REVIEW ARTICLE

Conventional and modern tactics to hair loss and its management: A review

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Abstract

Hairs are the key to empower the personality of both men and women. "Hair loss" is a common clinical complaint that is a manifestation of a wide variety of disorders. For proper development of hair, activation of hair root is a must. There are several factors which affect hair growth. Some are easily diagnosed. The review is attempt to cover most of the important aspects of alopecia and a detailed description of conventional and modern medication prescribed for alopecia and associated adverse effects are also pronounced in this review.

Key words: Allopathy and alopecia, anagen, catagen, hair follicle

INTRODUCTION

Treatment of complex diseases must require covering manifold targets and in conventional drug therapy, this leads to polypharmacy. In this respect, it is important to say that herbal medicines, since they are based on plant products, are a complex mixture of many large and small components with many purposes and mechanisms. Traditional medicine, such as that used in Asia, not only provides good information ensuing in new Western medicine but also demonstrates different ways of personal medicine and the use of herbal products. Hence, it is time to pay attention to daily remedies to treat alopecia. Therefore, this research project aimed to develop an herbal medicine that uses this medicine in the treatment of hair loss. Since these extracts are rich in antioxidants and many other bioactive constituents, they are effective in preventing hair loss and promoting healthy and optimal hair growth in treating various types of alopecia.[1] In ayurvedic terms, hair is reffered as Kesha which surrounds the head and scalp. Ayurveda teaches that beauty, health, and long-term happiness can only be achieved by understanding that all aspects of life contribute to the balance of body and mind. In Ayurveda, inner and outer beauties are closely related.[2] Most of the Ayurvedic formulas and Ayurvedic methods are used as they have fewer side effects than allopathic treatments. Acharya Vagbhata states that Shiroroga (hair disease) is cause due to exposure to direct breeze, too much smoke contact, increased sleepiness or avoidance of sleep, bathing and maximum use of hair oil, avoiding the use of a pillow, worsen vata and pitta in the head region.[3] The holy grail of hair restoration is the development of new Kesha on the scalp without delay. The global hair growth treatment market is expected to grow at a compound annual growth rate of 3.56% over the next few years. The Asia-Pacific region ranks third behind the United States and Europe in terms of the number of people seeking new hair treatments. Even the recent coronavirus scare has not affected demand for new hair treatments, sustaining 3% growth past year.[4]

Hair

The scalp hair is a biosynthetic material with different interior structures. The width of human hair is approximately 20–180 microns and can usually grow to a length of approximately 90 cm.[5] Hair is an essential point for a good look, communication, and social image. From the epidermis, hair is derived. Hair has two parts: One is the hair shaft and the second one is the hair follicle. Hair follicles are the portion of skin responsible for production of hair.[6] Structure of hair shown in Figure 1.

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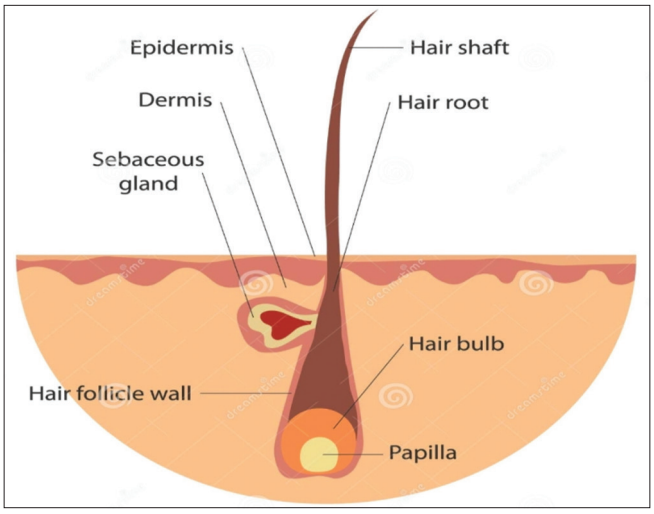

Figure 1: Structure of hair[8]

Hair structure

Hair follicle

The hair root extends down to the deeper layer of the skin therefore it cannot be seen. It is surrounded by the sac or tube-shaped hair follicle. Three parts of hair follicles are:

- Infundibulum: Present exterior from ostium to open end of sebaceous duct
- Isthmus: Present in the center goes from the sebaceous duct to where the arrector pili muscle is joint.
- Hair bulb: The hair bulb is also known as the inferior segment. It presents at the bottom of the hair follicle.

