

Usūl E-Ilāj of Qillat Sh‘ar with respect to Androgenic Alopecia in Male with Special Reference to Ilāj Bi‘l Ghidhā (Dietotherapy)

Mohd Anus Ansari ¹, Aafreen ², Ashhar Qadeer ³, Mohammad Zubair ⁴

¹Assistant Professor, Department of Kulliyat, Uttaranchal Unani Medical College and Hospital, Haridwar, Uttarakhand. Uttarakhand Ayurved University.

²Research Scholar, Department of Amraz-e-Niswan wa Qabalat, Ayurvedic and Unani Tibbia College, Karol Bagh, New Delhi, University of Delhi.

³Professor & Chairman, Department of Kulliyat, Ajmal Khan Tibbiya College, Faculty of Unani Medicine, Aligarh Muslim University, Aligarh, U.P., India. 202002

⁴Associate Professor & Principal, Department of Tashreeh-ul-Badan, Ayurvedic and Unani Tibbia College, Karol Bagh, New Delhi, University of Delhi.

ABSTRACT:

Purpose: *Qillat sh‘ar* (Loss of Hair) is now a common problem in either sex that disturbed mentally, cosmetically and physically. The main reason behind it the deficiency of required nutrients (vitamins and minerals) in the daily diet which leads to scalp and hair malnutrition. So in this paper the role of *Ilāj Bi‘l Ghidhā* (dietotherapy) in the nourishment of scalp & hairs will be discussed.

Background: *Ibn Sina* (Avicenna) states that the main cause of *Qillat Shar* is intrinsic not extrinsic. He says that to improve and make the roots of hair strong, it is very much needed and essential to give proper diet internally to the formation of *Akhlāt Mahmooda*.

Methodology: In the view of *Avicenna*, the essential nutrients to improve the condition are searched and such a dietary materials are listed that can fulfill the essential need to counter the androgenic alopecia (AGA) in male.

Conclusion: As it is a literature based hypothetical dietary plan to treat AGA, therefore the clinical trials upon this format must be done to see the efficacy of diet therapy individually that can save the human body from the burden of drugs and chemicals.

Index Terms: *Qillat sh‘ar*, androgenic alopecia treated by *Ilāj Bi‘l Ghidhā* (dietotherapy), Unani.

INTRODUCTION: Hair loss is a major problem that is being faced by many young age group nowadays. Imbalance in the essential diet, stress, and many other evidences are here that lead to hair loss. As far as *androgenic alopecia* (AGA) is concerned, the main reason is the development and accumulation of DHT that alters the physiology of hair and result in to male pattern baldness. The cause of AGA is intrinsic so to counter it the best possible route is *Ilāj Bi‘l Ghidhā* (dietotherapy). Human body is friendlier for the dietary material than drugs and synthetic chemicals as their side effects are also disturbs the physiology. So in this work, the possible management of AGA is planned as per the literature and with the help of such diet plan that will help to regress the condition.

Therefore, in the upcoming sections of this manuscript, pathophysiology of AGA will be discussed followed by the brief introduction about the *Ilāj Bi'l Ghidhā*. After that such nutrients along with the dietary materials will be described that may check the formation of AGA or help to regrow the hair roots. In the last a hypothetical diet plan, having of different kind of essential nutrients as per categorized manner will be formed to testify the knowledge of classical literature on the basis of scientific evidences.

LITERATURE REVIEW:

The *Unani* classical literature regarding the hair loss was searched into the depth but exact AGA is not there because of unknown etiology at that time. But the term *Qillat sh'ar* is there which closely resembles to this as per sign, symptoms and the pattern of description. In the famous book *Al-Qanoon Fil-Tibb* (The Canon of Medicine), the renowned *Unani* scholar *Ibn Sina* (Avicenna) described the *Qillat sh'ar* also. The causative approach as well as main principle of treatment given by him that is also based upon his rich literature that was searched to compile his book.

Ibn Sina states that the main cause of *Qillat Shar* is intrinsic not extrinsic which are as follow; decreased amount of *Ruṭūbat* (wetness), increased *Yubusat* (dryness), accumulation of *Akhlāṭ Ghair Mahmooda*, chronic diseases of liver and stomach, lack of proper hygiene, chronic *Nazla* (Rhinitis). *Ibn Sina* also says that to improve and make the roots of hair strong, it is very much needed and essential to give proper diet internally to the formation of *Akhlāṭ Mahmooda*.^(1, 2, 3)

Only external application of hair oils, shampoos and other means are not effective in the treatment of it. The key factor should be corrected which is that to stop and block the development of DHT from inside.

