EVALUATION OF A RAPID VITRIFICATION AND WARMING PROTOCOL IN IMMATURE AND MATURE HUMAN OOCYTES

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Background
Vitrification and warming protocols for human oocytes are key to IVF but can be time-consuming and operator dependent. However, recent studies suggest that shorter and simplified protocols may be effective[1]. With increasing demand for social and medical oocyte freezing, there's a growing need to streamline and optimize these protocols for greater efficiency and consistency[2,3].

Objective
Our objective was to determine the survival of immature and mature human oocytes, vitrified and warmed using a short protocol and CooperSurgical's SAGE Vitrification Kit.

Materials and Methods
This study examined modifications of oocyte vitrification and warming protocols that reduce the length of exposure to vitrification and warming solutions utilizing CooperSurgical's SAGE Vitrification Kit. In total, 122 immature oocytes (97 germinal vesicles and 25 metaphase I) and 258 metaphase II oocytes were utilized. The metaphase II oocytes utilized had undergone insemination but failed to fertilize. The vitrification protocol was performed at room temperature and consisted of 1min in ES followed by 1min in VS. The warming protocol was performed at 37ºC and consisted of 1min in DS followed by 1min in WS. For immature oocytes, resumption of meiotic activity was evaluated after 24 and 48 h of culture. Survival rates were compared with previously published data using other commercially available vitrification and warming media

Results
Survival rate was 95.9% for GVs, 96% for MIs, 92.3% for MIIs. This exceeds published KPIs[4], despite use potentially compromised samples (not suitable for patient use) and demonstrates equivalent performance with other commercially available media (statistically non-significant). Surviving immature oocytes resumed meiotic function and matured in line with expected rates.

Conclusions
This data adds to the growing body of evidence of the effectiveness of shortened and simplified vitrification and warming protocols. It is hoped that transitioning to such protocols will help improve lab efficiencies and reduce operator variability. The data presented is reassuring in terms of both survival rates and resumption of meiotic activity in both GV and MI immature oocytes. Further studies are needed to examine fertilization rates and clinical outcomes.

Support
Dominique E. Martin, Colleen Lynch, and Vrunda B. Desai are all full-time employees of CooperSurgical.

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