Shaft

The keratinized hair shaft is the non-living, visible part of the hair that sticks out of the skin. Used for the purpose of diagnosing. The hair shaft is composed of three concentric layers.

- Medulla: Inner and deepest layer of the hair shaft. It contains high lipid concentration and low cysteine.
- Cortex: Middle layer of the hair shaft. 75% part of the hair shaft is made up of cortex. It comprises 50–60 m long and 3 m wide cells which look like spindles. The amorphous matrix of the cortex encloses a lot of sulfur-containing proteins. The cortex layer is responsible for providing physical and chemical properties, color, and texture to hair fiber.
- Cuticle: The outer layer of the hair shaft is thin, hardy, and colorless, which provides protection to each hair shaft.

Cuticle prepared by three layers:

a. Layer A: The resistant layer is made up of cross-linked cysteine, which provides physical and mechanical resistance
b. Layer B: Physically rigid, containing a high amount of cysteine and also called an exocuticle
c. Epicuticle: Soft, hydrophobic lipid layer containing 8-methyleicosonic acid.[7]

Features of hair

The human body is protected almost completely with hair, the maximum of which are tiny, colorless vellus hairs. Mammalian hair has many features, consisting of safety toward outside elements, thermoregulation, generating pheromones, apocrine sweat, and sebum, and playing a position in social interactions.[9]

Innervation and vascularization of hair follicles

Innervation and vascularization of hair represent an interesting area in hair research. Although information about both is available in the literature, the definition of neural structure is more complex. The nerves that nourish hair follicles are structurally similar to dermal nerves and include sensory and sympathetic autonomic nerves. Hair follicle nerves originate from the dermis or subcutaneous tissue ascends through the dermal network and innervates the hair follicle from the eye to the dermis. At the level of the sebaceous glands, some (but not all) hair follicles are surrounded by a ring of nerves, usually called the hair end organ, arranged external and internal longitudinally in layers. The fibers will continue from this collar, innervating local structures or forming a second large horizontal dermal plexus at the junction of the papillary and reticular dermis. Nerve branches usually continue from this network associated with vessels innervating the papillary dermis and epidermis. Changes in nerves provided to hair follicles have been described concerning the size of the hair. Arterioles provide cutaneous vascularization that goes through the subcutaneous fat and rises into the dermis forming a plexus that supplies cutaneous structures such as the hair follicles. These arterioles are concentrated in the lower part of the hair follicle and form a rich vascular network connected with cross-shunt around one-third of the hair follicle. In particular, perifollicular vascularization increases during the anagen phase in association with the upregulation of vascular endothelial growth factor expressed by ORS keratinocytes.[10]

Hair growth cycle

Hair becomes apparent by joining together of many layers of keratinocytes in the hair follicle. Hair growth is a dynamic cyclical process in which the timing of the growth cycle is coordinated by many hormones and cytokines and depends not only on the location of hair growth but also on many other factors such as the age and age of the person, nutritional habits, stage of development, and environmental alterations. Cytokines are important hormones in this cycle which teaches the follicle to undergo suitable changes so that every hair is in the distinct stage of the growth cycle compared to adjacent hair. Three different phases of the hair growth cycle as shown in Figure 2: (i) Anagen or growth phase;

(ii) catagen or transitional phase; and (iii) telogen or resting phase and exogen.[10] Hair cycle stages shown in Table 1 and quantification of hair shown in Table 2.

Alopecia

Alopecia is a medical condition that causes bladness in person's head (scalp) and other parts of the body. This type of condition is termed as alopecia. This distressful condition causes a psychological impact on humans. Alopecia occurs due to a number of reasons, such as heredity, hormonal, stress, nutrition, some sickness, and some medications like those prescribed for cancer.[13]

Types of alopecia

Indralupta

Indralupta is an immune-mediated ailment.

