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REVIEW ARTICLE

Title: Progress on Chinese medicine for hair loss based on ancient Chinese medicine books

Ying Zhang, Kai Yin, Qinghua Meng

Shaanxi University of Chinese Medicine, Shaanxi Xianyang 712046

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Abstract: Objective: With the intensification of social competition and the acceleration of the pace of life, mental tension, stress and other adverse emotions directly affect the health of the human body. More and more people are experiencing different degrees of hair loss. Hair loss has a great impact on the aesthetics of the appearance, and can even cause personality deformities. The pathogenesis research of treatment on alopecia by western medicine is not clear, which has large amount of side effects, containing many drug contraindications, serious adverse reactions and poor long-term effects. People want to improve the situation of hair loss, but they are not willing to accept western medicine treatment. The traditional Chinese medicinal is a good choice to therapy the hair loss. Therefore, the research of Chinese medicine used in hair loss is a meaning project.Methods: According to the published references, the pathogenesis of alopecia has been listed out based on classical Chinese medicine books. Meanwhile, we analyzed the reason of hair loss and got the common Chinese drugs used in hair loss.Conclusion: We concluded that alopecia mainly related to deficiency of liver and kidney, blood stasis block, damp-heat accumulation and blood-heat wind dryness. We also have summarized the herbal topical treatments for hair loss as follows Platycladus orientalis, Polygonum multiflorum, Radix Rehmannia Praeparata, Ligustri Fructus lucid and Eclipta prostrate.

Keywords: Chinese medicine books; alopecia; Chinese herbal medicines

*Address correspondence to this author at the Shaanxi University of Chinese Medicine, Shaanxi Xianyang 712046.

1. Introduction

Nowadays, people are increasingly pursuing the quality of life, and the incidence of hair loss is growing rapidly and tends to be younger. Although hair loss is not a serious problem, it has always attracted much attention and is a top priority that can have a greater impact on people's mental and psychological health. Therefore, the treatment of hair loss is very meaningful and traditional Chinese medicine treatment of hair loss is a good choice.

Related studies have shown that alopecia can divide into alopecia areata, androgenic alopecia, and mental alopecia et al. Modern medicine believes that the pathogenesis of alopecia maybe relate to genetic factors, autoimmune factors, endocrine dysfunction, low emergency response capacity, infection, radiation, chronic poisoning, mental stress and other factors. Many people believe that hair loss closely related to the function of liver and kidney in traditional medicine. Traditional Chinese medicine (TCM) has been used to treat hair loss for thousands of years, and modern research has also found that many Chinese herbal medicines can promote the hair growth. Traditional Chinese medicine used in hair caring have advantages of unique therapy effect, overall regulation and small side effects. It can give different treatment methods and prescriptions according to the different types of alopecia syndrome. The administration ways include internal administration, external use, or internal and external combination. However, the external treatment with Chinese medicine is convenient, effective and highly accepted.

2. The pathogenesis of alopecia

Huangdi Neijing is the earliest medical book to record hair loss, which has become the cornerstone of hair loss theory. Wang Lifen et al. described the cognition of hair loss in Huangdi Neijing from the physiological basis of hair and the pathological changes of hair loss[1]. Shennong's Herbal Classic is the first pharmaceutical book in China, which records the commonly used drugs for preventing and treating hair loss. Treatise on Febrile and Miscellaneous Diseases had an influence on the use of medicine by famous TCM specialists. The pathogenesis of

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hair disease were been discussed comprehensively for the first time in Various pathogenic designate theory.

