

## Clinical Outcome after in Vitro Fertilization in Women Aged 40 Years and Above: Reasonable Cut-Off Age for Successful Pregnancy

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**Abstract :** Advanced female age is associated with higher cycle cancelation rates, lower clinical pregnancy rate, increased miscarriage and aneuploidy rates in IVF (In Vitro Fertilization) cycles. This retrospective cohort study was conducted at a Cha Fertility Center, Seoul Station. All fresh non-donor IVF cycles performed in women aged 40 years and above from January 2016 to December 2016 were reviewed. Donor/recipient treatment, PGD/PGS (Preimplantation Genetic Diagnosis/ Preimplantation Genetic Screening) were excluded from analysis. Of the 1,166 cycles from 753 women who completed ovulation induction, 1,047 were appropriate for the evaluation according to inclusion and exclusion criterion. IVF cycles were categorized according to age and grouped into the following 1-year age groups: 40, 41, 42, 43, 44, 45 and > 46. The mean age of patients was  $42.4 \pm 1.8$  years. The median AMH (Anti-Mullerian Hormone) level was  $1.2 \pm 1.5$  ng/mL. The mean number of retrieved oocytes was  $4.9 \pm 4.3$ . The clinical pregnancy rate and live birth rate in women > 40 years significantly decreased with each year of advancing age ( $p < 0.001$ ). The clinical pregnancy rate decreased from 21% at the age of 40 years to 0% at ages above 45 years. Live birth rate decreased from 12.3% to 0%, respectively. There were no clinical pregnancy outcomes among 95 patients aged above 45 years of age. The overall miscarriage rate was 40.7% (range, 36.7%-70%). The transfer of at least one good quality embryo was associated with about 4-9% increased chance of a clinical pregnancy rate. Therefore, IVF in old age women less than 46 had a reasonable chance for successful pregnancy outcomes especially when good quality embryo is transferred.

**Keywords :** advanced maternal age, in vitro fertilization, pregnancy rate, live birth rate

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