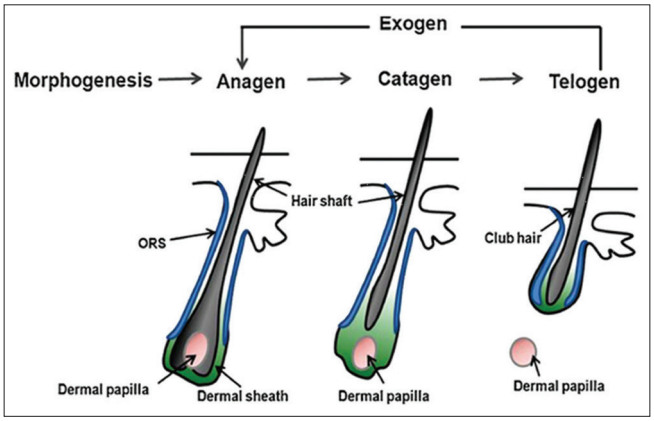

Figure 2: Various stages of hair cycle[12]

Table 1 : Stages of hair growth cycle[11]

Stage	Key features
Anagen	In this stage, growth phase is active Early anagen: New hair formed by hair matrix Blood supply nourishes the hair follicle and enables hair growth Lasts 2–6 years
Catagen	"Transition" phase or intermediate A deeper segment of the HF starts to collapse, from nourishing blood supply HF detaches Lasts 1–2 weeks
Telogen	Resting phase Inactive hair bulk, from HF papillary cells are completely separate Lasts 5–6 weeks
Exogen	Shedding phase Hairs at the end of their life fall out Mainly coupled to early anagen but also occurs in telogen

- Alopecia areata – Patchy hair loss arises in this condition and also cause psychological stress such as depression, social phobia, and anxiety. It affects the condition affects 2.1% of the populace and occurs in both men and women

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- Alopecia totalis – It is a condition in which factors such as a weak immune system, genetic factors and stress cause hair loss of the scalp.
- Alopecia universalis - It is considered a severe type of alopecia areata. It is a cause of hair loss from the complete body which includes pubic hair, eyebrows, eyelashes, and armpit hair.[14]

Table 2: Quantification of hair loss[20]

Test	Procedure
Scalp biopsy	Vivisecting scalp hairs is subjected to hair counting and through the use of a microscope photo-imaging is achieved. It facilitates the differentiation of kinds of hair loss Non scarring Scarring
Daily hair count	Throughout hair washing and from the morning combing hair counting may be accomplished in this test. Day-to-day hair counting is an evolutionary approach wherein hair is collected in a plastic bag for approximately 10–14 days. If hair count surpasses up to 100–150/day, it is considered as a hair fall condition
Hair pull test	The analysis is accomplished to diagnose diffuse scalp alopecia in which some of the hairs are pulled and are evaluated underneath an ultramicroscope
Pluck test	A single hair is plucked out from the root sheath and tested beneath an electron microscope to ensure the growth segment and to finish deficiency in any phase, i.e., anagen, catagen, and telogen
Wash test	Hair was washed, counted, and divided into different categories 3 cm or shorter Intermediate length (3–5 cm) 5 cm or longer Considered telogen vellus hairs
Trichoscopy	Trichoscopic evaluation is used to observe hair symptoms, pigment patterns, vascular patterns, interfollicular patterns, and different types of alopecia Using a video dermoscopy scalp and hair structure are visualized at many fold magnification (10–75 folds) Folds display "black dot" and "yellow dot" Yellow dot – microexclamation hair Black dot – non-microexclamation hair

Palitya

Premature greying of hair occurs.

