ORIGINAL RESEARCH PAPER

Dermatology

EFFICACY OF PLATELET RICH PLASMA AS MONOTHERAPY IN TREATMENT OF ANDROGENETIC ALOPECIA.

KEY WORDS: Androgenetic Alopecia, platelet rich plasma, growth factors, Norwood scale

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ABSTRACT

Background: The most typical type of hair loss in men is known as male androgenetic alopecia (MAA). MAA predominantly affects the mid frontal scalp, vertex, and temples in a very consistent way. Hair loss affects self-image and is a significant contributor to anxiety and depression in some men. PRP is described in the literature as a sample of autologous blood obtained by centrifuging whole blood and having platelet concentrations above normal physiologic levels. Its effectiveness is strongly related to the regeneration-promoting effects of locally produced growth factors, which are thought to be composed of more than 30 biologically active proteins. **Aims and Objectives:** To evaluate the efficacy of platelet-richplasma as monotherapy in androgenetic alopecia in male patients. **Materials and methods:** A total of 20 male patients with androgenetic alopecia were enrolled in this study. PRP was injected into the scalp of these patients. A total of 6 such sittings were given to each patient at interval of 15 days each, over a total period of3 months. Follow up was taken after 3 months and pre and post treatment response was noted using clinical photographs.

INTRODUCTION–

The most typical type of hair loss in men is known as male androgenetic alopecia (MAA).[1,2] MAA predominantly affects the mid frontal scalp, vertex, and temples in a very consistent way. Hair loss affects self-image and is a significant contributor to anxiety and depression in some men. [3–5]. There is a well-known familial predisposition to MAA and racial heterogeneity in the prevalence, with heredity making up around 80% of the predisposition. In those with certain genetic predispositions, normal androgen levels are sufficient to result in hair loss.[6]

Follicular shrinkage, inflammation, and altered hair cycle development are the main pathophysiological characteristics of MAA. In MAA, the anagen phase gets shorter with each cycle whereas the telogen phase stays the same length or gets longer. In the end, the anagen period is so brief that the developing hair is unable to grow long enough to reach the skin's surface, leaving an empty follicular pore. The histopathological characteristic of androgenetic alopecia is shrinking of the hair follicle. Hair loss is probably permanent once the arrector pili muscle, which connects circum ferentially around the primary follicle, has separated from all secondary follicles and the primary follicles have gone through shrinkage and detachment.[2,7,8]

Pharmacological interventions like as minoxidil and finasteride are FDA-approved treatments for AGA in males. While finasteride is an oral prescription drug, minoxidil is an over-the-counter generic topical preparation. For patients who are less compliant or who are not responding to conventional therapy, newer therapies have offered alternatives or additional treatments.[9]

The use of platelet-rich plasma (PRP) as a "safe and efficacious" treatment for AGA in males has grown in favour. PRP is described in the literature as a sample of autologous blood obtained by centrifuging whole blood and having platelet concentrations above normal physiologic levels. Its effectiveness is strongly related to the regeneration-promoting effects of locally produced growth factors, which are thought to be composed of more than 30 biologically active proteins. PRP boosts the proliferation of human dermal papilla cells, which control the formation of hair follicles, for hair restoration. The dermal papilla cells and primitive stem cells that growth factors attach to and interact with cause the proliferative phase of the hair cycle to be activated. Anagen phase stimulation and maintenance prolongs the catagen phase and boosts hair density. evidence.[10–12]

AIMS AND OBJECTIVES

To evaluate the efficacy of platelet-richplasma as monotherapy in androgenetic alopecia in male patients

MATERIALS AND METHODS:

This is a prospective study that was conducted at Dr. Panjabrao Deshmukh Medical College and Hospital, Amravati from September 2022 to February 2023 in which total 20 male patients with androgenetic alopecia were enrolled in this study.

