# THE IMPACT OF MATERNAL AGE AT RETRIEVAL ON THE IMPLANTATION RATE OF EUPLOID BLASTOCYSTS

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## OBJECTIVES

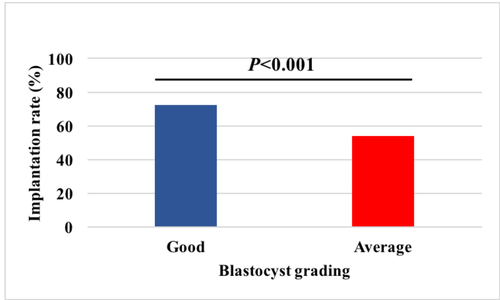
- It has been reported that women older than 42 years may have lower implantation rates (IR) of preimplantation genetic screening (PGS)-selected euploid blastocysts compared to younger patients.
- However, previous studies did not take into consideration other parameters that can affect the development and implantation potential of euploid embryos.
- Therefore, we aim to examine the effect of maternal age on the implantation of euploid blastocysts using a large sample size and after controlling for blastocyst grading.

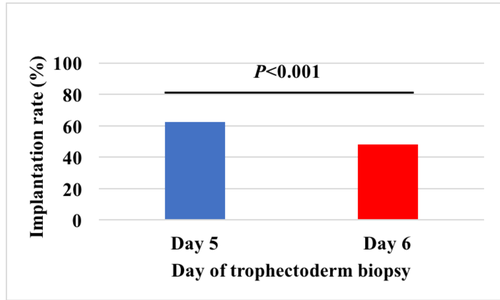
## METHODS

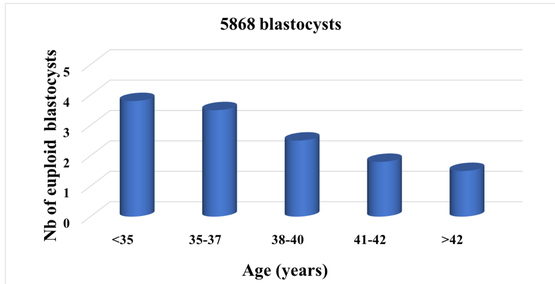
- This is a retrospective cohort study including all frozen embryo transfer (FET) cycles with PGS-selected euploid blastocysts between 2013 and 2016.
- Cycles were divided into five groups according to woman's age at retrieval: <35, 35-37, 38-40, 41-42, >42 years.
- All embryos were cultured and graded in a time-lapse incubator. PGS was performed using array comparative genomic hybridization.
- The morphodynamic grading of blastocyst-stage embryos was assessed immediately prior to trophectoderm biopsy dividing the embryos in: Good (3-6 AA, 3-6 AB, and 3-6 BA) and Average (all other embryos).
- $\chi 2$ and Fisher's exact test were used as appropriate. Odds ratio with 95% confidence intervals were calculated and adjusted for all confounding factors.

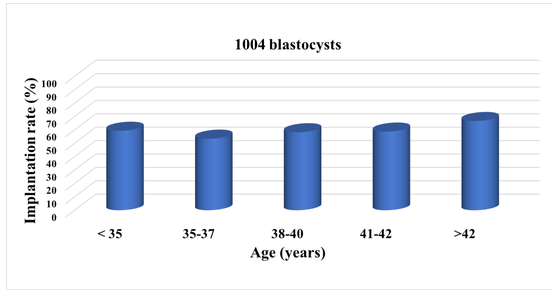
## RESULTS

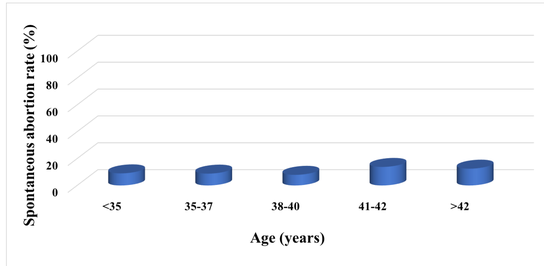
- A total of 890 FET cycles were included.
- The number of euploid blastocysts negatively correlated with maternal age (r=-0.38; *P*<0.001).
- Good-quality euploid blastocysts (n=196) yielded a higher IR compared to Average-quality blastocysts (n=808) (72.4 % vs. 54%, respectively; *P*<0.001).
- Moreover, embryos biopsied on day 5 were associated with a higher IR compared to those biopsied on day 6 (62.5% vs. 48%, respectively; *P*<0.001). trophectoderm biopsy.
- The five age groups were associated with comparable IR (*P*>0.05) and spontaneous abortion rate (*P*>0.05). The odds ratio remained insignificant after adjusting for blastocyst grading and day of trophectoderm biopsy.




## CONCLUSIONS

- Maternal age at retrieval influences the number of euploid blastocysts but does not impair the implantation potential of chromosomally and morphologically-selected embryos.
- The assessment of morphodynamic characteristics of blastocysts, by evaluating blastocyst grading and pace of embryo development, may reflect the epigenetic health of the conceptus and is paramount to select among euploid embryos.

## References

- Harton et al. Diminished effect of maternal age on implantation after preimplantation genetic diagnosis with array comparative genomic hybridization. Fertil Steril 2013; 100(6):1695-703.
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