- Vataja means hairs get ash color, dry, rough, split, and resembles water
- Pittaj indicates yellowish hairs and the occurrence of a burning sensation on the scalp
- Kaphaja means oily and flattered scalp and in this type of alopecia thick white hairs are grown.
- Tridoshaja means noticing the appearance of all features.[15,16]

Khalitya

In Khalitya, Kapha, Rakta, Vata, and Pitta are involved. Presence of pitta and vata in hair roots cause hair fall problems. Both Kapha and Rakta jointly block the HF and stop the growth of new hairs; this problem is known in Khalitya.[17,18]

Darunaka (dandruff)

Because of kapha pita, the scalp becomes hard itchy rough and scaly.[19]

Others

- Trichotillomania - This category of loss of hair is called as repetitive self-pulling or compulsive pulling by the patient themselves.
- Traction alopecia - Hair fashion that ties hairs so tight can be a reason of plenty traction at the root of hairs and can increase traction alopecia.
- Chemotherapy and hair loss - Chemotherapy is a specific treatment for most cancer sufferers; however, it impacts everyday cells and hair follicles too. This is the reason for hair loss and is called anagen effluvium kind of alopecia.
- Diffuse alopeica - Undue lack of hair everywhere in the scalp without creating a patch.[15,16]

Epidemiology[21-24]

2% of the global population is affected by alopecia areata. All age group is affected by it, but the incidence occurs higher in children as compared to adults. One study suggested that about 2.6:1–1.2:1 ratio female majority and about 2:1–1.1:1 ratio male majority are affected by this disease. Overall, this immune-mediated disease affects both males and females equally. In the US, AA was approximate to occur in 0.1–0.2% of the general population, with 1.7% lifetime risk and about 4.5–36.1% of patients eventually progress to develop AT and/or AU (AT/AU). Approximately 20% of AA cases constitute a pediatric patient. An individual study reports that about 85.5% of Asian patients with AA have disease commencement before 40 years of age.

Psychological effects of hair loss

Hairs are the ultimate glory of one's personality and the core of attraction. Repeatedly overlooked by doctors are serious psychological effects that can occur when people begin to lose their hair. This may be to some extent due to the beauty effect of visible hair loss and fear of losing hair completely, but also about the importance of this crisis to their general health. Many people feel false self-esteem and may show symptoms of anxiety and depression. Therefore, everyone is in search of better remedies for the growth of new hair and to boost the hairs.[25,26]

Treatment

The following approaches are used for hair fall problems.

- Allopathy
- Homeopathy
- Ayurvedic.

Allopathic approach[27]

Allopathy works immediately by means of blocking dihydrotestosterone (DHT), reversing the impact of DHT on follicles, and elongating the boom section of the hair cycle. Before everything Minoxidil is a gift as a 2%, 5% topical solution accredited by way of USFDA for male pattern baldness and female androgenic alopecia. Finasteride, another FDA-approved drug, has been stated powerfully in 0.25% and 0.5% topical solutions and other tablets, such as dutasteride, spironolactone, cimetidine, oral contraceptive, and anthralin. This allopathic approach has few negative outcomes, such as dandruff, dryness, impotence, erectile, stains in the pores and skin yellowy-brown, dysfunction of the scalp, irritation on pores and skin, redness and dermatitis, dizziness, and decreased libido. All medicine has limited its pharmacological advantages. Mechanism and adverse effects of allopathic drug shown in Table 3.

Homeopathic treatment[28]

For the remedy of alopecia, homeopathic medicines such as *Mancinella*, phosphoric acid, fluoric acid, *Pix Liquida*, *Syphilinum*, and *Ceanothus americanus* are used shown in Table 4.

Ayurvedic treatment

Herbs for alopecia

Ayurveda treats alopecia by way of triggering the causes of problems. A number of mentioned herbs are Paper Mulberry (*Broussonetia papyrifera*), Saw palmetto palm tree (*Serenoa repens*), Ginseng (*Panax ginseng*), Annurca (*Malus pumila*), Ginkgo (*Ginkgo biloba* [*Ginkgoaceae*]), Indian gooseberry

Table 3: Mechanism and adverse effects of allopathic drug

Serial number	Drug	Mechanism of action	Adverse effect
1	Minoxidil	Activate gene regulating hair-protein and peripheral vasodilator	Dandruff
2	Finasteride	5-α-reductase	Erectile dysfunction, impotence
3	Dutasteride	5-α-reductase	Erectile dysfunction, impotence
4	Spironolactone	At receptor sites blocks the action of androgen and inhibits androgen production	Gynecomastia
5	Cimetidine	Antiandrogen	Galactorrhea, gynecomastia
6	Oral contraceptive	Ovarian androgen production is reduced	Headache
7	Oral corticosteroids (prednisone)	Unknown	Headache
8	Anthralin	Antimitotic	Stains the skin a yellowy-brown

