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# New protocol has improved clinical outcome of IVM (in-vitro maturation)

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Objective: In the hCG-primed IVM cycles for polycystic ovary (PCO) patients, some in-vivo matured oocytes are retrieved in some cases. In-vivo matured oocytes need to be inseminated intracytoplasmic sperm injection (ICSI) on the day of oocyte pick up. We have changed the timing of ICSI depending on oocyte maturation in the hCG-primed IVM (improved IVM; i-IVM). This study compared the clinical outcomes of frozen embryo transfer between i-IVM and conventional hCG-primed IVM (c-IVM).

Methods: This study was retrospective analysis of the c-IVM frozen embryo transfer performed from January 2010 to November 2011 and the i-IVM performed from December 2011 to December 2013 (Study 1). And we also analyzed the i-IVM cycles with (group A) and without (group B) in-vivo matured oocytes retrieved (Study 2).

Results: Study 1: The clinical pregnancy rate tended to be higher frozen embryo transfer in i-IVM than that in c-IVM (27.5% vs. 19.4%), however there was no significant difference in the total maturation rate（59.8% vs. 51.8%）. Study 2: In group A, the maturation rate was higher ($p<0.01$) and the chemical pregnancy rate per retrieved cycle was higher (38.1% vs. 16.7%, $p=0.16$) than group B. The number of retrieved oocytes was 16.2 on average in group A, and the number was 11.5 in group B.

Conclusions: Better pregnancy rate was obtained in i-IVM cycles that yield mature oocytes and more oocytes were retrieved in IVM cycle having mature oocyte. Hence, acquirement of in-vivo matured oocytes will predominantly affect the pregnancy outcome.