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Title:

ASSESSING TRENDS IN EMBRYO GENDER AFTER PGS: ARE THERE MALE OR FEMALE PROGENY-DOMINANT COUPLES?

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Objective:

Normal spermatogenesis produces equal frequencies of male and female sperm[(1)]. Couples using in vitro fertilization (IVF) and preimplantation genetic screening (PGS) for gender selection have expressed concern that their embryos may have a gender bias. The study aims to identity whether clinical data support the existence of predominantly male or female embryo-producing couples.

Design:

Retrospective cohort study

Materials and Methods:

IVF couples (n=116) treated between February, 2006 –November, 2014 who had ≥10 embryos (range 10-34) screened by PGS were analyzed by a two-sided binomial test to calculate the probability (p) of a comparably or more extreme embryo gender imbalance due to chance. The male to female embryo ratio was assumed to be 1:1. P-values were adjusted for the false discovery rate (FDR) by the Benjamini-Hochberg method with significance at $p<0.05$.

Results:

The study involved 1578 embryos (787 male and 791 female). Four of 116 couples produced embryos with a gender imbalance with an unadjusted $p<0.05$, all of which were male-predominant (See Table). Six couples (5%*116) were predicted to produce gender-imbalanced embryos by chance. After adjusting for FDR, none of these 4 couples met statistical significance.

Table:

Couple	Number of Embryos			p	Adj. p
	Male	Female	Total		
A	12	3	15	0.035	1
B	15	5	20	0.041	1
C	13	3	16	0.021	1
D	9	1	10	0.021	1

Conclusions:

Although rare causes of embryo gender biases may exist, couples producing embryos in this study did not display gender imbalance. The gender balance of euploid embryos is consistent with that expected from normal spermatogenesis. Couples not attaining a desired gender for their embryo(s) can be counseled that their experience is a result of random chance.

Support:

None

References:

1. Crow JF. Why is Mendelian segregation so exact? Bioessays 1991;13(6):305–12.