Screening and Risk Factors for Alopecia

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ABSTRACT

Alopecia, characterized by the loss of hair in various patterns and extents, presents a diverse spectrum of conditions with distinct etiologies and therapeutic considerations. This comprehensive review explores the common types of alopecia encountered in primary care, including telogen effluvium, male- and female-pattern hair loss, alopecia areata, traction alopecia, and tinea capitis. Diagnostic approaches encompass careful history-taking, physical examination, and, when needed, advanced techniques like dermatoscopy. Treatment strategies vary based on the type of alopecia, ranging from topical applications to systemic therapies. Understanding risk factors such as age, genetics, ethnicity, and medication associations is pivotal for tailored interventions. The prevention of specific types of alopecia involves targeted measures, such as wearing cooling caps during chemotherapy to minimize hair loss. By considering these factors, individuals and healthcare providers can collaboratively navigate alopecia, optimizing patient outcomes and quality of life.

KEYWORDS: alopecia, hair loss, telogen effluvium, pattern hair loss, dermatoscopy, treatment, risk factors, prevention.

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INTRODUCTION

Alopecia, defined as the absence of hair from a region where it typically grows, can manifest in various forms, including scarring or nonscarring, localized or diffuse, reversible or permanent, and may be confined to the scalp or affect the entire body [1, 2]. Primary care physicians often encounter nonscarring alopecia, such as telogen effluvium, male- and female-pattern hair loss, alopecia areata, traction alopecia, and tinea capitis. The diagnosis of common types of alopecia typically relies on a thorough history and physical examination, considering factors like the timing and duration of hair loss, shedding patterns, the nature of hair loss, and the presence or absence of scalp inflammation [3, 4].

In cases where the diagnosis is unclear, dermatoscopy and trichoscopy, performed by a dermatologist, can reveal valuable information, including signs of scarring such as the loss of follicular orifices, hair shaft abnormalities, and other specific findings. Biopsy may be employed to further characterize scarring alopecias [5].

Treatment approaches vary based on the type of alopecia and the potential for hair regrowth. Telogen effluvium typically resolves on its own, while male- and female-pattern hair loss may respond to topical minoxidil and low-level laser light therapy [6]. Finasteride is effective for male-pattern hair loss [7]. Patchy alopecia areata may resolve spontaneously, and topical or intralesional steroids can be employed. Diffuse forms of alopecia are more challenging to treat, possibly requiring systemic steroids or topical immunotherapy [8].

Traction alopecia often responds to changes in hairstyle and removing traction on hair follicles [9]. Scarring alopecias are commonly treated with topical steroids and tacrolimus, although antimalarials, antibiotics, or retinoids may be considered based on biopsy findings and specific diagnosis. However, it's important to note that hair regrowth is not expected from scarred hair follicles [8].

RISK FACTORS

Risk factors and associations play a crucial role in understanding the causes and patterns of hair loss. Age is a significant factor, with conditions like alopecia areata and tinea capitis being common causes in children, while traction alopecia and trichotillomania are prevalent in young adulthood. Male-pattern hair loss tends to increase with age, affecting 80% of men by the age of 80. In women, female-pattern hair loss peaks after menopause, and about one-third of women aged 70 and older are affected. Frontal fibrosing alopecia, a scarring alopecia, is primarily observed in postmenopausal women [10].

Sex is another factor, with various forms of hair loss occurring in both men and women, including pattern hair loss

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[11]. Genetics play a substantial role, with 80% of the variance in male-pattern hair loss attributed to genetic factors [12]. Molecular genetics estimates this variance at 50%, and associations have been identified for numerous autosomal genes and X chromosome–linked genes, including androgen-receptor genes. The X chromosome is a major genetic-risk locus, indicating that the maternal lineage is a primary factor in the inheritance of androgenetic alopecia [13].

For female-pattern hair loss, the genetic landscape is less well-studied, and its association with family history may vary. The AR gene on the X chromosome appears to be linked to early-onset female-pattern hair loss, and an Australian genome-wide study suggests an association with the aromatase gene (CYP19A1). Understanding these risk factors and associations is essential for comprehensive assessments and effective management of various forms of hair loss [14].

Ethnicity and race contribute to variations in the prevalence of different types of hair loss. Male-pattern hair loss is more common in White men than in Asian and Black men. Similarly, female-pattern hair loss is less likely to affect Asian women compared to White women. Traction alopecia, a condition influenced by hair-styling practices, is prevalent in Black women but may occur in individuals of any race or ethnicity. Central centrifugal cicatricial alopecia, a scarring alopecia, is most commonly observed in women of African ancestry [15].

Various other factors and associations also play a role in hair loss. Certain drugs, such as mood stabilizers, antidepressants, anticoagulants, β-blockers, ACE inhibitors, and others, may result in hair loss, particularly through telogen effluvium. Discontinuation or initiation of oral contraceptives with proandrogen effects and the use of progesterone-impregnated intrauterine devices can also contribute [16].

Different hair styling practices pose risks for traction alopecia. In general, tight ponytails, buns, or braids can increase the risk. For Black women, specific high-risk practices include tight ponytails or buns, tight braids, cornrows, or dreadlocks, application of weaves and/or braids to relaxed hair, hair extensions applied to relaxed hair, and any hairstyle causing pain or stinging of the scalp. Moderate-risk practices include loosening of braids/cornrows/dreadlocks, weaves and braids applied to natural hair, hair extensions applied to natural hair, and wearing wigs with cotton or nylon wig caps during permanent waving. Understanding these risk factors and associations is crucial for tailoring interventions and treatments based on individual circumstances [15].

Preventing hair loss associated with specific causes involves targeted measures tailored to each condition. In the case of anagen effluvium due to chemotherapy, the use of a cooling cap during treatment is recommended. This cap restricts the flow of chemotherapeutic agents to the scalp, potentially reducing hair loss, although complete prevention may not be achieved. Notably, recent clinical trials for women with breast cancer undergoing chemotherapy showed that scalp cooling increased the likelihood of experiencing less than 50% hair loss [17].

For preventing traction alopecia, individuals are advised to limit the duration of traction hairstyles to a maximum of two weeks at a time and use them infrequently. It is crucial that all traction-based hairstyles are entirely painless. Additionally, these hairstyles should be applied exclusively to natural hair that has not undergone chemical treatments [9].

By adopting these preventive measures, individuals can mitigate the risk of hair loss associated with specific factors, promoting better overall hair health and well-being.

CONCLUSION

Alopecia encompasses various types of hair loss, each with its unique characteristics, causes, and potential for regrowth. The diagnosis of alopecia relies on a comprehensive assessment, including history, physical examination, and, in some cases, specialized techniques like dermatoscopy or trichoscopy. Treatment approaches vary depending on the type of alopecia, with options ranging from topical medications to systemic therapies.

Understanding the risk factors and associations, such as age, genetics, ethnicity, and certain medications, is crucial for tailoring interventions and providing targeted care. Prevention strategies, particularly for conditions like traction alopecia or chemotherapy-induced anagen effluvium, involve specific guidelines to minimize the risk and impact of hair loss.

By considering these factors and adopting appropriate interventions, individuals and healthcare providers can work together to address alopecia effectively, enhance patient outcomes, and improve overall quality of life for those affected by hair loss. Ongoing research and advancements in understanding the underlying mechanisms of alopecia hold promise for further refining diagnostic methods and developing innovative therapeutic approaches in the future.

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