Treatment Protocol:

Method to prepare PRP: - Collect 10-20 ml of patient's blood and mix it with anticoagulant such as Acid Citrate Dextrose (ACD). Platelet Rich Plasma prepared by two stage of centrifugation process.
2 stage centrifugation process :

First Centrifugation [soft Spin]:

Approximately 1500 rpm for 5 min, which separate blood into 3 layers, namely, bottom most RBCs layer, topmost acellular plasma layer [platelet poor plasma] and intermediate PRP. Using sterile syringe, platelet poor plasma , PRP and some RBCs transferred into another tubes without anticoagulant. And these tubes was undergo second centrifugation.

Second Centrifugation [hard Spin]:

Second centrifugation started at 2500 rpm for 15 min. This allowed the platelets to settle at bottom of tubes with very few RBCs. Platelet poor plasma was form at the top of the tube. Most of the platelet poor plasma removed and discarded. Remaining PRP collected into insulin syringe.

PRP injected in alopecia sites (hairless patches) every 30 days for a total 4 sessions. Follow up was taken every month for 6 months and pre and post treatment response noted by using photographs.

Inclusion Criteria:

1. Patients with disease stability of atleast one year duration.

2. Patients in the age group 20-50 years.

Exclusion Criteria:

1. Drug induced alopecia
2. Alopecia due to other causes.

RESULT

- At the end of 6 months , out of 20 patients , 18 patients had satisfactory good hair growth and 2 had relapse.
- None of the patients had any side effects and all of them tolerated the procedure well.

CONCLUSION

- PRP seems to be an affordable, effective and promising therapy for androgenetic alopecia with no major adverse effect.

Photographs of pre and post (PRP therapy)

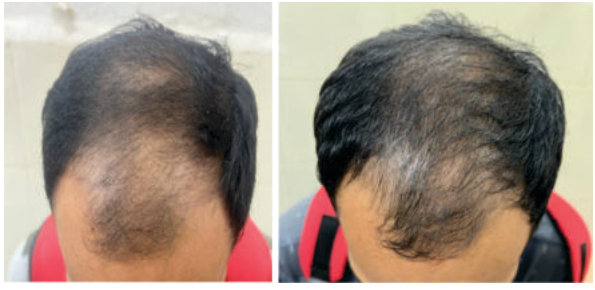
Patient 1:

Before:

At 3 months follow up

Patient 2:

Before:



At 3 months follow up:

REFERENCES:

1. Hoffmann R. Male androgenetic alopecia. Clin Exp Dermatol. 2002; 27(5): 373–82.
2. Cranwell W, Sinclair R. Male Androgenetic Alopecia. In: Feingold KR, Anawalt B, Boyce A, Chrousos G, de Herder WW, Dhatariya K, et al., editors. South Dartmouth (MA); 2000.
3. Huang C-H, Fu Y, Chi C-C. Health-Related Quality of Life, Depression, and Self-esteem in Patients With Androgenetic Alopecia: A Systematic Review and Meta-analysis. JAMA dermatology. 2021;157(8):963–70.
4. Alfonso M, Richter-Appelt H, Tosti A, Viera MS, García M. The psychosocial impact of hair loss among men: a multinational European study. Curr Med Res Opin. 2005;21(11):1829–36.
5. Davis DS, Callender VD. Review of quality of life studies in women with alopecia. Int J women's dermatology. 2018;4(1):18–22.
6. Chumlea WC, Rhodes T, Girman CJ, Johnson-Levonas A, Lilly FRW, Wu R, et al. Family history and risk of hair loss. Dermatology. 2004;209(1):33–9.
7. Piraccini BM, Alessandrini A. Androgenetic alopecia. G Ital Dermatol Venereol. 2014;149(1):15–24.
8. Mysore V, Parthasaradhi A, Kharkar RD, Ghoshal AK, Ganjoo A, Ravichandran G, et al. Expert consensus on the management of Androgenetic Alopecia in India. Int J Trichology. 2019;11(3):101–6.
9. York K, Meah N, Bhoyrul B, Sinclair R. A review of the treatment of male pattern hair loss. Expert OpinPharmacother. 2020;21(5):603–12.
10. Collins T, Alexander D, Barkatali B. Platelet-rich plasma: a narrative review. EFORT open Rev. 2021;6(4):225–35.