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HOW DONOR OOCYTE SOURCE RELATES TO RECIPIENT OUTCOME

Emily Clarke, Victoria Kirilov Lazarov, Jiwoo Park, Dmitry Gounko, Joseph Lee, Alan B Copperman, Erkan Buyuk

1. Reproductive Medicine Associates of New York, New York, NY
2. Icahn School of Medicine at Mount Sinai, New York, NY

OBJECTIVE:

Oocyte recipients can choose among fresh non-shared or shared donors, fresh directed donor, or frozen banked eggs. The number of donor oocytes needed to achieve a live birth is contested, with current studies often neglecting to account for oocyte source (1,2). Recipients may encounter difficulty in choosing donor source, especially when considering their family size goals. This study examines patients who have chosen from various oocyte donor sources and compares the likelihood of potentially achieving their desired family size.

MATERIALS AND METHODS:

This single center study included all oocyte recipients who indicated number of desired children on initial intake from January 2012 to March 2024. Recipients were characterized by chosen oocyte source: fresh non-shared or shared, fresh directed, and egg bank. Only the 1st donor retrieval cycle or aliquot of egg bank oocytes was included. Primary outcome was rate of recipients who obtained≥3 blastocysts per desired child. For this study's purposes, obtainment of ≥3 blastocysts per desired child was used as a surrogate marker of potential in "achieving" desired family size. Secondary outcomes were number of blastocysts obtained and rate of patients using preimplantation genetic testing for aneuploidy (PGT-A) who obtained ≥3 euploid embryos per desired child. Kruskal Wallis, chi-square, Fisher's exact tests and logistic regression were used; $p<0.05$ was considered significant.

RESULTS:

386 recipients selected from the following donor sources: fresh non-shared (n=97), fresh shared(n=185), fresh directed (n=15), egg bank (n=89). Recipients using fresh non-shared donors obtained the most blastocysts (13.4±7.8), followed by directed donor (7.5±4.1), fresh shared (7.1±3.8), and egg bank (3.4±1.9), $p<0.01$. Recipients using fresh non-shared donors had the highest potential to obtain ≥3 blastocysts per desired child (86.6% of cycles), followed by fresh shared (71.4%), directed donor (66.7%), and egg bank (43.8%), $p<0.01$. When adjusting for

desired family size, compared to fresh non-shared recipients, directed donor recipients had similar odds of potential to "achieve" desired family size (aOR 0.4, 95% CI 0.1-1.4); other recipients had significantly lower odds (fresh shared: aOR 0.3, 95% CI 0.1-0.6; egg bank: aOR 0.06, 95% CI 0.03-0.1). Of recipients using PGT-A, fresh non-shared recipients were most likely to obtain ≥3 euploid embryos per desired child (58.4%), followed by fresh shared (40.9%), directed (35.7%), and egg bank (21.4%) ($p<0.01$).

CONCLUSIONS:

Oocyte recipients who choose fresh non-shared donors obtain the most blastocysts, with the highest potential to obtain ≥3 euploid embryos per child. Egg bank and fresh shared recipients may exhibit lower potential in "achieving" their desired family size, though further study on cost-analysis is warranted. Directed donor recipients can anticipate obtaining fewer blastocysts but have comparable chances of obtaining sufficient blastocysts compared to fresh non-shared recipients.

IMPACT STATEMENT:

By analyzing the source of donor oocyte, decision support models can be developed to empower recipients to make informed decisions in helping them achieve their desired family size.

REFERENCES:

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