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LETTER TO THE EDITOR

"Comparison of QR 678® & QR678® Neo as monotherapy and as combination therapy with 5% Minoxidil solution and oral Finasteride in the treatment of male androgenetic alopecia—Which is better?"

To the Editor,

Hair is an essential aspect of image and is correlated with youth, elegance, fitness, and achievement. Hair loss leads to lowered self-esteem, lack of confidence and depression among affected individuals.[1] The US Food and Drug Administration (FDA) permitted management options for male androgenetic alopecia (AGA) are topical Minoxidil and oral Finasteride. These agents are beneficial in controlling hair loss, but can only induce minimal new hair growth.[2]

A new formulation, introduced by Kapoor and Shome in 2018 named QR678 Neo® (US patent 2017, Indian Patent & Indian FDA approval 2019), is a plant-derived polypeptide solution which comprises of concentration of biomimetic peptides in a titrated manner.[3] QR678 Neo® already proved its effectiveness in hair regrowth therapy for male and female pattern hair loss, and has also been to be more efficacious than PRP.[4,5]

We carried out a prospective clinical study to compare the efficacy of QR678® alone vs. QR678® in combination with topical Minoxidil and oral Finasteride for the treatment of male AGA. The study was done on 50 male patients with AGA in the age group of 18–60 years. Patients with Hamilton Norwood grade II-IV alopecia were included. Patients were randomly divided into two groups, QR678® alone (Group A) or QR678® along with 5% Minoxidil topical solution and 1 mg Finasteride tablet (Group B). A total of 1 ml of QR678® solution was injected per session with mesotherapy in the affected areas, once in 3 weeks, for eight such sessions.

Videomicroscopic assessment was done at baseline, 6 months and 1 year. Each videomicroscopic images were analyzed for change in the count of terminal hair, vellus hair, and diameter of hair shaft. Unpaired *t* test indicates that at the end of 1 year they had 10.40 and 14.70 fewer vellus hair and 9.20 and 16.50 more terminal hair in Group A and Group B, respectively, than at baseline. Hair shaft diameter was 1.2 μm wider for Group A and 2 μm wider for Group B at 6 months and at 1 year the average hair shaft diameter was 2.4 μm and 3.2 μm wider for Group A and B, respectively, than at baseline. (Table 1, Figure 1).

Minoxidil increases anagen/telogen ratios as well as the follicle size and Finasteride lowers the DHT levels at scalp, it can maintain or increase the amount of terminal hair in the anagen phase.[3]

Each of the ingredients of QR678® has different mode of action. Vascular endothelial growth factor (VEGF) is vital for angiogenesis and vascular permeability. Keratinocyte growth factor (KGF-1) is proficient of counteract chemotherapy-induced alopecia. Insulin-like growth factor (IGF-1) helped in regularizing cellular proliferation and migration of hair follicles. Thymosin β4 promotes growth of hair by influencing follicle stem cell growth, migration, differentiation, and protease creation. The Fibroblast growth factor (bFGF) induces the

TABLE 1 Videomicroscopic assessment: Hair growth parameters showing difference between QR678® and QR678® + Minoxidil & Finasteride groups (N=50)

Variables	Outcome	QR678®	δ	QR678® + Minoxidil & Finasteride	δ	*p* value
Vellus hair counts at 20 cm	Baseline	40.25	10.40	38.0	14.70	<0.001*
	6 Months	33.35		28.8		
	1 year	29.85		23.3		
Terminal hair counts at 20 cm	Baseline	84.40	9.20	96.22	16.50	<0.001*
	6 Months	91.47		109.12		
	1 year	93.6		112.72		
Hair shaft diameter at 20 cm (μm)	Baseline	24.60	2.4	24.80	3.2	<0.001*
	6 Months	25.8		26.40		
	1 year	27		28		

Note: Unpaired *t* test applied.

*Indicates statistical significance ($p < 0.05$).

