

It's not just about numbers: Young women with lower than expected egg yields have relatively poor embryo quality and low success rates

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Introduction

At IVF Australia cleavage stage embryo transfers are almost all associated with low embryo numbers and, in young women, current knowledge would still predict a relatively good outcome. This study tested this hypothesis with a particular focus on AMH (as a measure of ovarian reserve) and embryo quality.

Methods

IVF cycles with cleavage stage transfers (2011–12) in women under age 38 were analysed. Optimal embryos were defined as containing 4 cells on day 2, and ≥ 6 cells on day 3. "A" grade embryos had $< 25\%$ of cell volume occupied by fragmentation, and "B" grade embryos had $\geq 25\%$ fragmentation.

Results

In 145 cycles (mean age 34.5; AMH 6; eggs collected 6.1; eggs fertilised 2.3) the clinical pregnancy rate was 19.3%. Transfer of suboptimal embryos resulted in significantly lower pregnancy rates (3.8%) compared with cycles in which at least one optimal embryo was transferred (16.7%) ($p < 0.05$). Those with AMH $< 25^{\text{th}}$ centile ($n = 43$, median 3.1, age 35.4) were compared with those $> 25^{\text{th}}$ ($n = 38$, median 14.95, age 34.2) and despite higher FSH starting dose stimulation ($p < 0.01$), the low AMH group had fewer eggs retrieved ($p < 0.01$), fewer fertilised, and fewer embryos frozen, more morphologically suboptimal embryos transferred (37.2% v 26.3%) and lower pregnancy rates (11% v 16%).

Conclusions

Lower than expected egg numbers collected in young women undergoing IVF resulted in worse than expected outcomes. This was associated with poor embryo quality and low AMH. While the link between low AMH and poor ovarian reserve is well described, more studies are needed to exclude AMH as a marker of poor egg/embryo quality as well.