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INVITED COMMENTARY

Male Infertility

Sperm retrieval rates and ICSI outcomes for men with nonobstructive azoospermia and the health of resulting offspring

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In the article published in the *Asian Journal of Andrology*, Esteves *et al.*¹ report on the results of a reasonably large (365) retrospective series of patients with nonobstructive azoospermia (NOA) who had sperm collected by microscopically assisted microdissection (microTESE) for intracytoplasmic sperm injection (ICSI). The results from NOA patients are compared with previously published data from a group of men with obstructive azoospermia collected during the same time frame. In addition, as is standard of care, the couples were offered ICSI with donor sperm if the microTESE procedure failed to yield sperm, providing a group from the same cohort who had ejaculated sperm used for ICSI.

NOA describes the condition in which there are no sperm in the semen due to lack of sperm production by the testes, rather than due to posttesticular obstruction of the excurrent ducts. NOA accounts for about 7% of male factor infertility cases and includes patients with Y-chromosome deletions, Klinefelter syndrome and prior cancer treatment. Until the advent of surgical collection of testicular sperm and ICSI, men with NOA were unable to father biological offspring. Now, using TESE, sperm can be collected for injection into oocytes.²

To provide the best care for patients with NOA, we would like to know the potential for damage to the testes and the likelihood of success using TESE and ICSI, the latter including the chance of collecting sperm, the live birth rate when sperm are obtained and the health of the resulting offspring. There are limited data comparing results for men with NOA with those from men with poor semen quality or men with obstructive azoospermia in whom sperm are collected from the epididymides.^{3,4} In general, retrieval rates for men with NOA are about 50%, depending on the underlying reason for the testicular failure and the testicular histology. When sperm retrieval is successful, the fertilization, pregnancy and live birth rates are somewhat lower for men

with NOA than for those with obstructive azoospermia. It is concerning that the proportion of mosaic embryos appears to be higher for NOA than for ejaculated sperm.⁴

There are even fewer published reports of the health of offspring resulting from ICSI with sperm collected from the testes of men with NOA.^{4,5} In this regard, there are known risks of ICSI when compared with IVF or natural conception, but are there additional risks of using sperm from men with poor semen quality? In the case of oligozoospermia (low sperm count which is often accompanied by poor motility and morphology), even when severe, there does not appear to be additional risk over that of ICSI seen with sperm from normal semen. However, the number of offspring with health status reported from NOA with ICSI remains low and the 40 babies described by Esteves *et al.*¹ represents a solid contribution.

Overall, Esteves *et al.*¹ report on ICSI cycles for 151 men with NOA, 146 men with obstructive azoospermia and 40 cycles for NOA in which donor sperm were used. Their retrieval and ICSI results are similar to those previously reported and this represents a modest contribution to our understanding of the success of microTESE by increasing the existing database. The data would be more valuable if the authors had broken down the results by the testicular biopsy results for the patients (i.e., Sertoli cell-only, maturation arrest and hypospermatogenesis), and separately for Klinefelter men as this information is even more limited in the literature.

COMPETING INTERESTS

The author has no competing interests to disclose.

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