Table 4: Homeopathic medicines for the treatment of hair fall

Drugs	Uses
Syphillinum	Syphilinum hair loss with linear pains from temple throughout, or from eyes backward; reason for sleeplessness and delirium at night. Hair falls profusely. Tubercles all around the scalp
Mancinella	*Mancinella* is a homeopathic medicinal drug used to reduce itching inside the scalp with sticky discharge and formation of the crusts, head feeling empty and light
Fluoric acid	Because of few disease conditions, hair fall arises for that purpose, fluoric acid is used to cure hair fall conditions and re-growth of hair inside the bald patches
Phosphoric acid	If the patient is suffering from long-term hair fall involve homeopathic treatment is an option which involve the use of phosphoric acid for the curation of premature graying of hair and thinning of hair
Syphilinum	Hair loss with linear pains from the temple throughout, or from the eyes backward, causes sleeplessness and delirium at night. Hair falls profusely. Tubercles all over the scalp
C. americanus	*C. americanus* widely used remedy for hair loss
Pix liquida	After influenza, pix liquida is used to treat hair fall. Because of influenza scaly eruptions occur on scalp

C. americanus: *Ceanothus americanus*

(*Phyllanthus emblica*), Onion (*Allium cepa*), Lotus Seed (*Nelumbinis semen*), and Bandicoot berry (*Leea indica*).

Paper mulberry

Biological name: *B. papyrifera* (*Moraceae*)

Chemical constituents: Polyphenols and fatty acids.

Mechanism of action: Promotes hair growth through the regulation of STAT6 target proteins and β-Catenin.[29]

Saw palmetto palm tree (American dwarf tree)

Biological name: *Serenoa repens*

Chemical constituent: Phytosterols (β-sitosterol), fatty acids, β-carotene, and polysaccharides

Mechanism of action: Both forms of 5α-R enzyme are inhibited by *Serenoa repens.*

Ginseng

Biological name: *Panax ginseng*

Chemical constituents: Ginsenoside, saponins, polysaccharides, and phenolic compounds

Mechanism of action: Mice treated with RGO upregulate Wnt/β-catenin and Shh/Gli-pathways-mediated expression of genes such as Lef-1, sonic hedgehog, β-catenin, Cyclin E, and Cyclin D1. Hair existent time and the hair shaft length are boosted by bioactive constituent ginsenoside.

Annurca

Biological name: *Malus pumila*

Chemical constituent: tri-terpenoids, phytosterols, phenols, and other components such as protein, vitamins (A, C, and E), α-carotene, and metal elements

Mechanism of action: Murine HF metabolism is regulated by polyphenols of Annurca apple. It is able to inhibit numerous NADPH-dependent reactions and stimulate mitochondrial respiration, β-oxidation, and keratin production.[30]

Ginkgo

Biological name: *G. biloba* (*Ginkgoaceae*)

Chemical constituents: Ginkgolides A, B, C, J, M, bioflavin, sitosterol, lactones, and anthocyanins.

Mechanism of action: *G. biloba* is a well-known herb that increases the oxygen supply by improving cerebral microcirculation.

Indian gooseberry

Biological name: *P. emblica* (*Euphorbiaceae*)

Chemical constituents: Vitamin C, phyllemblin, tannin, phosphorus, iron, calcium

Mechanism of action: Blood iron deficiency is responsible for the loss of hair and it arises because of oxygen deficiency. Bioactive constituents present in gooseberry encourage in maintaining of healthy hair and the re-growth of hairs.

Onion

Biological name: *A. cepa* L. (*Liliaceae*)

Chemical constituents: Protein (albumin), allyl propyl disulfide, diallyl sulfide, alliin, allicin, and some mineral, such as calcium, potassium, zinc, magnesium, and traces of chromium.