Hair Structure: Hair is poised of resilient structural protein called keratin. It is the similar kind of protein which makes up the nails and the outer layer of skin. Each strand of hair comprises of three layers. An innermost layer or medulla that is only present in large thick hairs. The middle layer is called cortex that provides strength as well as the color and the texture of hair. The outermost layer is called cuticle which is thin and colorless and functions as a defender of the cortex.^(4, 5)

Structure of the hair root: Underneath the surface of the skin is the hair root, which is encircled inside a hair follicle. At the base of the hair follicle is the dermal papilla that is fed by the bloodstream which carries nourishment to produce new hair. The dermal papilla is very important to hair growth because it contains receptors for male hormones and androgens. Androgens regulate hair growth and in scalp hair androgens may cause the hair follicle to become gradually smaller and the hairs to become finer in persons who are genetically predisposed to this type of hair loss.^(5, 6)

What Causes Androgenic Alopecia (AGA)? The hair follicle is a structure that encases the lower part of the hair shaft. Every single follicle holds blood vessels that nurture new hair growth. All of the hair follicles are present at birth and during the course of lifespan each follicle grows and sheds single hairs in a repetitive cycle. The growth phase for a solitary new hair persists two to three years. At the end of this time, growth ceases and the follicle enters a resting phase. After three to four months in the resting phase, the hair is shed and the next growth cycle begins. On a normal scalp, nearly 80 to 90 percent of follicles are growing at any

time. And every day, about 75 follicles shed their hair and the similar number enter a new growth phase. Persons who experience this kind of hair loss have some hair follicles with a shorter than normal growth phase and harvest hair shafts that are abnormally short and thin. These follicles are called to be miniaturized. They progress because of hormonal changes that occur in the hair follicle itself, although men with male pattern balding also may have higher levels of dihydrotestosterone (a byproduct of testosterone) in the blood. (7, 8)

What areas of the scalp are most affected? In men, androgenetic alopecia is categorized by steady hair thinning that most often affects the crown and frontal areas of the scalp. In many men, the hairline around the temples regresses. As it moves back to the mid-scalp, M-shaped hair pattern develops. The hair in areas affected by hair loss may be of various lengths and thickness and the presence of uneven lengths and texture is a classic sign of male pattern balding. (7, 8)

How male pattern is balding diagnosed? Androgenetic alopecia can characteristically be readily diagnosed in men built on visual inspection of the scalp. A family history of similar hair loss also is suggestive of androgenetic alopecia. The scalp should be inspected carefully, however, for signs of hair disease such as scarring or follicular plugging. In accumulation, other reasons of hair loss should be measured, including certain ailments (such as hyperthyroidism, hypothyroidism, or iron deficiency) or medication side effects (such as anticoagulants, anticonvulsants, beta blockers, and antidepressants). Women may hardly experience hair loss due to an excess of male hormones (androgens). Classically these women have other signs of androgen excess, such as menstrual abnormalities, acne and excess hair growth in other zones.

Androgenic alopecia in men or male pattern baldness is recognized progressively as a physically and psychologically medical ailment that can be accomplished efficiently by dieto therapy. The objective of this study was to evaluate the effectiveness of combination diet therapy in *Asian* men with AGA. Although AGA is often regarded as a relatively slight dermatological disorder, hair loss can impact self-image and is a principal basis for anxiety and depression in some men. Hair loss also can psychologically affect the balding individual and can influence others' perceptions of him. A progressive condition, male pattern baldness is known to depend on the presence of the androgen dihydrotestosterone (DHT) and on a genetic predisposition for this condition, but its pathophysiology has not been clarified completely. (8, 9, 10) Pharmacotherapy, hair transplantation and cosmetic assistances have been used to cope up male pattern baldness.

AGA is characterized by follicular miniaturization in a patterned hair loss occurring due to systemic androgen and genetic aspects. The age of onset is usually the third and fourth decades, but the hair loss starts instantly after puberty and continues gradually. According to *Hamilton's* study, by the age of 30 years, the mean prevalence of AGA is 30 percent, and this rate rises to 50 percent by the age of 50 years. There are racial as well as age-related differences in the incidence and pattern of hair loss in AGA, and both prevalence and severity of AGA were reported to be lower in *Asian* and *Black* men than in *Caucasians*. The onset of AGA in *Japanese* men occurs one decade later than in *Caucasian* men. A familial tendency to AGA and

racial variation in the prevalence is well recognized, with heredity accounting for approximately 80 percent of predisposition. Normal levels of androgens are sufficient to cause hair loss in genetically susceptible individuals. AGA has various psychosocial impacts on the affected individual and can cause emotional distress.

