

EVALUATING THE IMPACT OF TOBACCO SMOKING ON SEMEN QUALITY: A RETROSPECTIVE COHORT STUDY

RICHISMITA HAZRA¹, BISWANATH GHOSH DASTIDAR^{1,2}, SUDARSAN GHOSH DASTIDAR¹

1 GD Institute for Fertility Research, Kolkata.

2 Department of Obstetrics and Gynecology & GDIFR-IPGMER Center of Excellence (COE) in Assisted Reproductive Technology (ART), Institute of Post-Graduate Medical Education and Research (IPGMER) & SSKM Hospital, Kolkata.

Introduction

Tobacco smoking poses a significant global health challenge and has been linked to numerous adverse reproductive effects in both males and females. This retrospective cohort study systematically investigated the impact of tobacco smoking on key semen quality parameters in infertile male subjects.

Methods and materials

This study, carried out at the Ghosh Dastidar Institute for Fertility Research (GDIFR), aimed to compare semen parameters between smokers and non-smokers among infertile male patients undergoing ICSI procedures from 2022 to 2023. Initially, 75 male subjects were screened regarding their self-reported smoking history, but the final data analysis included 60 subjects, comprising 30 smokers and 30 non-smokers, who met the inclusion criteria. The study assessed four key Seminal Fluid Analysis (SFA) parameters, as defined by the WHO (6th Edition) guidelines: sperm concentration, motility, vitality (HOS), and morphology. The data for each SFA parameter between the two independent groups was statistically compared using an unpaired Student's t-test.

Results

The results of the unpaired Student's t-test showed that smokers had lower sperm concentration, vitality, and motility compared to non-smokers, although these differences were not statistically significant ($p > 0.05$). In contrast, sperm morphology was significantly reduced in smokers ($p < 0.05$), with a higher proportion of morphologically abnormal sperm observed in the smoking group.

Conclusion

This study demonstrates a negative association between tobacco smoking and the decline of male reproductive parameters. Nevertheless, limitations such as the retrospective design and reliance on self-reported smoking history should be considered. Future research should categorize smokers into mild, moderate, and heavy groups to provide more detailed insights.

References

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