Mechanism of action: Improve patchy baldness. Zinc enables to secrete the scalp and avoids dandruff which can be a purpose of hair loss. It is necessary for the normal growth of hair.[31]

Lotus seed

Biological name: *Nelumbinis Semen*

Chemical constituents: alkaloids, flavonoids, minerals, and unsaturated fatty acids.

Mechanism of action:

- The transition from anagen to catagen is inhibited by *Nelumbinis Semen*
- Length of hair follicle tissues is significantly increases by the seeds of *Nelumbinis Semen.*[32]

Bandicoot berry

Biological name: *Leea indica* (*Vitaceae*)

Chemical constituent: Contain long-chain hydrocarbons, phthalate derivatives, palmitic acid, gallic and ellagic acid derivatives, solanesol, phytosterols, triterpenes, catechins, condensed tannins, flavonoids, coumarins, megastigmanes, and oxylipins.

Mechanism of action: Lower DHT levels and inhibit 5α-reductase. This is associated with a balding scalp.[33]

Therapy used for alopecia

Sneha: Oiling of hair is called Sneha according to Ayurveda. Oil applied on scalp with rubbing fingers cures hair fall. Various oils (Taila) are used for Sneha such as moordha taila, bhringraja taila, chandanadhya taila, madhukadi taila, and a combination of mustard oil and coconut oil.

Nasya (nasal drop): Nasya related to nose. Support in acceleration of growth of hair and reduce hair fall. Example: Anu taila, Yashtimadhu kashaya taila nasya, Chandan adhya taila nasya, Markavadhya taila nasya, Vidarigandhadi taila nasya.

Snana (taking bath) – On the basis of Acharya Sushrut, hair should not be washed with too cold water and warm water. Use mild soaps and shampoos for washing hair.

Dhoomapana (medicated smoke) – Hair fall problem treated by medicated smoke; it also improves the firmness of hair. This medicated smoke performed its function by clearing dosh a from the head region.

Kshaur karma – Cutting of hairs and the right care of the hair of the scalp.

Ushnisha – Ushnisha therapy indicates wearing a cap on the head which guards the hair from warmness, wind, and dust.[34,35]

Virechana Karma[36] is a procedure in which the vitiated dosas are eliminated from the body through the anus. It specially removes the pitta dosas from the entire body. Sweat, kidney, stomach, small intestine, colon, spleen, liver blood, and blood toxins are cleansed by the virechana method.

Rasayana prayoga[37,38] – The meaning of *Rasayana* is the approach for attaining admirable *Rasadi Dhatus*. Rasayana is a comprehensive discipline of Ayurveda.

a. In Khalitya, Rasayana medicine acts as an immunomodulator. Occurrence of early aging is determined by premature hair fall. Rasayana is a best anti-aging therapy to reverse early aging process, e.g., Krimikutara, Shatavari Guda, Amalaki rasayana, Narasimha rasayana.
b. The enhanced nutritional popularity and the merits of *Dhatus* result in a series of secondary attributes of *Rasayana*, which impart strength, bestow longevity, *Ojabala*, etc.

Nidan parivarjana[39] – Nidan parivarjana is the principle of the healing stated by Acharya Sushruta. In Khalitya, Nidan parivarjana includes prevention of all causes mentioned under nidans for shiroroga.

Other

Bloodletting[40]: In bloodletting, blood is withdraw from the diseased place of a patient. By bloodletting method, alopecia can be cured, first of all, the patient was advised to complete local abhyanga of the scalp with dhurdhurapatradi taila for 1 week observed using Pracchana (local bloodletting) by Changing technique in the scalp once in a week for 5 weeks. Many Ayurvedic medicines and pathya Aahar were recommended from day 1 till sitting for bloodletting.

Bloodletting procedure

- Using an insulin needle fine superficial pricking was carried out to allow the blood to ooze out from the area. The complete targeted area was pricked.
- After an entire pricking as soon as the oozing of blood stopped, the area was wiped with a spirit swab.
- When there was no oozing of blood after complete cleaning, the patient was suggested to cover the head clean cloth or cap.

Outcome

Marked relief in hair fall, relief in dandruff, and itching in the scalp.