The following three factors are the key pathophysiological features of AGA.

- *Alteration in the hair cycle development,*
- *Follicular miniaturization, and*
- *Inflammation.*

Alteration in the hair cycle development: The anagen phase decreases with each cycle and the length of telogen remains continuous or is prolonged in patients with AGA. Anagen interval becomes so short that the growing hair fails to achieve appropriate length to reach the surface of the skin, leaving an empty follicular pore.

Follicular miniaturization: Hair follicle miniaturization is the *histological hallmark* of AGA. Once the arrector pili muscle, which attaches circumferentially around the primary follicle, has detached from all secondary follicles and primary follicles have undergone miniaturization and detachment, hair loss is likely irreversible.

Inflammation: Inflammation around the upper part of the hair follicles has been well described in many researches.

Antagonist of type-II-5-alpha reductase. Five alpha reductase alters testosterone into dihydrotestosterone (DHT). DHT, binding to the scalp hair follicle androgen receptors, results in AGA. Some diets reduce DHT production and limit its action on scalp hair follicles.

Cutaneous blood flow due to vasodilatory properties and up-regulates vascular endothelial growth factor that helps in maintaining dermal papilla vasculature and hair growth. This promotes hair regrowth through its action to open potassium channels. The effect on the cell cycle is to initiate the onset of anagen (thereby shorten telogen duration) and to lengthen the duration of anagen by delaying initiation of catagen. ⁽⁹⁻¹³⁾

Can male pattern balding be treated? U. S. Food and Drug Administration approved hair loss pharmacotherapies; the potassium channel blocker like minoxidil and the dihydrotestosterone synthesis inhibitor like finasteride are safe and effective for controlling male pattern baldness with long-term daily use. A medication called spironolactone is also sometimes used in women. Surgical options may also be considered in some cases.

The above drugs are well known and used to treat male pattern baldness. But in this paper a literature based hypothesis is being formed which must be clinically tested upon the required sample of persons who have androgenic alopecia.

In *Unani* classical literature, the various *Unani* scholars had been given emphasis upon the role of diet to keep hair healthy. *Ibn Sina* says that it is best to treat hair problems with the help of *Ilāj bi'l Ghidhā*.

Usool-e-Ilāj (Principles of Management): Preservation and restoration of health whether it is local or systemic is done by *Kullīyat Usool e-Ilāj* is based on: ⁽¹⁴⁻¹⁶⁾

- **Asbāb Sihat wa Marz (Factors responsible for health and diseases):** *Asbāb-e-Faila* (Causes/factors that are responsible for the health/disease/neither health nor disease.)
- **Asbāb-e-Hafiza:** For the preservation of the state of body be it health/disease/neither health nor disease.
- **Asbāb-e-Badiya** (External factors; Efficient & co-efficient factors)
- **Asbāb-e-Badaniyya** (Internal factors; *Akhlāt, Mizāj, Tarkīb*).
- **Alāmat** (Sign & Symptoms): Abnormality in morphology in contrast to *Sakht* (Anatomy) and *Af'al* (Physiology) is diagnosed with the help of senses in the form of *Alāmat*.

USOOL-E-TASHKHĪṢ (PRINCIPLES OF DIAGNOSIS):

- *Nabz* (Pulse)
- *Bawl* (Microscopic & macroscopic examination of urine),
- *Baraz* (Microscopic & macroscopic of Stool) and
- Other bodily investigation (Blood investigations, hormonal & enzymatic assays, X-Rays, CT-Scan, Ultrasonography, MRI etc.).

ILĀJ (Treatment):

- *Ilāj bi'l Naseeha* (Psychotherapy)
- *Ilāj bi'l Tadbīr* (Regimenal Therapy),
- *Ilāj bi'l Ghidhā* (Dietotherapy),
- *Ilāj bi'l Dawā* (Pharmacotherapy), and
- *Ilāj bi'l Yad* (Surgery).

As per requirement of the topic we have to form *Usool Ilāj* with respect to *Ghidhāyi Tadabeer*, therefore the focus is being done upon *Ilāj bi'l Ghidhā* only. The treatment of androgenic alopecia with the help of adequate diet is planned in this work by keeping pathophysiology of androgenic alopecia.

It is easy to stress over what is causing this hair loss. It could be stress, a bad diet, unlucky genetics, or is it a lifestyle factor that can be fixed through a change in behavior. The realism is that hair loss in men is primarily caused by dihydrotestosterone (DHT), a male steroid hormone that binds to receptors in scalp and in genetically susceptible men is responsible for hair loss.

