American Society for Reproductive Medicine 2019 Scientific Congress & Expo
October 12 to 16, 2019 ● Philadelphia, PA, USA

Title:

SEDIMENTATION VERSUS SURGERY: TESTICULAR AND EJACULATED SPERM RESULT IN SIMILAR IVF OUTCOMES IN PATIENTS WITH CRYPTOZOOSPERMIA

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Objective:

There are opposing views about whether to source sperm through surgical intervention or fresh ejaculation in men with cryptozoospermia. O'Connell et al. observed ejaculated sperm to be better than testicular sperms in cryptozoospermia patients, and suggested that fertilization rate is related to sperm maturation. Conversely, Cui et al. demonstrated that the use of testicular sperm achieved better embryonic quality and IVF outcomes than ejaculated sperm. That study concluded that sourcing spermatozoa via testicular extraction reduced exposure to oxygen free radicals and prevented DNA damage therefore modifying IVF clinical outcomes. Our study aimed to evaluate clinical outcomes of fresh blastocyst transfers of cryptozoospermia patients with sperm retrieved through testicular extraction versus fresh ejaculated sperm.

Design:

Retrospective cohort analysis

Materials and Methods:

All Cryptozoospermia patients undergoing autologous IVF/ICSI with fresh blastocyst transfers from 2005 to 2019 were included. Cohorts were separated based on the source of sperm utilized (Ejaculated vs. Testicular). Demographic, clinical embryology parameters and pregnancy rates were compared among cohorts. T-test, Xi2, and multivariate regression with GEE models were used for data analysis.

Results:

A total of 188 patients were included in the analysis (Ejaculated sperm (n= 149); Testicular sperm (n=39). Demographic characteristics were similar among cohorts. No differences were found among the ejaculated and testicular cohorts for fertilization (61.7%; 64.9%, p=0.17) blastulation rates (55.8%; 55.3%, p=0.86) and count of cryopreserved blastocysts (1.58 ±2.61; 1.10 ±1.59, p=0.15) respectively. A significant difference was found among the ejaculated and testicular cohorts for in the number of cancelled cycles due to embryos unavailable for transfer (22.8%; 7.6%, p=0.03), number of embryos transferred per cycle (1.35 ±1; 1.94±1.62, p<0.001), and mean count of good quality embryos at ET (0.75 ±0.9; 1.23±1.03,p=0.005)

After adjusting for female and male patient's age, BMI, AMH and injected oocytes, no association was found with utilizing ejaculated sperm and lower odds of fertilization (OR 1.19, CI95% 0.2-6.4, p=0.8), blastulation (OR 0.4, CI95% 0.04-4.7, p=0.5), or higher odds of cycle cancellation (OR1.1, CI95%0.7-1.7, p=0.6). Finally, no differences were found in pregnancy, clinical pregnancy, ongoing pregnancy, multiple pregnancy, and pregnancy loss rates among cohorts.

Conclusion:

Our study demonstrated cryptozoospermia patients who source sperm through testicular extraction or ejaculation prior to ICSI had similar ART treatment outcomes. There does not appear to be a deleterious effect with regard to fertilization, blastulation, and embryonic quality in cryptozoospermia patients who utilize ejaculated sperm found after thorough search and sedimentation. Further prospective studies including patients undergoing single euploid embryo transfers should be performed, in order to generate personalized and evidence based recommendations for couples facing cryptozoospermia.