2.1 The lack of energy in liver and kidney

It recorded in Huangdi Neijing. If a woman's kidneys are full of energy at seven years old, her teeth are long, her tendons and bones are strong, her hair is long, and her body is full of strength. If a woman's energy and blood begin to weaken at 35 years old, the skin loses its nourishment, the face becomes waxy and the hair falls. If a woman's face has insufficient energy and blood at 42 years old, her hair begins to turn to white. If a man's kidneys are full of energy at seven years old, his hair grows long and his teeth are strong. If a man's kidney energy weakens after the age of 48, his hair becomes short, and his teeth slowly fall. If a man's internal energy begins to fail at 48 years old, his face will become waxy and his hair will turn to white[2]. It shows that the energy and blood are the essential elements for hair. With the increase of age, the kidney energy changes from the prosperity to the decline, hair also change from glory to dry. If the kidney energy exhausted at early age, hair will also fall prematurely. It recorded in Huangdi Neijing. The kidneys are like hibernating worms, hidden but with great vitality. It is important for sealing and storing the body energy[3]. The liver is responsible for storing blood. If the liver does not store blood, resulting in insufficient energy and blood. If there is deficiency of energy and blood, the hair will not be thick[4].

2.2 Blood stasis and block

It recorded in *Zhu Bing Hou Yuan Lun.* Hair should be combing frequently, then the blood will not block and the hair roots will be stronger. It illustrates that blood block could cause hair loss[5]. It recorded in *Zhu Bing Hou Yuan Lun.* If there is enough blood in body, the hair will flourish and grow well. If the blood fails and the pulse is weak, then the hair does not grow well or hair falls. It has showed that the hair growth is consist with blood[6]. In the *Huangdi Neijing,* Fang Min figured out that Angelica sinensis could been used to treat the hair loss, stating if the blood energy is abundant, the kidney energy is strong, and if the kidney energy is strong, the bone marrow is full, so the hair color is black. The deficient of blood energy will cause the weak kidney essence, resulting in the bone marrow is exhausted, so the hair is white and falls off[7]. In the *Xue Yu Lun,* If the blood flows to the head and face is blocked, there will be no hair growth. It suggests that there is a close relationship between blood stasis and alopecia areata[8].

2.3 Accumulation of damp heat

It recorded in Huangdi Neijing. If you eat too much sweet, your bones will ache and your hair will fall. It shows that fatty and sweet foods will easily injure the stomach and damage the spleen, and dampness and heat will been trapped inside. The moisture will go to the top of the roof and erode the roots of the hair, causing sticky or thinning hair, or hair loss[9]. It recorded in The Complete Book of Surgical Treatment. The relationship between dampness and heat and hair growth is emphasized that alopecia areata occurs when there is an increase in oily hair and dandruff. When wind-cold invades the body for a long time during a haircut, it causes dampness in the blood that cannot be disperse, demonstrating the relationship between dampness and heat and hair growth[10]..

2.4 Blood heat and wind dryness

In the book Ru Men Qin Shi, it mentioned that if your hair turns white at a young age and you have dandruff, it means your blood is too dry and hot. If the blood is too dry and hot, then the hair will not be thicker. After a serious illness with too much blood, hair can also fall. It means that the cause of hair loss is blood heat. In the Yang Yi DaQuan. Hair related to energy closely. If hair is dry and curly, it indicates that the energy and blood are insufficient. If the hair and eyebrows suddenly fall together and the scalp becomes itchy, then it indicates heat and dryness of the blood [11].

3. Traditional Chinese medicine external treatment

3.1 Blood heat and wind dryness

Tang Xuechun et al. used data mining methods to analyze the medication patterns of famous Chinese medicine specialist in the treatment of hair loss, and it concluded that the treatment of alopecia areata and androgenetic alopecia is mainly to nourish the liver and kidneys. The energy of liver and kidney could be enhance by Polygonum multiflorum, Ligustri Fructus lucid, and Eclipta prostrate[12]. Besides, Liang Yanbo used data mining method to analyze the top three Chinese herbs used for enhancing the energy of liver and kidney: Ligustri Fructus lucid (36 times, 66.67%), Eclipta prostrate. (33 times, 61.11%), and Radix Rehmannia Praeparata (25 times, 46.30%)[13]. Huang Rudong used Polygonum multiflorum, Eclipta prostrata and Platycladus orientalis leaves to make germination tincture with 60% ethanol and applied it to the scalp, with an efficiency rate of 97.1%[14].

