The value of AMH, AFC and age for prediction of IVF outcome

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Introduction: Assessment of ovarian reserve is essential for prediction of ovarian response and outcome of In Vitro Fertilization (IVF). Recent studies indicate that anti-mullerian hormone (AMH) and antral follicle count (AFC) are very useful in prediction of ovarian response. However, there are controversial opinions about advantages of the various ovarian reserve tests for prediction of IVF outcome. Aim: Assessment of widely used ovarian reserve tests: age, FSH, AFC, AMH and determination of the most reliable markers for prediction the outcome of ovulation induction in terms of oocyte yield and chance of pregnancy. Methods: The prospective study included 111 infertile women, who underwent IVF/ICSI. Patients with an oocyte count ?3 were considered as poor responders (n=48); those with >3 were considered as good responders (n=68). AFC, levels of FSH and AMH were determined on day 3 of menstrual cycle. Results: The results of the whole study shows that, the correlation between AMH and number of oocytes was the strongest (rs=0.6), as well as between AFC and number of oocytes (rs=0.6). There were statistically significant differences between two groups in all parameters. Poor responders were older, having higher FSH concentrations, lower AMH and AFC values and significantly lower number of retrieved oocytes and embryos compared with good responders (p<0.05). Comparison between those with ongoing pregnancy (n=32) and those without (n=68) revealed that there were significant differences in age (p=0.000), AMH (p = 0.004), AFC (p=0.006), number of oocytes (p=0.004) and embryos (p=0.002). The binary logistic regression analysis shows, that age is the only factor, which significantly predicted the likelihood of ongoing pregnancy (B=0.14; p=0.005).The cut-off value of the age for prediction of the pregnancy was 33.5 y. Binary regression analysis for poor ovarian response shows, that AFC is the only factor which significantly predicts poor response after ovulation induction. The cut-off value of AFC for prediction of poor response was 5. Conclusions: AMH and AFC have the same values for prediction of oocyte and embryo number after ovulation induction. The levels of FSH have no predictive value for embryo number and chance of pregnancy. AFC is the most reliable predictor of poor ovarian response. Age is the only factor which significantly predicts the likelihood of pregnancy during IVF.

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