What is Dihydrotestosterone (DHT)? Dihydrotestosterone (DHT) is an androgen formed as a byproduct of testosterone. When body produces testosterone, a minor quantity is converted into DHT. This DHT can bind to receptors in scalp and cause the hair follicles to weaken over time, consequential in a fading hairline or thinning hair. DHT is a properly foremost male sex hormone that is responsible for things like forming male genitalia throughout pregnancy. However, it's unlike from other male sex hormones alike testosterone in several important ways.

Body produces DHT as a byproduct of testosterone through the 5 alpha-reductase enzyme; an enzyme that converts a certain percentage of testosterone into DHT in tissue such as the skin, liver, prostate and hair follicles.

Miniaturization: In genetically prone to hair loss, DHT can bind to receptors in hair follicles and cause them to weaken, shrink and eventually die. This course is called miniaturization, and it ultimately leads to a complete end of hair growth in DHT-affected hair follicles.

Remarkably, DHT is an imperative hormone for hair growth in other areas of the body like the growth of hair on chest, back and other areas. Since DHT is the principal hormone responsible for hair loss in men, the most effective way to slow down and prevent hair loss is to block DHT. A more active process for blocking DHT is to block it at the source. Drugs alike finasteride block the conversion of testosterone to DHT by binding to the 5 alpha-reductase enzyme, inhibiting body from generating any DHT in the first place. In fact, there is something even more significant to checking hair loss, and that's DHT sensitivity. There are some people who suffer from hair loss don't have abnormally high levels of DHT, it's just their hair follicles and the dermal papilla are more sensitive to DHT than those who don't suffer from it.

For that reason, in this work, list of all the nutrients that have vital vitamins and minerals that decrease DHT sensitivity, as well as blocking it. Some vitamins work directly, some promote overall good health that can then lead to lower DHT sensitivity, but both will be discussed here. Few minerals to the list also have been added that can help block DHT as well.

ILĀJ BI'L GHIDHĀ (DIETOTHERAPY): *Ilāj bi'l Misl* empowers the body, systems, organs, tissues, or cells. It is known for *Taqwiyat* (to empower), to do this different types of food are given as a part of diet or in other words diet is advised with respect to need of the body. In this context *Ilāj bi'l Ghidhā* is equivalent to *Ilāj bi'l Misl*. Regulation of dietary habits (time, amount, order, quality, and temperament of ingesting food or drink) is of great importance in this regard as it may be curative by itself. ^(1,17)

Dietotherapy pursues to reinstate the imbalance in the body due to unhealthy lifestyle. The management of the diseases in *Unani* system of medicine is fundamentally based on the holistic approach with a purpose to treat body, mind and soul. ⁽¹⁸⁾ The *Ilāj Bi'l Ghidhā* is a distinguishing non-medicinal therapy in which the treatment is done by modulation in dietary habits. In current scenario, various life style disorders such as diabetes, hypertension, dyslipidemia etc can be achieved by selecting appropriate diet either alone or as adjuvant with pharmacotherapy. Some other conditions such as malnutrition, anemia, vitamin deficiency etc can also be treated by using suitable diet.

Dietotherapy has an extensive history, it sprouts from the *Zhou Dynasty* (1000BC), *Zhang Ji* who was a renowned physician in the *Han dynasty*, comprehended the action of dietotherapy for the management of different diseases. ⁽¹⁹⁾ The *Charaka Samhita & Sushruta Samhita* classical books of *Ayurveda* had also been described dietetics as an isolated subdivision. In *Unani* system of medicine, the role of diets and drinks for health problems had been considered very much important since the days of *Hippocrates* (460-370 BC). Other ancient *Unani* physicians like *Aristotle* (384-322BC), *Celus* (53BC-7AD) and *Galen* (130-200 AD)

had also been emphasized on the use of several food items for the treatment of general and specific ailments of the human body. ⁽²⁰⁾

The importance of food and drink for healthy life of an individual and adaptation of nutritional diets for the prevention and treatment of a different condition are quoted by numerous ancient *Unani* physicians. *Hippocrates* states that “*let food be your medicine, and medicine be your food*”, and “*leave your drugs in the chemist’s pot, if you can heal the patient with food*”. ⁽²¹⁾ Other related statements of *Hippocrates* are “*the cause of sickness is over eating and the cause of health is eating like a bird*”, “*take food only when you have desire*”. ⁽²²⁾

