

INTRODUCTION

- Androgenetic alopecia (AGA) is a prevalent form of hair loss affecting both men and women. The present study was done to determine the efficacy of concentrated **growth factor concentrate** (GFC), a form of modified Platelet Rich Plasma technique. ⁽¹⁾
- GFC has emerged as a promising treatment option for these patients. ⁽²⁾
- This pilot study investigates the efficacy and safety of GFC prepared in a blood centre setting.
- This study was done to evaluate the efficacy of GFC in improving hair density and promoting hair growth in patients with AGA.

MATERIALS & METHODS

STUDY TYPE: Prospective Observational Study
SAMPLE SIZE: 10

STUDY PERIOD: January 2024 to September 2024

- Male patients greater than 18 years of age were included in the study
- Hamilton-Norwood staging of Androgenetic Alopecia was done for all 10 patients.

EXCLUSION CRITERIA: Those with uncontrolled diabetes mellitus or thyroid dysfunction; anemia, bleeding disorders, or platelet disorders; positive status for human immunodeficiency virus (HIV), hepatitis B or C, or other immunocompromised conditions; history of malignancies; and active skin disease, infection, or keloid formation.

MATERIALS & METHODS

STUDY PLAN: Each participant received a total of 6 GFC injections at four-week interval.

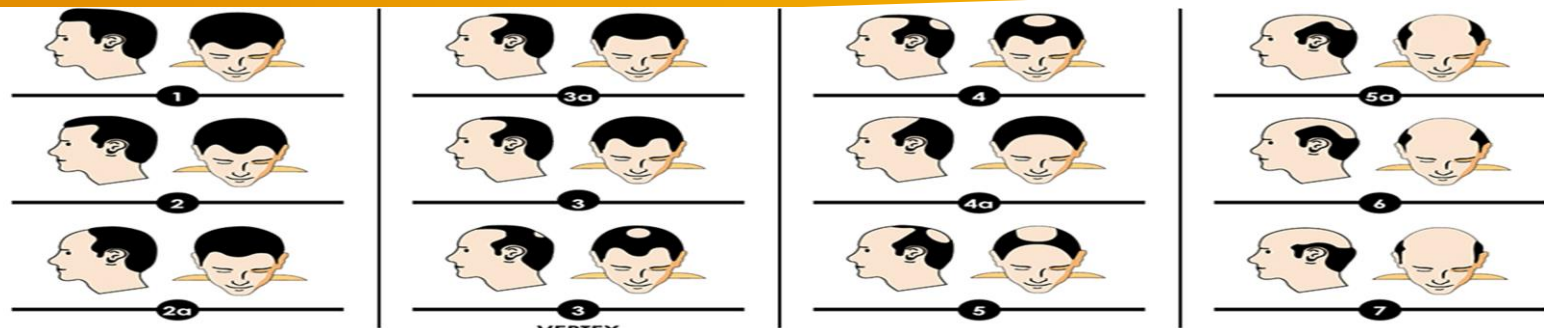
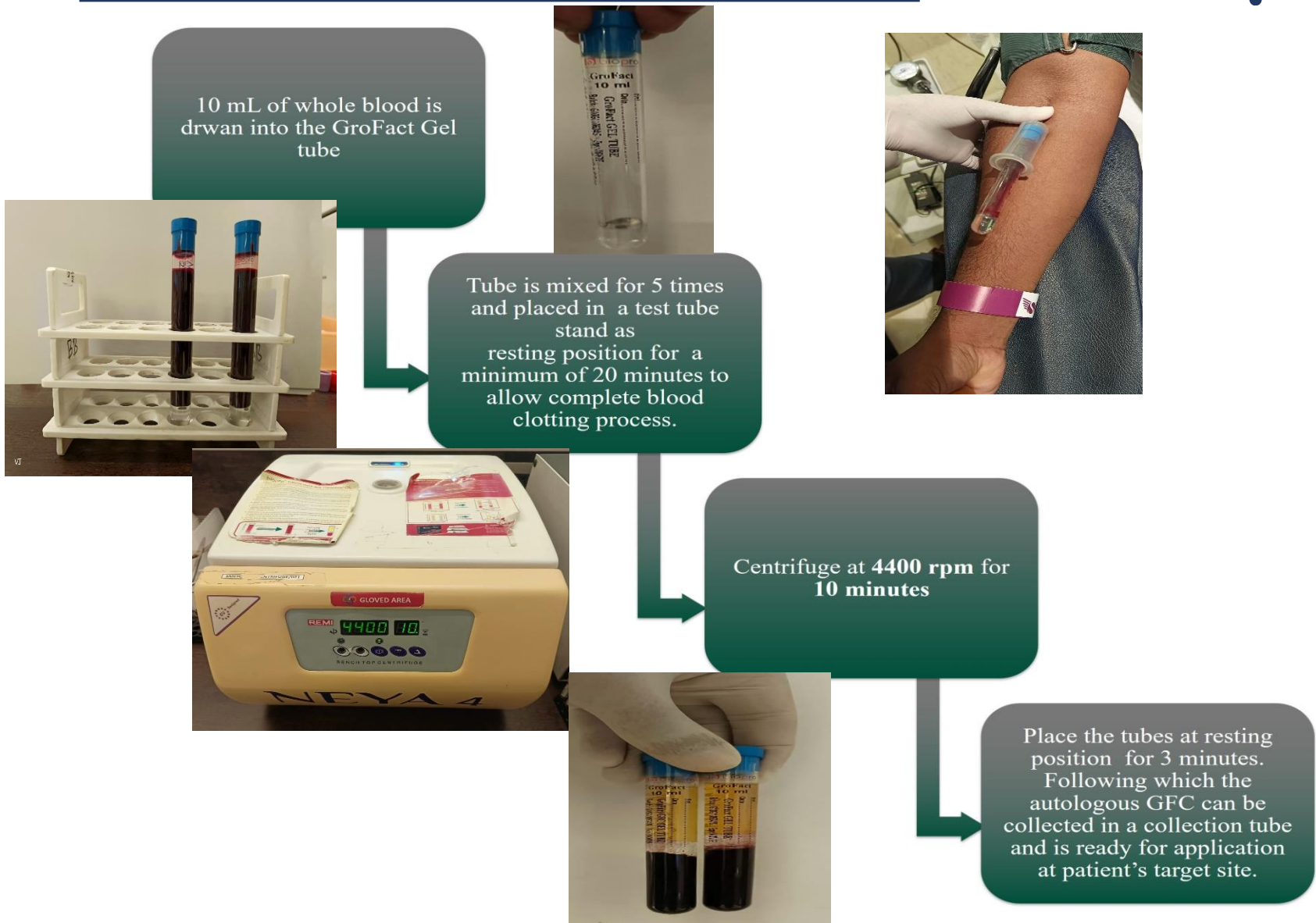
- GFC was prepared by using BIOPRO GROFACT Kit
- Single spin protocol with the GROFACT kit was used.
- Following the 6th injection, the patients were re-assessed and classified again as per the Hamilton-Norwood scale.
- The results were compared with the pre-procedural status

