

Platelet-Rich Plasma Therapy: A Potential Treatment for Androgenetic Alopecia

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DESCRIPTION

Despite the high prevalence of Androgenetic Alopecia (AGA), the first European guidelines for treatment were published in 2011, with level 1 evidence recommending minoxidil and finasteride as the primary treatment options. Because of the drugs' numerous drawbacks, such as their side effects and contraindications for use, the search for alternative forms of therapy is still necessary. The majority of the investigations on the impact of platelet-rich plasma therapy on the Hair Follicle (HF) were conducted *in vitro*. Later, the initial pilot tests of its clinical effectiveness were released. A round table discussion on the use of Platelet Rich Plasma (PRP) in hair loss was organized at the 2013 International Society of Hair Restoration Surgery (ISHRS) conference in San Francisco, because this is a contentious subject. Famous physicians who were using PRP treatment at the time participated. The experts reached a consensus that the method is best used in the early stages of AGA; subjective improvement is noted in about 80% of cases; the effect of treatment appears after 4-6 months; and randomized placebo-controlled clinical trials are required. This was true even though different treatment protocols were used. In the past ten years, the number of studies examining PRP's effectiveness in AGA has grown exponentially. In 2018, updated recommendations for the treatment of AGA gave this technique some attention, but they also noted that there is still not enough clinical evidence to support it. A number of systematic reviews and meta-analyses of randomized controlled trials were released in 2020, and these studies evaluated how PRP treatments affected hair density and thickness. In one of the reviews, 24 studies achieved statistical significance on a measured outcome, and 29 studies reported positive findings, involving 687 patients. There were 10 randomized controlled studies in total. Twelve

original studies were included in another review, but only two of them failed to find any statistically meaningful improvement in the outcomes that were measured. The analyzed data shows that PRP has a beneficial impact on AGA without causing significant side effects, making it a safe and effective treatment.

It is undoubtedly interesting to compare how PRP and minoxidil work as treatments. In all of the studies, it was observed that a potential treatment for androgenetic alopecia had effects in some parameters that were superior to those of minoxidil. Particularly intriguing is the outcome of combining PRP with conventional therapy techniques. In comparison to monotherapy alone, studies have shown that the use of PRP in combination with minoxidil or finasteride exhibits a more pronounced clinical effect, as verified by trichoscopy.

The effects of PRP and minoxidil appear to be amplified by one another. Data regarding the precise impact on the pathogenesis of AGA have not been obtained, and both PRP and minoxidil's mode of action are poorly known. PRP has been proven to be successful in treating AGA patients who are unresponsive to minoxidil and finasteride therapy, which raises the possibility that PRP may also have additional, less well-known mechanisms of action. The sulfotransferase enzyme, which catalyses the conversion of minoxidil to the sulphate form, which is 10-15 times more effective than minoxidil, is thought to also play a role in the efficacy of treatment with minoxidil. Platelets (PLT) have been demonstrated to have minoxidil sulfotransferase activity.

Does PLT's sulfotransferase activity correlate with the great effectiveness of PRP when combined with minoxidil? These queries might be addressed by measuring the sulfotransferase concentration in PLT, correlating this with their activity in Hair Follicle, and doing randomization based on these parameters.

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Received: 24-Feb-2023, Manuscript No. HTT-23-22450; **Editor assigned:** 27-Feb-2023, Pre-QC No: HTT-23-22450 (PQ); **Reviewed:** 14-Mar-2023, QC No: HTT-23-22450; **Revised:** 21-Mar-2023, Manuscript No: HTT-23-22450 (R); **Published:** 28-Mar-2023; DOI: 10.35248/2167-0951.23.13.207

Citation: Aydin F (2023) The Use of Platelet-Rich Plasma to Treat Androgenetic Alopecia. *Hair Ther Transplant.* 13:207

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