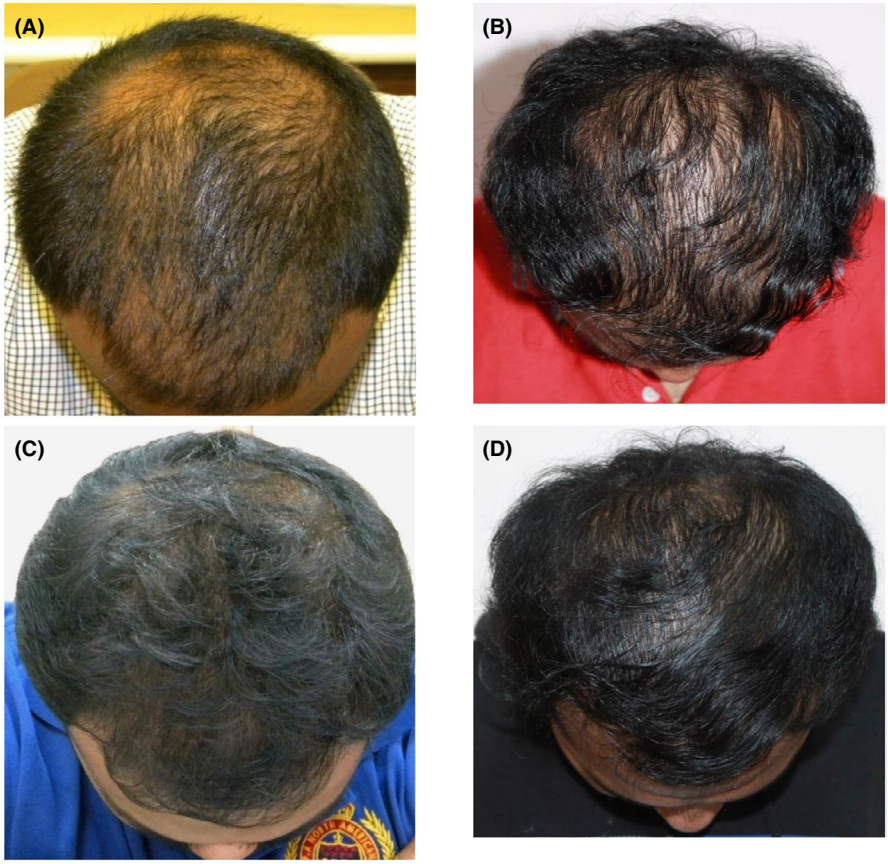

FIGURE 1 Photograph of Patient in Group A—QR678®—A (baseline) and B (after 8 sessions). Photograph of Patient in Group B—QR678® with Minoxidil & Finasteride—C (baseline), and D (after 8 sessions)

anagen phase and has been considered as a hair growth-promoting agent.[4]

Since, each of the therapy acts by different mechanism of action. A combination treatment with Finasteride, Minoxidil, and QR678® must be more efficient.

A high satisfaction rate was achieved with QR678® treatment in all the patients. But when we combined the QR678® intradermal injection therapy with Minoxidil solution and oral Finasteride, combination treatment proved to be more effective in terms of hair regrowth, hair loss, and hair density. This was especially true in more advanced hair loss, such as in AGA Hamilton Norwood grade III and IV alopecia. The study thus proved that the hair therapy with QR678® is beneficial, but combination therapy of QR678® intradermal injection with 5% Minoxidil solution and 1 mg Finasteride seems to be more efficient and produces better results especially in more advanced grades of AGA in males. We recommend a combination therapy we used, in all androgenetic alopecia patients, with strong history of genetic induced hair fall or patients who are Norwood grade III or above.

Further trials are needed to validate the efficacy and safety of combination treatments with QR678® in patients with AGA.

KEYWORDS

androgenic alopecia, combination therapy, hair regrowth therapy, male pattern hair loss, QR678

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CONFLICT OF INTERESTS

The authors have been awarded a patent from the United States Patent & Trademark Office (USPTO) & from the Indian Patent Office administered by the Office of the Controller General of Patents, Designs & Trade Marks (CGPDTM) for the invented hair formulation, used in this study.

AUTHOR CONTRIBUTION

Dr. Debraj Shome contributed to research project conception and execution, and manuscript review and critique. Dr. Rinky Kapoor contributed to manuscript review and critique. Dr. Komal Doshi contributed to research project organization and manuscript writing of the first draft. Dr Ghanshyam Patel contributed to statistical analysis. Dr. Sapna Vadera contributed to manuscript review and critique. Dr. Vaibhav Kumar contributed to manuscript writing of the first draft.

ETHICAL APPROVAL

The ethical clearance has been taken from the review board of the Institutional Ethical Committee.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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