

Oocyte Cryopreservation in Women Seeking Elective Fertility Preservation: A Multi-Center Analysis

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ABSTRACT

Objective: Based on the realities of reproductive aging and the improving efficiency of oocyte cryopreservation, after extensive counseling about the experimental nature of the technology, women presenting for elective fertility preservation are advised to preserve at least 10 mature (MII) oocytes. We analyzed a cohort of women who inquired about fertility preservation, and attempted to correlate age at oocyte retrieval with the chance of achieving this goal.

Methods: Between January 2004 and July 2007, the call center at Extend Fertility handled inquiries from 3,177 women. Association between age, cryopreservation attempt, and cryopreservation of at least 10 mature (MII) oocytes was evaluated in an IRB-approved, multi-center clinical study. Demographics were collected and patients were followed longitudinally.

Results: Mean age of 3,177 women who inquired about fertility preservation was 35.4±5.4. 123 women completed 169 cycles (70% one cycle, 30% multiple). Women who ultimately completed a cycle were at a significantly greater age at the time of inquiry than that of all women inquiring (37.2±2.3, p<0.01). 36% of cycles reporting maturity yielded at least 10 mature (MII) oocytes. Women younger than 35 yoa participated in 7% of cycles, with 50% cryopreserving at least 10 MII oocytes. In contrast, only 35% of cycles completed by women 35 or older resulted in greater than 10 MII oocytes cryopreserved.

Conclusions: The likelihood of retrieving an optimal number of mature oocytes decreases dramatically with age. In addition, the average age of inquiry of women who ultimately complete oocyte cryopreservation cycles is significantly greater than those who merely inquire. These findings suggest an inadequate awareness of age-dependent fertility decline and its effects on oocyte cryopreservation cycles. Greater public education is needed regarding age-related fertility decline and the possibility of fertility preservation.

BACKGROUND

Ongoing multi-center, clinical studies using donor oocytes observe an 85% oocyte freeze-thaw survival rate and a 65% pregnancy rate, demonstrating the efficacy of oocyte cryopreservation. However, despite these successes, clinics across the country have observed late presentation for women seeking oocyte cryopreservation with many of these patients demonstrating diminished ovarian reserve. In a study conducted by a fertility clinic in New York, Reproductive Medicine Associates of New York, a high incidence of diminished ovarian reserve was present amongst the first 73 patients to be evaluated to undergo elective oocyte cryopreservation. The median age of patients was 39, and of those screened 11.9% had a basal FSH level of >13 milli-international units/milliliter. Further, the goal of greater than 10 oocytes was met in only 57.9% of these completed cycles. Late presentation was also observed in fertility clinics in New Jersey, Texas, and California. Interestingly, the first-ever motivational assessment of women choosing to cryopreserve their oocytes revealed that, for the majority surveyed, the pivotal event leading to the decision was becoming aware that egg freezing technology existed.

OBJECTIVE

To examine the relationship between patient age and interest in fertility preservation, completion of oocyte cryopreservation cycle, and success of oocyte cryopreservation cycle.

METHODS

- Patient age at interest in fertility preservation and completion of oocyte cryopreservation cycle, and success of oocyte cryopreservation were examined retrospectively, in an IRB-approved, multi-center clinical study.
- Demographic data from women inquiring about fertility preservation by contacting a single call center from January 2004 through July 2007 was collected.
- All patients went through an informed consent process as per center protocol and signed informed consent forms.
- Potential patients were followed in a longitudinal fashion. The success of an oocyte cryopreservation cycle was gauged by examining the number of MII oocytes cryopreserved (of cycles that reported maturity).
- Statistical analysis was performed using *t*-test for continuous variables and chi-squared for non-parametric data.

FIGURE 1.

Age of Women Inquiring about Fertility Preservation

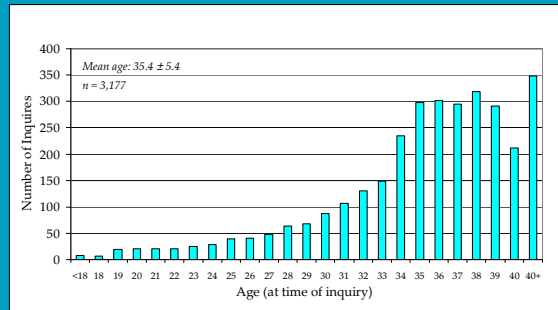


FIGURE 2.

Age of Women Completing an Oocyte Cryopreservation Cycle

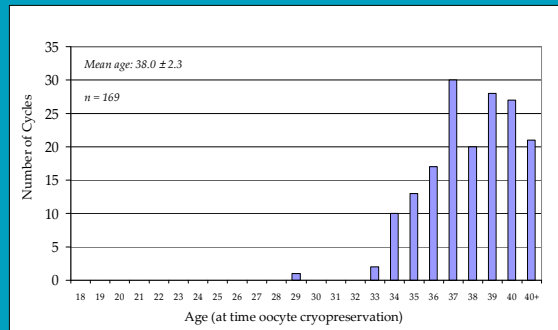
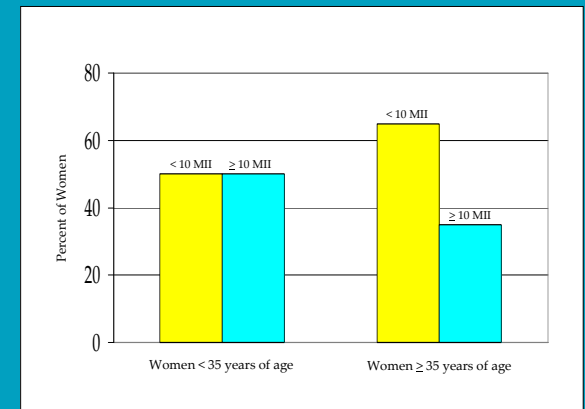


FIGURE 3.

Outcome of Oocyte Cryopreservation Cycles for Women



# of cycles of women < 35 yoa	12
# of cycles of women < 35 yoa with ≥ 10 MII oocytes cryopreserved	6
# of cycles of women ≥ 35 yoa	149
# of cycles of women ≥ 35 yoa with ≥ 10 MII oocytes cryopreserved	52

CONCLUSIONS

- The likelihood of retrieving an optimal number of mature oocytes decreases dramatically with age.
- Fifty percent of women younger than 35 years of age cryopreserved more than 10 MII oocytes; this number dropped to 35% in women 35 years of age or older.
- The average age of inquiry of women who ultimately complete oocyte cryopreservation cycles is significantly greater than those who merely inquire (37.2±2.3 and 35.4±5.4 years of age, respectively, p<0.01).
- Greater public education is needed regarding age-related fertility decline and the possibility of fertility preservation so that younger women will begin to consider this emerging option.

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