STATISTICAL ANALYSIS: Performed using SPSS software version 21.

- The difference in the preprocedural and postprocedural grading was analysed using the Wilcoxon Signed Rank Test.

- P value* <0.05 was considered significant

STEPS FOR PREPARATION OF GFC



RESULTS

- A total of 10 patients with ages ranging from 26 years to 38 years with a mean age of 32.3±5.87 years were in the study
- After completion of 6 injections of GFC, we re-evaluated the alopecia grades to assess improvement and subsequently assigned new grades based on the observed changes.

Table 1: Patient details with AGA grading.

CASE	AGE (YEARS)	GRADE (PRE)	GRADE (POST)	DIFFERENCE	CASE	AGE (YEARS)	GRADE (PRE)	GRADE (POST)	DIFFERENCE
1	26	V	III	-2	6	35	V	III	-2
2	27	IV	III	-1	7	36	IV	III	-1
3	31	IV	II	-2	8	37	IV	II	-2
4	32	V	II	-3	9	30	V	III	-2
5	33	V	IV	-1	10	38	V	IV	-1

STATISTICAL ANALYSIS- Wilcoxon Signed Rank test.

- The mean alopecia grade before treatment was 4.5 After treatment, the mean grade improved significantly to 3.1.The mean difference between pre- and post-treatment grades was 1.8.
- The value of W is 0. The test resulted in a *z value* of -2.8031

The *p-value* is 0.004995, indicating **STATISTICALLY SIGNIFICANT** improvement. Most patients experienced a reduction in alopecia grades, with individual differences ranging from 1 to 3.

All the patients reported decrease in bald spots. The procedure was considered safe as no patient experienced any adverse effects following it.

Thus our study was able to confirm the positive outcomes of the GFC treatment.

CONCLUSION

- Various treatment options have been proposed to address androgenic alopecia, including **growth concentrates**, **platelet-rich plasma (PRP)**, and other growth factors. Recent interest in these treatments has emerged due to their potential to stimulate hair growth and improve hair density. ⁽³⁾
- GFC treatment involves the precise injection of a **patient's own growth factors** (EGF, VEGF, PDGF, IGF-1) directly into the scalp. ⁽⁴⁾
- This **targeted delivery** stimulates hair regrowth by providing concentrated growth factors at the hair root.
- The collected GFC is administered **with precision**, ensuring no platelet loss.
- The process is **non-pyrogenous and secure**, promoting natural tissue regeneration. Optimal results can be achieved in just three to four sessions.
- Each growth factor plays a unique role in **tissue regeneration** and combating hair loss. ^(2,5)
- PDGF:** Stimulates vascularization and cell proliferation.
- VEGF:** Enhances perifollicular angiogenesis.
- EGF:** Promotes hair cell proliferation and new blood vessel development.
- IGF-1:** Supports hair follicle maintenance and growth.
- Our study showed **significant improvements** in outcomes following treatment, **confirming its effectiveness**.
- No adverse effects** were observed, affirming the **procedure's safety** as it was prepared at our blood centre under optimal conditions

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