

Paternal Age Does Not Influence Euploidy in Blastocysts

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Introduction:

The risk of chromosomal aneuploidies with advancing maternal age is well known, but the rate of euploidy in blastocyst against paternal age remains debatable. Martha Luna et. al. (2009) and John L. et. al. (2007) demonstrate that paternal age may be inversely related to reproduction outcome. Whilst Lena Dain et. al. (2011) showed there is still insufficient evidence to demonstrate an unfavorable effect of paternal age on ART outcome. This study summarises the euploidy rates for 1826 blastocysts derived from different paternal age groups, in women under 35 years old using the NGS platform.

Materials and Methods:

We evaluated the rate of euploidy in women below 35 years old, against paternal age in blastocysts analysed by NGS from September 2015 to December 2017. To determine the effect of paternal age on the euploidy rate of blastocysts, the male patients were divided into 8 age groups, age 20-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59 and 60-77. The number of blastocysts biopsied in each age group was 89, 497, 459, 277, 248, 166, 46 and 44 respectively. All biopsied blastocysts were of at least average grade using the criteria of Gardner's blastocyst scoring (Gardner and Schoolcraft, 1999) and a fixed timeline for each blastocyst stage from cavitating to fully hatched blastocysts. Trophectoderm cells were biopsied from each blastocyst on Day 5 or 6 and processed for PGS by NGS. After biopsy the blastocysts were vitrified using the Cryotec Method.

Results:

There is no difference in euploidy rates amongst the paternal age groups.

Paternal Age	Maternal Age								
	20-29			30-34			20-34		
	No. of Euploid	No. of Aneuploid	Euploidy Rates	No. of Euploid	No. of Aneuploid	Euploidy Rates	No. of Euploid	No. of Aneuploid	Euploidy Rates
20-29	44	23	66%	14	8	64%	58	31	65%
30-34	110	49	69%	231	107	68%	341	156	69%
35-39	128	40	76%	195	96	67%	323	136	70%
40-44	127	75	63%	44	31	59%	171	106	62%
45-49	140	68	67%	19	21	48%	159	89	64%
50-54	85	42	67%	30	9	77%	115	51	69%
55-59	33	11	75%	1	1	50%	34	12	74%
60-77	17	5	77%	14	8	64%	31	13	70%
Total	684	313	69%	548	281	66%	1232	594	67%

Conclusions:

Our study shows no difference in euploidy rates on blastocysts derived from patients of different paternal age groups.

References:

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3. Luna, M., Finkler, E., Barritt, J., Bar-Chama, N., Sandler, B., Copperman, A.B., Grunfeld, L. (2009). Paternal age and assisted reproductive technology outcome in ovum recipients. *Fert. & Steril.*, Volume 92, Issue 5, November 2009, Pg 1772-1775. <https://doi.org/10.1016/j.fertnstert.2009.05.036>