

Sperm DNA fragmentation testing: where we stand in 2017

Salil Tandon

Unit of Urology, Globe Medicare Hospital, Lucknow, Uttar Pradesh, India

Correspondence to: Salil Tandon, MS, FRCSI, FACS, MAMS, FICS. Globe Medicare Hospital, Lucknow, Uttar Pradesh, India.

Email: drsaliltandon@rediffmail.com.

Comment on: Agarwal A, Majzoub A, Esteves SC, et al. Clinical utility of sperm DNA fragmentation testing: practice recommendations based on clinical scenarios. *Transl Androl Urol* 2016;5:935-50.

Submitted Apr 22, 2017. Accepted for publication Apr 27, 2017.

doi: 10.21037/tau.2017.05.25

View this article at: <http://dx.doi.org/10.21037/tau.2017.05.25>

World Health Organization (WHO) defines infertility as the inability of a sexually active, non-contraceptive couple to achieve pregnancy in 1 year (1). Overall, the worldwide incidence is about 15 % and a male factor is responsible in 20–50% of cases (2). Medical history, physical examination and semen analysis remains the corner stone of male infertility workup.

In spite of today's "Omic" era and advances in diagnostic techniques, the cause of male infertility is not ascertained in approximately 25% of cases (unexplained infertility) (2). Semen analysis is also normal in approximately 40% of infertile men (3). This subgroup of patients particularly needs more advanced sperm function tests. Sperm DNA testing is emerging as a new tool on the horizon. The clinical utility article by Agarwal *et al.* (4) have highlighted the importance of sperm DNA testing—when to do, what test to do and to counsel the couple for the best treatment options depending on the value of DNA fragmentation index (DFI). During the last decade, DFI has emerged as an important biomarker in the assessment of male fertility potential. Elevated DNA fragmentation rate has been shown to be more common in infertile men with unfavorable reproductive outcome as compared to fertile men (5). The expert panel, in the first part of the review, highlighted various methods of sperm DNA fragmentation (SDF) testing (direct and indirect) and discussed their advantages and disadvantages based on various well-structured studies. The cutoff value for an abnormal sample with SCSA is ≥ 25 –27% and with TUNEL ≥ 36 % (5).

The second part of review article (4) explores the indications of SDF testing based on common clinical conditions encountered in day-to-day clinical practice. DFI and clinical varicocele with normal/borderline semen parameters help in

better selecting of patient for varicocelectomy. The role of SDF in unexplained male infertility, recurrent spontaneous abortions and outcomes of various ART techniques has been discussed in a systematic manner.

There is a growing body of evidence to suggesting a detrimental role for environmental pollutants and life style factors on reproductive health (6). The effect of these exogenous factors on sperm function and resultant improvement in DFI witnessed after correcting them is highlighted by the authors (4).

Controversies surrounding the routine use of DFI in clinical evaluation of infertile men are present, but the evidence based recommendations brought by the expert panel (4) is very promising and encouraging. I think sooner than later AUA, ASRM and EUA will develop new guidelines incorporating the routine use of DNA integrity testing along with semen analysis and other lab investigations for male infertility work up.

Acknowledgements

I am thankful to my wife Mrs. Reenu Tandon for typing this manuscript.

Footnote

Conflicts of Interest: The author has no conflicts of interest to declare.

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Cite this article as: Tandon S. Sperm DNA fragmentation testing: where we stand in 2017. *Transl Androl Urol* 2017;6(Suppl 4):S697-S698. doi: 10.21037/tau.2017.05.25