

PEAK ESTRADIOL CONCENTRATION DURING CONTROLLED OVARIAN STIMULATION FOR IN VITRO FERTILIZATION AFFECTS PERCENTAGE OF USABLE BLASTOCYSTS

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Abstract Body

OBJECTIVE: To evaluate the effect of peak estradiol (E2) concentration during controlled ovarian stimulation on the subsequent percentage of usable good-quality blastocysts that develop from a cohort of two-pronuclear (2pn) zygotes.

DESIGN: Retrospective study of 698 IVF cycles from 2016 and 2017 in a private IVF center.

MATERIALS AND METHODS: The peak E2 concentration and the number of oocytes retrieved were recorded for each cycle. The percentage of usable blastocysts was defined as the percentage of 2pn zygotes that had developed into good-quality blastocysts that were transferred or frozen. Data was analyzed using multiple linear regression models in which age and anti-Mullerian hormone level were covariates, and the total number in the 2pn cohort was a weighted variable. The percentage of usable blastocysts for each cycle was plotted as contour graphs according to the corresponding number of eggs retrieved and peak E2 concentration.

RESULTS: The multiple linear regression models revealed a significant ($p=0.006$) two-way interaction between peak E2 and number of oocytes retrieved on the percentage of usable embryos obtained from the cohort of 2pn zygotes, meaning that both variables simultaneously and significantly impact the percentage of usable embryos that had developed. The statistical contour graphs were utilized to determine the optimal combination of peak E2 and number of oocytes retrieved that resulted in the highest percentage of usable blastocysts. Data were analyzed with Minitab statistical software was used, and $p<0.05$ was considered statistically significant.

CONCLUSIONS: Peak E2 concentrations and the number of oocytes retrieved affect percentage of usable blastocysts that develop from a cohort of 2pn zygotes. The highest percentage of usable good-quality embryos was obtained when the number of oocytes retrieved was between 17 and 20 and the peak E2 was between 1910 and 2525 pg/ml.