Avicenna quotes that “*stomach is the house of disease and diet is the head of healing*”. ⁽¹⁹⁾ *Aristotle* states that “*the persons who takes grapes juice, bread and mutton, doing physical exercise, taking adequate sleep won’t be ill frequently*”. *Haris bin Kalda* quotes that *anaar* (pomegranate) is the best fruit amongst all the fruits, rose is the best essence among all the essences, and *Kasni* (*Cichorium intybus*) is the best vegetable among all the vegetables”. ⁽²²⁾ *Razi* quotes that “*good nutrition, adequate rest, happiness and best line of treatment are the pillars for curing of diseases*”. He also states that “*the amount of desired eatables should be less for a patient*”, and “*whenever possible, treatment of the diseases should be done by diets, not only by drugs*”. ⁽²³⁾

A deficiency of the right nutrients including vitamins A, C, D and E, zinc, B vitamins, iron, biotin, protein and essential fatty acids may slow down hair growth or even cause hair loss. Fortuitously, improving an insufficiency in any of these nutrients may help treat hair loss and promote the rate of hair growth. Like any other part of body, hair needs a variety of nutrients to be healthy and grow.

Below are the few best foods that can promote hair growth. Such diets should be taken that contain such nutrients that promote DHT production and work as an antagonist to 5 alpha reductase and may helpful to cure androgenic alopecia (AGA)/Male androgenic alopecia (MAA) to maximum extent. ⁽²⁴⁾

Vitamin-A: All cells require vitamin-A, for growth, this includes hair too. Vitamin-A also benefits skin glands by making an oily material called sebum that moisturizes the scalp and helps keep hair healthy. Diets lacking in vitamin-A may lead to several problems, including hair loss. Sweet potatoes, carrots, pumpkins, spinach and kale are all high in beta-carotene, which is turned into vitamin-A. Vitamin-A can also be found in animal products such as milk, eggs and yogurt. Cod liver oil is a particularly good source.

B-Vitamins: B-vitamins help to create red blood cells that carry oxygen and nutrients to the scalp and hair follicles. B-vitamins can be taken from many foods, including whole grains, almonds, meat, fish, seafood and dark, leafy greens. Additionally, animal foods are the only good sources of vitamin B-12. So if vegetarian diet is being taken, consider taking a supplement.

Folic Acid (Vitamin B-9): Folic acid and folate are often confused, but folic acid is the synthetic form of folate. Folate is naturally found in foods and is much better absorbed by the body. It synthesizes and repairs DNA while also ensuring it functions as it should. This is important for a wide variety of biochemical processes, including hair growth.

It is best to consume foods high in Vitamin B-9, as the mainstream of this is folate (unless it was intentionally added, then it is folic acid). Foods that have naturally high quantities of vitamin B-9 include: broccoli, brussels sprouts, liver, spinach, collard greens, turnip greens, mustard greens, romaine lettuce, asparagus, papaya, oranges, grapefruit, strawberries, raspberries, lentils, pinto beans, garbanzo beans, black beans, kidney beans, green peas, green beans, celery, beets, squash.

Niacin (Vitamin B-3): It is an essential human nutrient and one which can be found in high quantities in a variety of foods. Its main claim to fame when talk about to fighting hair loss is its ability to increase blood circulation in the scalp.

There are many hair loss causes, but a major factor in hair's health is its access to a continuous blood flow. When blood flow is limited, it can lead to brittle hair which easily breaks. This can also compound the effects of DHT, as no blood flow means there's no way for chemicals (including DHT) to be removed from the follicle). And it is also a fact that men with early male-pattern baldness (MPB) had subcutaneous blood flow that was 2.6 times less than their healthy counterparts. Other benefits of niacin supplementation include anti-inflammatory effects, (great for reversing hair follicle miniaturization) and increased keratin synthesis. Avocado, sunflower seeds, green peas, liver, fish (including fish oils) and mushrooms are the best source of niacin.

Biotin (Vitamin B-7): It is one of the best known vitamins for hair growth. Studies link biotin deficiency with hair loss in humans. It plays a major role in the metabolism of food. It's also been shown to be a major component of the hair, skin, and nails, as biotin functions as a protein synthesizer. Biotin is found in abundance in the foods we eat, and it can even be produced by healthy gut flora. Beef liver; egg, salmon, sunflower, seeds, sweet potato and almonds are the rich source of it.

