

Granulocyte Colony Stimulating Factor for Recurrent Implantation Failure: 5-year Cohort Study Results

Authors
Dr. Islam Elkhateb¹ , Prof. Radwa Fahmy², Prof. Wafaa Ramadan², Dr. Ahmed Mourad³, Dr. Nihal El-demiry³, Kenzy Elessawy⁴, Prof. Amal Shohayeb²

Affiliations
¹Department of Obstetrics and Gynecology, Cairo University Students’ Hospital, Cairo, Egypt
²Department of Obstetrics and Gynecology, Cairo University Kasr Alainy Teaching Hospital, Cairo, Egypt
³Department of Dermatology, Cairo University Kasr Alainy Teaching Hospital, Cairo, Egypt
⁴Newgiza University School of Medicine, Giza, Egypt

INTRODUCTION

- Recurrent implantation failure (RIF) remains a major challenge in infertility treatment.
- RIF significantly affects patients both financially and psychologically.
- Granulocyte-colony stimulating factor (G-CSF) has shown potential in enhancing embryo implantation and clinical pregnancy rates in RIF patients.

METHODOLOGY

- **Design:** Observational ambispective (prospective + retrospective) cohort study.
- **Methods:**
 - Conducted at the IVF unit, Cairo University Kasr Alainy Obstetrics & Gynecology Hospital.
 - Study period: October 2019 – September 2024.
 - Approved by the Research Ethics Committee (Code: MD-179-2019).
 - Registered under ClinicalTrials.gov Identifier: NCT04998279.
 - Intervention group: RIF patients who underwent fresh embryo transfer (ET) between 10/2019 and 9/2023 intrauterine G-CSF infusion after oocyte pick-up, 3 days before ET.
 - Control group: RIF patients undergoing fresh ET before and after that timeframe, without G-CSF.
 - Exclusion criteria: advanced maternal age, significant uterine anomalies, and immunological or genetic factors affecting implantation.

Intrauterine G-CSF *significantly improves implantation rates* in women with recurrent implantation failure undergoing fresh embryo transfer.



RESULTS

- Participants:**
- 40 patients in the study group vs. 39 in the control group.

- Clinical Pregnancy Rate:**
- Study group: 27.5% (11/40)
 - Control group: 17.9% (7/39)
 - Not statistically significant (P = 0.28)

- Implantation Rate:**
- Study group: 0.33 ± 0.25
 - Control group: 0.33 ± 0.08
 - Statistically significant improvement (P = 0.04)

- First Trimester Abortion Rate:**
- Study group: 18.2% (2/11)
 - Control group: 42.9% (3/7)
 - Not statistically significant (P = 0.25)

- Endometrial Thickness:**
- Study group showed a mean increase of 1.15 ± 1.5 cm from oocyte pick-up to ET
 - Poor documentation in control group

	Studygroup (N=40)	Control Group (N=39)	P-Value
Clinical Pregnancy	11/40 (27.5%)	7/39 (17.9%)	0.280
Implantation Rate	0.33+/- 0.25	0.33+/- 0.08	0.04
1st Trimester Abortion	2/11 (18.2%)	3/7 (42.9%)	0.250
Endometrial Thickness	+1.15+/- 1.5cm	NA	NA

CONCLUSION

- Intrauterine G-CSF infusion in RIF patients undergoing fresh embryo transfer may enhance implantation and clinical pregnancy rates.
- It may also reduce early abortion rates.
- Further large-scale studies are needed to confirm these findings and establish clear clinical guidelines.



Royal College of
Obstetricians &
Gynaecologists