Types

- Irsal e Alaq (leech therapy): Leech therapy is an invasive method; thereupon medicinal leeches are applied on the diseased part to get rid of morbid humors.
- Fasad (venesection): Venesection method in which putrefied humors (ghaleez madda) are evacuated from the blood vessels apart from blood.
- Hijama (cupping): Cupping means sucking; it is a method of balancing the humor. In which suction cups are used to clear the bad body fluid.

Impact of micronutrients on alopecia

Micronutrients are very beneficial for normal hair follicle cycle, and it engages in the cellular turnover of the matrix cells in the bulb of follicle that is speedily dividing. For curing the hair fall problems, micronutrients are increasing their demand. Vitamins and minerals, such as vitamins A, B, C, D, D3, E, iron, selenium, copper, and zinc, play a crucial role in alopecia treatment.[41] Effects of micronutrients shown in Table 5.

Table 5: Effects of micronutrients[42-47]

Micronutrients	Effects
Vitamin D3	Regulate hair cycle, decrease insulin resistance and Rogen level. Directly act on dermal papilla cells
Zinc	Perform as immunomodulatory action, hold back catagen phase, promote recovery from telogen, and prevent follicle regression
Copper	Assistance in the proliferation and differentiation of dermal papilla cells
Vitamin C	Vitamin C is an essential cofactor in the enzymatic step forming collagen and it helps in cross-linking of keratin fibers. Degeneration of hair follicles occurs due to oxidative stress thus it is improved by Vitamin C because it acts as an antioxidant
Niacin	Involve the production of ATP and provide energy support to cells. Hair loss occurs due to niacin low intake
Folate	Folate acts as a coenzyme involved in amino acid metabolism and the synthesis of nucleic acid
Vitamin A	Role in controlling hair cycling
Tyrosine	Hair growth improved
Lysine mono HCL	In telogen effluvium, this micronutrient promotes hair growth
L-ornithine	Protein and DNA synthesis
Ferrous fumarate	Prevention from anemia
Vitamin E	Helps in sustaining the potentiality of cell membranes of hair follicles. Act as an antioxidant. Cure the impact of free radicals on cell membranes by reducing peroxide concentration in the cell
Selenium	Promote hair growth by acting as an antioxidant
Fatty acids	By inhibiting 5α-reductase, it modulates androgen action. An omega-6 fatty acid and arachidonic acid enhance follicle proliferation and promote growth of hair
Amino acids and proteins	Amino acid and protein in combination with other nutrients promote hair growth

Allopathic versus homeopathic

Allopathic medicine or mainstream medicine aims to prevent illness and cure illnesses too. Allopathic medicine follows constant research and testing so it is more evidence-based medication. In comparison, homeopathy drugs have not had any or adequate amounts of research and testing. The correct dosages, effects, and side effects may not be known. Homeopathy drugs also are not regulated. Some

may contain ingredients that have unknown or harmful effects.

The homeopathic medicine has no power for good or evil. The homeopathic practitioner seeming to do something, in reality, does nothing to delay the course of the disease unless as is not infrequently the case, he surreptitiously employs allopathic treatment.[48-50]

Ayurvedic versus Allopathy

Ayurveda aims to cure hair fall problems and regrowth though ayurvedic products. It targets the root causes of hair loss. Patients turn to Ayurvedic formulations in an attempt to find safe, natural, and efficacious therapies to restore hair in comparison to allopathic formulation; various allopathic medications such as minoxidil and finasteride are available in the market but many of these do not fulfill the requirements, have a great effect on patient compliance, and produce various side effects, such as redness, hypotension, reoccurrence of alopecia, impotence, skin rashes, and ejaculation disorder.[51,52]

CONCLUSION

Alopecia is a major problem among urban people due to stress environmental problems. In this review, diverse types of alopecia have been discussed with prominence given to their effect on the hair follicle and hair growth cycle. Medication for alopecia together with its pros and cons has been indicated. The review also discussed the mechanism of action of common drugs used or purported to treat the condition. The review was dedicated to giving possible ways by which prospective future therapies must arrest shortcomings of conventional medication using the available knowledge base and technological advancement.

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