ABSTRACT

Study question: We question if sperm chromatin fragmentation (SCF) can guide couples with unexplained infertility in choosing the appropriate ART treatment. 

What is known already: Ovulation induction (OI) with IUI is the mainstay of treating couples with unexplained infertility and poor IUI outcomes. SCF is the most accurate test in predicting fertility potential. However, the role of SCF in choosing the appropriate ART treatment remains to be elucidated. 

Study design, size, duration: Over a 39-month period, couples diagnosed with unexplained infertility and poor IUI outcomes were assessed for SCF and treated with OI. Couples with normal SCF underwent IUI, whereas those with abnormal SCF underwent ICSI with ejaculated sperm. 

Main results and the role of chance: A total of 645 couples undertook 1478 IUI cycles. The female age and male age in the study cohort was 37.7±4 years and 39.8±5 years, respectively. The average sperm concentration was 50.4±32 x10^6/mL, with a motility of 46.6±12% and morphology of 39.5±26%, respectively. Couples with normal SCF had a CPR of 17.9%, whereas those with abnormal SCF had a CPR of 5.1%. The mean TUNEL and SCSA values of the men in the study cohort was 21.5±6% and SCSA 39.5±26%, respectively. 

CONCLUSIONS

In patients with unexplained poor IUI outcome, SCF assay is helpful in devising treatment algorithm. IVF is successful in men with intact sperm chromatin. When SCF is compromised in the ejaculate, ICSI is the most suitable insemination method. In men with high SCF in their ejaculate who fail ICSI treatment, surgical sampling yields spermatozoa with lower SCF and higher changes of pregnancy.