FPIN's Help Desk Answers

Platelet-Rich Plasma for Androgenic Alopecia

Jeremias Georgiadis, MD; John H. Phillips, MD; and Timothy Mott, MD
South Baldwin Regional Medical Center Family Medicine Residency Program, Pensacola, Florida

Clinical Question

Are intradermal injections of autologous platelet-rich plasma an effective treatment for androgenic pattern hair loss?

Evidence-Based Answer

Platelet-rich plasma injections more effectively increase hair density vs. usual treatment in men with androgenic alopecia. (Strength of Recommendation [SOR]: A, three meta-analyses of randomized controlled trials [RCTs] and cohort studies.) Platelet-rich plasma injections in men are also more effective than minoxidil, 5-alpha reductase inhibitors, and bimatoprost, but not low-level laser therapy. (SOR: A, network meta-analysis of RCTs.) Platelet-rich plasma injections pose little risk of serious adverse events. (SOR: A, meta-analysis of RCTs and cohort studies.) Platelet-rich plasma would be considered an off-label use because it does not have approval from the U.S. Food and Drug Administration for the treatment of androgenic alopecia.

Evidence Summary

A 2020 systematic review and meta-analysis of 13 RCTs (N = 343) examined the effectiveness of platelet-rich plasma injections for androgenic alopecia.[1] Seven studies (n = 171; participants were 18 to 65 years of age and 58% were men) examined hair density changes from baseline. One study randomized people to platelet-rich plasma vs. placebo injections in an unblinded fashion. In the other six trials, patients blinded to treatment assignment randomly received injections of platelet-rich plasma on one-half of their head and a placebo on the other. In one study, minoxidil or finasteride (Propecia) was added to both the placebo and platelet-rich plasma injection groups. Patients had two to five platelet-rich plasma injections over the course of two months, with follow-up of three to six months. At follow-up, hair density per cm^2 was compared with baseline. Pooled data favored the platelet-rich plasma group with a mean difference of 30.4 (95% CI, 1.8 to 58.9). Normal hair density is approximately 160 to 250 hairs per cm^2. Considerable heterogeneity was noted (I^2 = 100%). Variations in platelet-rich plasma preparation, injection frequency and methods, and time to follow-up should also be noted as potential confounding factors.

A 2020 systematic review and meta-analysis of 30 RCTs and cohort studies (N = 687) compared one to six treatments of platelet-rich plasma for up to six months with placebo, minoxidil with finasteride, placenta extract, unspecified medical treatment, or no comparison in men and women 18 to 72 years of age.[2] Four RCTs and one clinical controlled trial allowed for quantitative analysis; placebo was the control in four studies, and a different platelet-rich plasma method was the control for the fifth. All five trials (n = 123; 54% of participants were men) were analyzed for hair density, and two of the RCTs (n = 70; 43% of participants were men) were analyzed for hair

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thickness compared with baseline. The studies noted mean differences of 27.9 (95% CI, 14.9 to 40.8) for hair density and 28.8 (95% CI, 12.5 to 45) for hair thickness, both favoring platelet-rich plasma. Heterogeneity was low for hair density (I^2 = 21%) and high for hair thickness (I^2 = 97%). Three of the five RCTs in this meta-analysis were included in the review by Dervishi and colleagues,[1] with a 59% overlap of patients. Risk-of-bias assessment included in the meta-analysis demonstrated a low risk of bias in three trials, uncertain risk in one, and high risk in one. One-half of the 30 studies reported on adverse events as a secondary outcome, with no adverse events reported to be "severe."

A systematic review and network meta-analysis of 40 RCTs published between 1986 and 2019 (N = 7,545; 75% of participants were men; mean ages were 25 to 56 years) compared platelet-rich plasma treatments, which were given for up to three months with 14 to 39 weeks of follow-up, with other usual treatments.[3] No trials met inclusion criteria for platelet-rich plasma treatment in women. The network analysis comparing nonsurgical treatments in men was comprised of 30 RCTs (n = 5,679), four of which included platelet-rich plasma trials (n = 122). The network analysis comparators included low-level laser therapy, oral finasteride (1 mg daily), oral dutasteride (Avodart; 0.5 mg daily), minoxidil solution (2% or 5% twice daily), bimatoprost (various formulations), or placebo. Primary outcomes included hair density per cm^2 and a surface under the cumulative ranking curve (SUCRA) score. Platelet-rich plasma was significantly more effective vs. all comparators except low-level laser therapy (mean difference = 12.2 hairs per cm^2 favoring platelet-rich plasma; 95% CI, –7.6 to 32.1). The authors deemed the evidence to be low quality and concluded that they could not make a recommendation for or against the use of platelet-rich plasma. The only high-quality evidence was associated with 5% minoxidil.

Address correspondence to Timothy Mott, MD, at tfmott@yahoo.com. Reprints are not available from the authors.

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