2016 Annual Clinical & Scientific Meeting of The American Urology Association
May 6-10, 2016 ● San Diego, California

Title
IS THERE A CORRELATION BETWEEN TERATOZOOSPERMIA AND EMBRYONIC ANEUPLOIDY?

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Objective:
It is generally accepted that semen quality, as judged by the volume, motility, and morphology of spermatozoa, predicts both in vitro and in vivo fertilization. Kruger et al. has demonstrated that microscopic assessment of sperm morphology plays an integral role in evaluating the male. This study aims to determine whether there is a correlation between specimens with extremely low percentages of structurally normal sperm and embryonic aneuploidy in couples that pursue in vitro fertilization (IVF) with Comprehensive Chromosomal Screening (CCS).

Design:
Retrospective cohort analysis

Materials and Methods:
Couples who underwent an IVF cycle and utilized aneuploidy screening (preimplantation genetic screening (PGS)) from July 2010 – October 2015 were included. At least 100 sperm in four different areas of the slide were evaluated according to Kruger's strict criteria (Kruger et al ≤4%: normal; >4%: abnormal). Female and male partner ages were binned (A: ≤35; B: (35-38]; C: (38-41]; D: (41-43]; and E: >43). Male age group E was sub-binned (a: ≤43; b: (43-50]; c: (50-55]; d: (55-60]; and e: >60). Aneuploidy rate for each female age group was calculated, with 95% confidence intervals calculated by Clopper-Pearson method. Chi-square and ANOVA were used to test significance, established at $p<0.05$.

Results:
Subjects (n=268) consisted of females (24.6-43.9 yo) with male partners (23.8-62.9 yo) who underwent 288 autologous fresh IVF cycles with PGS. CCS was performed on 1836 embryos, of which 656 were found to be aneuploid. The percentage of male patients with a morphology count >4% was similar between all five male age groups (A: 61.7%, B: 66.2%, C: 59.7%, D: 75.2%, E: 59.7%). When male age group E was subdivided, the proportion of patients with an abnormal morphology count increased with age (a: 36.2%, b: 44.1%, c: 70.4%, d: n/a, e: 100%). Aneuploidy rate was similar between normal and abnormal sperm morphology groups in all five age female groups (Table 1). Additionally, pregnancy rate, clinical pregnancy rate and early pregnancy loss rate were similar between groups in each female age group (Table 1).

Conclusions:
No correlation was identified between teratozoospermic specimens and increased incidence of embryonic aneuploidy. Male partners with specimens found to have abnormal Kruger morphology should be reassured that they do not have an increased incidence of producing chromosomally abnormal embryos.

Support:
None.

	A		B		C		D		E	
	<4%	>4%	<4%	>4%	<4%	>4%	<4%	>4%	<4%	>4%
Cycles	32	67	29	52	34	51	6	12	1	4
Patient's Age	32.5±2.1	32.1±2.4	36.7±0.8	36.3±1.0	39.4±0.8	39.4±0.8	42.1±0.7	41.7±0.5	43.3±	43.5±0.5
Partner's Age	36.1±5.7	35.2±3.8	39.7±6.7	38.2±3.2	42.5±5.7	42.0±4.2	36.8±4.4	43.7±2.8	44.4±	43.5±1.3
AMH	3.1±1.6	4.1±2.4	2.4±2.2	3.3±3.0	3.2±2.9	3.1±4.0	2.2±2.3	1.7±1.0	1.2±	2.5±
Aneuploidy rate	26.8% (67/250)	28.5% (157/550)	36.4% (56/154)	35.8% (134/374)	45.9% (84/183)	42.7% (99/232)	60.0% (12/20)	69.8% (37/53)	66.7% (2/3)	47.1% (8/17)
Pregnancy Rate	59.4% (19/32)	61.2% (41/67)	72.4% (21/29)	69.2% (36/52)	67.6% (23/34)	68.6% (35/51)	66.7% (4/6)	66.7% (8/12)	0% (0/1)	100% (4/4)
Clinical PR	46.9% (15/32)	53.7% (36/67)	62.1% (18/29)	46.2% (24/52)	55.9% (19/34)	54.9% (28/51)	50% (3/6)	58.3% (7/12)	0% (0/1)	75% (3/4)
Early Pregnancy loss Rate	12.5% (4/32)	14.9% (10/67)	20.7% (6/29)	30.7% (16/52)	23.5% (8/34)	27.5% (14/51)	12.5% (1/6)	8.3% (1/12)	n/a (0/0)	25% (1/4)