Vitamin-C: Free radical damage can block growth and cause hair to age. It is a powerful antioxidant which helps to protect against the oxidative stress caused by free radicals. In addition, it also helps to create a protein known as collagen (an important part of hair structure). It also helps body to absorb iron, a mineral necessary for hair growth. Strawberries, peppers, guavas and citrus fruits are all good sources of vitamin-C.

Vitamin-D: Low levels of vitamin-D are linked to alopecia. Vitamin-D may help to create new follicles. Body produces vitamin-D through direct contact with the sun's rays. Good dietary sources of vitamin-D include fatty fish, cod liver oil, some mushrooms and fortified foods.

Vitamin-E: Vitamin-E is an antioxidant that can prevent oxidative stress. Perhaps one of the best known antioxidants is Vitamin-E. It has two forms; tocopherols and tocotrienols. Tocotrienols in particular have been proven beneficial for hair growth, and just eight months of supplementation led to a 34.5% hair count increase. Sunflower seeds, almonds, spinach and avocados are all good sources of vitamin-E. Vitamin-E, especially tocotrienols, is found in a few common foods. These include: Coconut, wheat germ, palm oil, rice bran, olive oil, maize, sunflower seed oil.

Zinc and Selenium: Zinc plays a significant role in hair tissue growth and repair. It also helps to keep the oil glands around the follicles working properly. Hair loss is a common symptom of zinc deficiency. Though,

there are some anecdotal reports that supplementing with too high of a dose can also contribute to hair loss. For this reason, it may be better to get zinc from whole foods. Foods high in zinc include oysters, beef, spinach, wheat germ, pumpkin seeds and lentils.

As antioxidants, zinc and selenium are vital in the fight against free radicals. They guard the skin (and other organs) from aging, and keep many cellular processes functioning properly. Interestingly, both zinc and selenium also play a role in the keratinization process.

It is not essential to take these vitamins daily, as an excess of zinc can lead to thinning and hair loss. A better course of action is to ingest foods rich in these vitamins. These include: Oysters, red meats, almonds, pumpkin seeds, wheat germ, egg yolks and soy products.

Magnesium: It acts as a major regulator of biochemical processes within the body. It is also been shown to play an important role in hair health and growth. Magnesium is sometimes linked to calcium, and here is why; magnesium is often used to 'regulate' calcium's presence. This is because too much free calcium within the body can lead to calcium deposits. In people with hair loss, this can even lead to calcification of the scalp. If not treated, this can lead to fibrosis of the tissues, which results in irreversible baldness.

Iron: Iron helps red blood cells carry oxygen to cells that makes it a vital mineral for many bodily functions, including hair growth. Iron deficiency, which causes anemia, is a chief cause of hair loss. Foods high in iron include clams, oysters, eggs, red meat, spinach and lentils.

Protein: Hair is made almost completely of protein. Animal studies show that protein deficiency may decrease hair growth and even lead to hair loss.

The best way to get these nutrients is by eating a balanced, real food-based diet that includes plenty of nutrient dense foods. There is only a limited amount of food that can be eaten in a single day. To maximize the amount of nutrients, it makes sense to spend calorie budget wisely. The best way to do that is to simply eat the foods that carry the greatest amount and variety of nutrients. Therefore, here below some common foods are being advised to fulfill the above described nutrients in the form of combination diet.

Eggs: Eggs are a great source of protein and biotin, two nutrients that may promote hair growth. Eating adequate protein is important for hair growth because hair follicles are made of mostly protein. A lack of protein in the diet has been shown to promote hair loss. Biotin is essential for the production of a hair protein called keratin. However, biotin deficiencies are uncommon if a balanced diet is taken. There is little evidence to show healthy people benefit from consuming more biotin.

Eggs are also a great source of zinc, selenium and other hair-healthy nutrients. This makes them one of the best foods to consume for optimal hair health.

Berries: Berries are laden with valuable complexes and vitamins that may promote hair growth. This includes vitamin-C, which has strong antioxidant properties. For example, 1 cup (144 grams) of strawberries provides an impressive 141% of daily vitamin-C needs.

Also, the body uses vitamin-C to produce collagen, a protein that helps strengthen hair to prevent it from becoming brittle and breaking. Vitamin-C helps the body absorb iron from the diet. Low iron levels has been linked to hair loss.

Spinach: Spinach is a healthy green vegetable that's full of beneficial nutrients like folate, iron, vitamins-A and C. Vitamin-A helps the skin glands produce sebum. A cup (30 grams) of spinach provides up to 54% of daily vitamin-A needs. Spinach is also a great plant-based source of iron, which is essential for hair growth.