3.2 Activating blood circulation to remove blood stasis

Li Honghong et al. concluded from the experience of Prof. Wei Zixiao in treating alopecia with external cleansing formulas that shampooing with water decoction of Platycladus orientalis leaves, Tuberculate Speranskia Herb, and Gleditsia sinensis could reduce hair loss and produce new hair. The used of Platycladus orientalis leaves have the effect of promoting blood circulation and removing blood stasis[15]. In the treatment of damp-heat stasis-type baldness, Zhang studied the use of Platycladus orientalis leaves, Radix Rehmanniae Praeparata and Angelica sinensis to activate blood circulation and eliminate blood stasis, and to relieve the tendons and pass through the collaterals [16]. Wan Hongxin used fresh Platycladus orientalis leaves and Drynariae Rhizoma to make a hair growth tincture for external treatment, with an

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effective rate of 83% [17]. Xie Shaoqiong et al. used blood nourishing and blood activating soup plus ginger juice rub to treat multiple bald patches, and the treatment rate was improved, and the Angelica sinensis and Radix Rehmanniae Praeparata played the role of blood nourishing and blood activation [18]. Wang Zhiguo treated 230 cases of seborrheic alopecia with Sibai Sheng Hair Rubbing resulting in good efficacy, in which Leonuri Herba and raw Crataegi Fructus used with the efficacy of activating blood circulation and removing blood stasis [19].

3.3 Clearing heat and cooling blood

Zhou Zhen reported that Polygonum multiflorum can been used to treat hair loss and is good to hair care, which nourishes the liver and kidneys and has a blackening effect. The Ligustri Fructus lucid and Semen Cuscutae, which nourish the liver and kidneys and darken the hair. Among them, the Platycladus orientalis play a role in cooling the blood and stopping bleeding[20]. Luan Liyun reported Huo Li Su Oral Liquid could been used to treat Seborrheic Hair Loss. The peppermint and chrysanthemum indicum have the efficacy of coolness and diffusion. It has the effect of cooling and dispersing cold air. Among them, Platycladus orientalis leaves can cool the blood to stop bleeding, regenerating and changing the hair color to black [21]. In the blood-heat as well as blood-drying type of androgenetic alopecia, Wei Yuegang believes that the main herbs should focus on clearing heat and cooling the blood, nourishing the liver and kidneys [22]. In the article on seborrheic alopecia treated with the Yukon hair spray of traditional Chinese medicine used by Zhang Daowei, he used the Platycladus orientalis, Polygonum multiflorum, Gleditsia sinensis, ginger, Ligustri Fructus lucid, Eclipta prostrate, and Tuberculate Speranskia Herb as the main herbs. Among them, the Platycladus orientalis play a role in cooling the blood and stopping bleeding [23].

4. Conclusion

In recent years, western medicine has made great progress in the study of hair loss, and has achieved certain clinical efficacy, but there are also many problems. Although most western medicine can promote hair regeneration, the continued hair loss after withdrawal makes it difficult to maintain its efficacy, and the side effects are obvious. In this paper, the etiology and pathogenesis of alopecia were been listed on the ancient books of traditional Chinese medicine. It concluded that alopecia mainly related to liver and kidney deficiency, blood stasis block, damp-heat accumulation and blood-heat wind dryness. Based on the above etiology and pathogenesis, we summarized the methods of external treatment of alopecia by traditional Chinese medicine and its specific examples. It concluded that the main traditional Chinese medicines for external treatment of alopecia are Platycladus orientalis, Polygonum multiflorum, Radix Rehmannia Praeparata, Ligustri Fructus lucid and Eclipta prostrate. Platycladus orientalis leaves have multiple effects of tonifying liver and kidney, promoting blood circulation and removing blood stasis, hemostasis and cooling blood; Ligustri Fructus lucid and Eclipta Herba have the function of nourishing liver and kidney; Radix Rehmannia Praeparata has the effect of promoting blood circulation and nourishing blood.

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