

The role for sperm DNA damage testing in 2017

Alex J. Tatem¹, Robert E. Brannigan²

¹Department of Urology, Indiana University, Indiana University School of Medicine, Indianapolis, Indiana, USA; ²Department of Urology, Northwestern University, Feinberg School of Medicine, Chicago, Illinois, USA

Correspondence to: Robert E. Brannigan, MD. Department of Urology, Northwestern University, Feinberg School of Medicine, Galter Pavilion, Suite 20-150, 675 North Saint Clair Street, Chicago, IL 60611, USA. Email: r-brannigan@northwestern.edu.

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We applaud the authors for putting forth practical recommendations regarding the usage of sperm DNA fragmentation (SDF) analysis in the evaluation of the sub-fertile male. The scenarios they posit are thought-provoking and bear consideration as the clinical utility of SDF continues to be established.

Although considered one of the lynchpins in the evaluation of male infertility, semen analysis (SA) is highly variable and may not always offer complete insight into a man's true fertility potential. SDF analysis has subsequently emerged as an objective measure of structural integrity of the genetic information contained within spermatozoa. This context is important as a lack sperm DNA integrity has been shown to be negatively associated with fertility (1).

Studies revealing a potential correlation between SDF, varicoceles, and assisted reproductive technology (ART) outcomes continue to deepen our understanding of SDF and how it relates to the pathophysiology of infertility. Recent retrospective analyses have revealed that infertile men with varicoceles have increased levels of SDF and that these levels appear to improve following varicocelectomy (2). There have also been studies showing a relationship between SDF and intrauterine insemination (IUI), traditional *in vitro* fertilization (IVF), and IVF/intracytoplasmic sperm injection (ICSI) outcomes (1,3).

What is less clear are the circumstances under which an SDF analysis should be performed. Currently, there are no definitively proven therapies to independently treat an abnormal SDF analysis result. Many underlying pathologies that are thought to contribute to an elevated SDF (such as varicocele) often warrant treatment in and of themselves.

This reality means that the insight provided by SDF analysis rarely impacts clinical decision-making. Consequently, both the Practice Committee of the American Society of Reproductive Medicine and the American Urological Association have issued guidelines and best practice statements concluding that there is insufficient evidence to recommend the routine use of SDF analysis (4,5).

SDF analysis offers insight into the quality of a man's sperm that has been previously unavailable and we support the ongoing efforts that are being made to define its role in the modern workup of the infertile male. However, as with all tests, great care must be taken to only utilize it when the results stand to directly affect clinical decision making.

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Footnote

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References

1. Bungum M, Humaidan P, Axmon A, et al. Sperm DNA integrity assessment in prediction of assisted reproduction technology outcome. *Hum Reprod* 2007;22:174-9.
2. Zini A, Dohle G. Are varicoceles associated with increased deoxyribonucleic acid fragmentation? *Fertil Steril* 2011;96:1283-7.

3. Collins JA, Barnhart KT, Schlegel PN. Do sperm DNA integrity tests predict pregnancy with in vitro fertilization? *Fertil Steril* 2008;89:823-31.
4. Practice Committee of the American Society for Reproductive Medicine. Diagnostic evaluation of the infertile male: a committee opinion. *Fertil Steril* 2015;103:e18-25.
5. Jarow J, Sigman M, Kolettis PN, et al. The Optimal Evaluation of the Infertile Male: Best Practice Statement Reviewed and Validity Confirmed 2011. Available online: <https://www.auanet.org/education/guidelines/male-infertility-d.cfm>

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