FREQUENCY AND CHARACTERIZATION OF ANEUPLOIDIES IN ART CYCLES USING SURGICALLY EXTRACTED SPERM

Joshua M. Morris [1,2], Bijan Morshedi [1,2], Arielle Yeshua [1,2], Jerry Wang [3], Seifeldin Sadek [4], Nicole Banks [1,2]

[1] Macon and Joan Brock Virginia Health Sciences at Old Dominion University, Department of Obstetrics and Gynecology, Norfolk, VA. [2] Shady Grove Fertility – Jones Institute, Norfolk, VA.
[3] USFertility, Rockville, MD. [4] Center For Reproductive Medicine, Orlando, FL

BACKGROUND

- 10-15% of infertile men are diagnosed with azoospermia and based on etiology can be divided into obstructive (OA) and nonobstructive (NOA) causes
- Surgical sperm extraction for IVF/ICSI is the most common treatment for those seeking fertility
- Previous studies have demonstrated a higher proportion of aneuploid sperm in ejaculate from men with abnormal semen parameters
- Increased aneuploidies and mosaicism have been observed from testicular sperm even when controlled for partner or oocyte donor age
- A previous study using FISH found an increase in aneuploidy, but no difference between OA and NOA causes

OBJECTIVE

- Characterize any differences in embryo aneuploidy between OA and NOA extracted sperm using NGS

There is no difference in embryo aneuploidy between embryos created with OA or NOA surgically extracted sperm.

MATERIALS & METHODS

- Retrospective cohort study at a large multi-center fertility network between 2014 - 2023
- Included all embryos created from patients with a diagnosis of azoospermia using surgically extracted sperm with IVF/ICSI and PGT-A testing with NGS
- The primary outcome was aneuploidy rate
- Categorical variables were analyzed using chi-square analysis, Fisher's exact test, or z-test for proportion and two-tailed t-tests for continuous variables

RESULTS

- 359 IVF cycles were included (176 OA and 183 NOA) which produced 668 and 742 PGT-A tested embryos respectively
- No difference in baseline characteristics between the cohorts in respect to maternal age
- The aneuploidy rates were not different between the cohorts [OA 327 (49.0%); NOA 376 (50.7%); p = 0.74]
- Subgroup Analysis – Patients with maternal age under 35 yielded similar results [OA 105 (39.3%); NOA 135 (38.8%); p = 0.99]

Table 1. Baseline Demographics

	ALL	NOA	OA	
	359	183	176	p-value
AGE OF PATIENT				
<35	123	68	55	0.389
35-37	101	46	55	0.471
38-40	98	55	43	0.294
41-42	32	14	18	0.229
>42	5	0	5	-
PATIENT RACE (SELF-REPORTED)				**0.006**
White	177	78	99	
Black	50	33	17	
Asian	53	35	18	
Hispanic	19	11	8	
Other/Unknown/Multiple	60	26	34	
AVERAGE MATERNAL BMI	25.96	26.69	25.2	**0.003**
AGE OF PARTNER				
<35	74	41	33	**0.018**
35-37	53	27	26	0.41
38-40	62	38	24	**0.012**
41-42	36	18	18	1
>42	134	59	75	0.593
MEAN AMH (STDDEV)	3.22	3.54 (2.96)	2.9 (2.88)	**0.04**

CONCLUSIONS

- Embryo aneuploidy rates were not different between IVF/ICSI cycles using OA or NOA surgical sperm samples and rates were ultimately similar to other etiologies of infertility
- Therefore, the type of azoospermia should not impact the decision to use PGT-A in couples undergoing IVF/ICSI with surgically extracted sperm
- This is important for robust patient counseling regarding utilization of PGT-A

REFERENCES AND CONTACT INFO

SCAN ME

SCAN ME