restores energy for further activity. Similarly, scalp needs proper blood circulation for hair follicle for delivery of nutrients. And this can be done by scalp massage; one study in 2016 shows that scalp massage for few minutes in a day promotes hair growth by stimulating the genes ⁽⁴³⁾

Zakariya Razi, Ibn sina and Majoosi mentioned various oils for hair massage for opening pores of scalp and increasing blood circulation such as, Roghane Amla, Roghane Babuna, Roghane Aas, Roghane Zaitoon, Roghane Afsanteen etc ⁽⁶⁾ ⁽²⁰⁾ ⁽⁴⁴⁾

Zakariya Razi and Ibn Sina both stated that hair fall may be due to either excessive dryness or due to excessive wetness ⁽⁶⁾ ⁽⁷⁾. And Majoosi told that excessive of rest increase the body fluids i.e wetness and excessive of workout cause dryness ⁽²⁴⁾. On concluding both statements it is clear that increment of both cause hair fall.

Harkat-wa-Sukoon-e-Nafsani (Psychological activity and Repose)

Many studies concluded that stress can affect hair follicle leading to hair fall. Two animal studies on mice showed that a welldefined psychoemotional stressor terminate the normal duration of hair growth by premature catagen induction, by regulating keratinocyte apoptosis in the hair bulb, by induction of mast cell degranulation, and appearance of perifollicular inflammatory infiltrates of activated macrophages ⁽⁴⁵⁾

The first study which was done on human hair follicle to proven the above animal study was published on 2017 which showed the positive results towards the psycho emotional stress associated neuropeptide substance P which inhibit human hair growth by activation of catagen inductive growth factor, activation of perifollicular mast cells due to neurogenic inflammation induced by substance P, and down regulation of proproliferative substance P signaling in hair follicle keratinocytes ⁽⁴⁶⁾ ⁽⁴⁷⁾. A study on stress postulated that the mechanical stress cause androgenic alopecia ⁽⁴⁸⁾.

Ibne Nafis stated that excessive of Sukoon-e- Nafsani leads to coldness ⁽⁴⁹⁾ and coldness increases the body fluids i.e wetness or may be this wetness is due to secretion of cortisol hormone which affect hair fall.

Naum-wa-Yaqzah (Sleep and Wakefulness)

Sleep plays an important role to repair and regenerate the body function. Every individual needs proper 7 to 8 hours sleep to repair body function. Alteration in sleeping patterns affects the body's immune function, hormone secretion, and mental and physical stamina, and hair follicles are very sensitive to any change in internal environment. A case study was done and they underwent a sleep deprivation of 48 hours, the results showed decrease of 19 percent of beard hair growth due to decrease in protein synthesis during sleep deprivation ⁽⁵⁰⁾

Unani Physician Maseehi stated that excessive sleep cause coldness and wetness and excessive of wakefulness cause dryness ⁽⁵¹⁾ and both these condition affecting hair follicles.

Istifragh-wa-Ihtibas (Elimination and Retention)

Istifragh means elimination of waste products from the body while *Ihtibas* mean retention of essential products in the

body. Human body produces many waste products such as urine, fecal matter, sweat, menstrual blood, sputum, and free radicals etc.

Retention of free radicals leads to oxidative stress but human body possesses a defense mechanism which protects the body from free radicals by reducing and neutralizing them. Some studies concluded that from various reasons of hair fall, oxidative stress is also one of them ⁽⁵²⁾ ⁽⁵³⁾

A study on hair postulated that if an individual has alopecia then usually exhibits lower level of antioxidant in the scalp and on giving tocotrienol supplementation, which increases hair count and reduce oxidative stress ⁽⁵⁴⁾. This Oxidative stress can also be reduced by physical exercise, fruits, vegetables etc which is ultimately a part Asbab-e-Sitta Zarooriya.

CONCLUSION

Intithār al-Sha'r (Telogen Effluvium) a common cosmetic problem around the world having negative psychosocial impact, can be curtailed by adapting to necessary changes in our lifestyle viz a viz *Asbabe-Sitta-Zaruriyah* (Six essential pre-requisite for maintaining health) as discussed in this paper.

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