Androgenetic Alopecia

Androgenetic alopecia (AGA) is the single most frequent cause of hair loss. It represents a hereditary and androgen dependent, progressive thinning of scalp hair that follows a defined pattern, with differences in frequency, age of onset, and pattern between men and women. The diagnosis and treatment are usually straightforward, with topical minoxidil, and oral finasteride having excellent evidence levels for therapeutic use. Challenges in AGA are: AGA not responsive to minoxidil or finasteride, AGA with follicular microinflammation and fibrosis, and AGA with co-morbidities.

Recent studies have proposed that enzymatic assay of sulfotransferase activity in plucked hairs may predict response to topical minoxidil treatment. The use of oral finasteride in women has remained controversial, though it has become clear that the dosage must be higher (2.5–5 mg) than in men. Differences in response have led to the suggestion that not all types of female AGA have the same pathophysiology, i.e. a distinction should be made between alopecia with pre- or postmenopausal onset, and with or without hyperandrogenemia. Finally, superiority of 0.5 mg oral dutasteride over 1 mg finasteride in the treatment of male AGA has recently been demonstrated.

The limited success rate of treatment with minoxidil and finasteride means that further pathogenic pathways must be taken into account. The implication of a microscopic follicular inflammation and fibrosis has emerged from several studies, although its significance has remained controversial. Nevertheless, morphometric studies in patients treated with minoxidil showed that a smaller proportion of those with microinflammation and fibrosis had regrowth in response to treatment in comparison to those without.

Finally, co-existence of AGA with other morbid conditions may complicate the diagnosis, treatment, and course. Particularly in women, co-existence with iron deficiency, thyroid dysfunction, endocrine disorders, particularly polycystic ovary syndrome (PCOS), and hormonal treatments has an impact. Besides, life style factors, such as malnutrition, obesity, smoking, exposure to UVR, and stress may play an additional role.

Higher BMI is significantly associated with greater severity of hair loss in men, especially in early-onset AGA. There is a relation between moderate to extensive alopecia and low-grade inflammation, a predictor of future cardiovascular disease, especially combined with central obesity, among men younger than 35 years. Therefore, it has been suggested that early AGA and insulin resistance are a clinical constellation that may represent the male homologue or phenotype of PCOS. Because of its association with metabolic syndrome and altered glucose metabolism, both men and women with early onset AGA should be screened for impaired glucose tolerance and diabetes.

Ultimately, one must remain open-minded for the possibility of a multitude of cause-relationships underlying hair loss in AGA, and consider combination regimens for therapy that may act synergistic to enhance hair growth and quality.