Fatty Fish: Fatty fish like salmon, herring and mackerel have nutrients that may promote hair growth. They are tremendous sources of omega-3 fatty acids that have been linked to hair growth. A supplement containing omega-3 and omega-6 fatty acids as well as antioxidants reduced hair loss and increased hair density. Taking a fish oil supplement significantly reduced hair loss and increased hair growth in women with thinning hair. Fatty fish is also a great source of protein, selenium, vitamin D-3 and B-vitamins.

Sweet Potatoes: Sweet potatoes are a rich source of beta-carotene. The body transforms this compound into vitamin-A which is linked to good hair health. A medium sweet potato (about 114 grams) contains enough beta-carotene to deliver more than four times of daily vitamin-A needs.

Avocados: Avocados are nutritious and a rich source of healthy fats. These fats cannot be produced by the body, but are essential building blocks of cells. A deficiency in essential fatty acids has been linked to hair loss. They are also a tremendous source of vitamin-E. One medium avocado (about 200 grams) provides 21% of daily vitamin-E needs.

Nuts: Nuts contain a variety of nutrients that may promote hair growth. For example, an ounce (28 grams) of almonds provides a notable 37% of daily vitamin-E needs. They also deliver a wide variety of B-vitamins, zinc and essential fatty acids.

Seeds: Seeds supply an enormous amount of nutrients with relatively few calories. These comprise vitamin-E, zinc and selenium. An ounce (28 grams) of sunflower seeds provides nearly 50% of daily vitamin-E needs, with a wide variety of hair-healthy B-vitamins.

Seeds like flaxseeds and chia seeds also provide omega 3 fatty acids. One-ounce (28-gram) serving of flaxseeds provides 6,388 mg of omega-3 fatty acids.

Sweet Peppers: Sweet peppers are also an excellent source of vitamin-C. In fact, one yellow pepper provides nearly 5.5 times as much vitamin-C as an orange. Sweet peppers are also an excellent source of vitamin-A.

Oysters: Oysters are one of the best food sources of zinc. Getting zinc from foods like oysters may be better than taking supplements, since foods provide zinc in small but healthy doses.

Shrimp: Shrimp are popular shellfish rich in many nutrients that have the potential to encourage hair growth. For example, shrimp are a great source of protein, B-vitamins, zinc, iron and vitamin-D. A 3.5-ounce (100-gram) serving of shrimp provides 38% of daily vitamin-D needs. Despite being very low in fat, shrimp also provide a small amount of omega-3 fatty acids.

Beans: Beans are a rich plant-based source of protein. Like oysters, beans are also a good source of zinc. A 3.5-ounce (100-gram) serving of black beans provides 7% of daily zinc needs. They also deliver many other hair-healthy nutrients, including iron, biotin and folate.

Soybeans: Spermidine is abundant in soybeans which prolonged a phase of active hair growth called the anagen phase. The longer a hair follicle stays in the anagen phase, the longer it will grow. Test-tube studies have also shown that spermidine promotes human hair growth.

Meat: Meat is a staple in many people's diet and is rich in nutrients that may aid hair growth. The protein in meat aids growth and helps repair and strengthen hair follicles. A 3.5-ounce (100-gram) serving of cooked sirloin steak provides as much as 29 grams of protein. Especially red meat is rich in a type of iron that is easy to absorb. This mineral helps the red blood cells deliver oxygen to all cells in the body, including hair follicles.

Salmon: Salmon contain the greatest amount of omega 3s fatty acids. Omega-3s are extremely important for the optimal function of body. It also packs a massive amount of other nutrients. It is good to eat fatty fish at least once or twice a week to get all the omega-3s of body needs. A 100-gram piece of wild salmon comprises 2.8 grams of omega-3s, along with lots of high-quality animal protein and plenty vitamins and minerals, including large amounts of magnesium, potassium, selenium and B-vitamins. Wild salmon instead of farmed is best in quality. It is more nutritious, has a better omega 6 to omega 3 ratio and is less likely to hold contaminants.

Kale: Of all the healthy leafy greens, kale is the king. It is full of vitamins, minerals, fiber, antioxidants and various bioactive compounds. A 100-gram portion of kale contains:

- ✓ Vitamin C: 200% of the Recommended Daily Intake (RDI),
- ✓ Vitamin A: 300% of the RDI,
- ✓ Vitamin K1: 1,000% of the RDI.

Large amounts of vitamin B-6, potassium, calcium, magnesium, copper and manganese is also found.

