

## Sperm DNA fragmentation testing: a standard semen test or not ready for prime time?

This issue of *Translational Andrology and Urology* focuses on the controversies surrounding the use of sperm DNA fragmentation testing in the armamentarium of the male infertility specialist. My general approach to patient care is: I only order a test if it will change my management of the patient or couple. On the other hand, there are some situations when more information may sway the couple on how to proceed towards differing treatment options.

The perspectives of urologists, laboratory specialists and reproductive endocrinologist from around the world regarding the value of these tests are offered here. There continues to be controversies as to what is the best way to measure DNA fragmentation and clearly there is no consensus as to which testing method is best (1).

Agarwal *et al.* reviewed multiple clinical scenarios that discuss the value of sperm DNA testing in cases of varicoceles of unclear significance, unexplained infertility, recurrent IUI failure, IVF and ICSI failures, recurrent pregnancy loss and lifestyle risk factors (1).

Regarding lifestyle risk factors, all of these risk factors should be emphasized to be stopped regardless of sperm DNA fragmentation testing. While there is multiple data sets that address this issue, I am not sure this is a major indication for sperm DNA fragmentation testing unless the patient/couple request additional information before cessation of the offending agent (smoking alcohol, drug use, etc.). I am a pragmatist in this fashion.

The data and recommendations offered in the clinical utility article are at best weak (level C evidence in most scenarios). Therefore, shared decision making between patient (couple) and physician will be guided by physician opinion and patient preference. In some countries, ART is a covered service while in others, it is purely an out of pocket service. Costs, age of the reproductive partner become important factors in this decision making process.

As sperm DNA testing does not affect ICSI pregnancy rates, its role in pre-ICSI assisted reproductive technologies (ART) is somewhat questionable except for cost reasons. Most couples will have a general plan towards either treating or optimizing the male, or going directly to ART or a combination.

The biggest value of this test is when it affects the decision making process in a major way. Intriguing is the data regarding the differences in sperm DNA in testis *vs.* ejaculated sperm. While multiple theories are discussed, why this may or may not occur is still conjecture. However, in couples with failed fertilization and/or poor embryo development, if the source of the sperm may be at fault, and intervention is minimally invasive (as testis sperm aspiration/extraction is in most cases), then this DNA sperm testing has a major value. You will read here from many authors who give opinions here ranging from “proceed with caution” to “absolutely indicated”. There is no perfect study evaluating testis *vs.* ejaculated sperm with “sibling oocytes of equal quality” that helps us answer this question. As each case is slightly different, this thorough review of “opinions” here will be valuable to the clinician in counseling patients on this topic.

Regarding sperm DNA testing in other scenarios of unexplained infertility, recurrent pregnancy loss, this is more controversial. The data here is more limited and of less clinical significance as other options are available or may not change the outcome.

Lastly, the role of sperm DNA testing in the scenario of the clinical varicocele is more interesting. Yet, the data to date continues to be controversial and based on grade C evidence. As mentioned in the Agarwal clinical utility paper (1), some studies compare infertile men with varicoceles to infertile men without varicoceles. Others studies compile patients that include fertile men (2). There are few studies to evaluate outcomes that look at varicoceles in fertile and infertile men and followed them over time, with or without repair. Most patients will decide on varicocele repair without sperm DNA testing unless there is no parameter that is abnormal. In my opinion, this is the best indication for sperm DNA testing in patients with varicoceles.

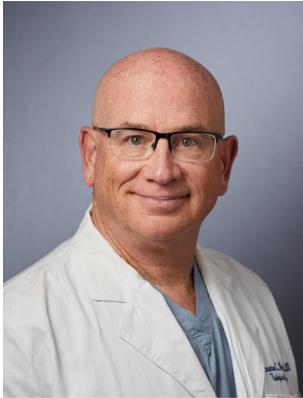
In summary, sperm DNA testing is still finding its appropriate place in the armamentarium of the male infertility specialist. As each case is slightly different, this thorough review that includes articles and commentaries will be valuable to the clinician in counseling patients on this topic.

## Acknowledgements

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## References

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