Seaweed: There are thousands of diverse plant species in the ocean, some of which are very nutritious. Typically, they are referred to collectively as seaweed. In several cases, seaweed is even more nutritious than land vegetables. It is particularly high in minerals like calcium, iron, magnesium and manganese. It is also laden with various bioactive compounds, including phycocyanins and carotenoids. Some of these substances are antioxidants with powerful anti-inflammatory capacities.

Garlic: It is high in vitamins C, B-1 and B-6, calcium, potassium, copper, manganese and selenium. Garlic is also high in beneficial sulfur compounds such as allicin.

Shellfish: Commonly consumed types of shellfish include clams, oysters, scallops and mussels. Clams are among the best sources of vitamin B-12 in existence, with 100 grams of clams supplying over 16 times the RDI. They are also loaded with vitamin-C, various B-vitamins, potassium, selenium and iron.

Potatoes: A single large potato is high in potassium, magnesium, iron, copper and manganese. It also contains vitamin-C and most B-vitamins.

Liver: The current Western diet has ranked muscle meat over organ meats. Compared to the organs, muscle meat is nutritionally poor. Out of all the organs, liver is by far the most nutritious.

A 3.5-ounce (100-gram) portion of beef liver contains:

- ✓ Vitamin B12: 1,176% of the Daily Value (DV)
- ✓ Vitamin B5, vitamin B6, niacin and folate: Over 50% of the DV
- ✓ Vitamin B2: 201% of the DV
- ✓ Vitamin A: 634% of the DV
- ✓ Copper: 714% of the DV
- ✓ Iron, phosphorus, zinc and selenium: Over 30% of the DV
- ✓ High-quality animal protein: 29 grams

Eating liver once per week is a good way to ensure to get optimal amounts of these vital nutrients.

Sardines: Sardines are small, oily fish that can be eaten whole. They encompass a little bit of virtually every nutrient that body needs and are nearly nutritionally perfect. Like other fatty fish, they are also very high in heart healthy omega-3 fatty acids.

Blueberries: When it comes to the nutritive value of fruits, blueberries are in a league of their own. Though not as high calorie for calorie in vitamins and minerals as vegetables, they are packed with antioxidants including anthocyanins.

Egg Yolks: Egg yolks are loaded with vitamins, minerals and numerous powerful nutrients, including choline. They are high in lutein and zeaxanthin, antioxidants. Eggs also contain high-quality protein and healthy fats.

Dark Chocolate (Cocoa): Dark chocolate with a high cocoa content is one of the most nutritious foods. It is overloaded with fiber, iron, magnesium, copper and manganese and antioxidants. Eating a small square of quality dark chocolate every day may be one of the best ways to supplement diet with additional antioxidants.

Discussion: The above described nutrients may be used to complete the daily requirement of essential vitamins, minerals and other nutrients. According to the daily requirement of each essential vitamin and mineral the combinative diet therapy should be given at least 6 months to see the result.

- The diet plan may be divided as follows:
 - ✓ **Category-1:** Iron rich foods,
 - ✓ **Category-2:** Foods with calcium and vitamin D,
 - ✓ **Category-3:** Foods with folate or folic acid,
 - ✓ **Category-4:** Foods with other critical vitamins and nutrients.

The above four categories should be given either along with staple diet or by modification in the routine dietary habits. As far as literature, pathophysiology about the male pattern baldness and the significance of various essential vitamins and minerals are concerned; it senses that the condition can be regressed just with the help of dietotherapy. So, the trials should be commenced in the form of research upon required number of subjects either by the post graduates of Unani colleges or by the researches going in the centres of CCRUM/Ministry of Ayush. If the results are satisfactory then it would be very helpful to the patients as well as it will show the scientific validation of *Ilāj Bi'l Ghidhā* with respect to specific condition.

Conclusion: *Tibb* (Medicine) has two folds i.e., '*Ilmi* (Theoretical) & '*Amali* (Practical), first one is *Tibb-e-Ilmi*; so, theoretical knowledge has been discussed in this paper with respect to *Qillat Shar*. Second one is *Tibb-e-'Amali* that means applied aspect/practical of *Tibb-e-'Ilmi*; it should be done to counter the problem as per hypothesis planned by this literature. As a particular form of treatment, dietotherapy has long been practiced since the period of *Hippocrates, Galen, Razi, Avicenna* etc. This form of treatment is widely acceptable, accessible and above all affordable to the patients with very little adverse reactions. Despite its importance, there is lack of uniform standards for its application in clinical use. Therefore it's high time that this age old therapy needs further clinical trials with respect to hair loss for scientific validation for wider acceptability so that the mankind may gain its wonderful benefits.

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