OP 24: Value of post ovum pick up (OPU) day14 serum βhCG concentration and βhCG doubling time in predicting pregnancy outcome in assisted reproductive technologies (ART)

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Introduction: Since from the very beginning, early pregnancy losses and ectopic pregnancies has been a counterpart of assisted reproductive technologies (ART). The rate of multiple gestations is also high compared to spontaneous pregnancies. Therefore early prediction of outcome is important in pregnancies following assisted reproduction treatment. Serum beta hCG has been found to be predictive of pregnancy outcome.

Objective: To describe day 14 post ovum pick-up(OPU) hCG concentrations and the doubling time of serum beta hCG among pregnancies following ART.

Methods: A retrospective cross sectional analysis of 144 ART cycles resulted in pregnancies performed during 2003 to 2008 was carried out at Vindana reproductive health center. Post OPU day 14 Serum hCG concentrations and the predicted doubling time of hCG were compared in relation to pregnancy out come. Pregnancies were classified as viable pregnancies (both singleton and multiple), miscarriages and ectopic pregnancies.

Results: The mean hCG concentration was 124.55 IU/l in viable pregnancies and 47.10 IU/l in non-viable pregnancies ($P < 0.001$). The mean hCG concentration was 102.13 IU/l in singleton pregnancies and 198.20 IU/l in multiple pregnancies ($P < 0.001$). Miscarriages and ectopic pregnancies had mean hCG concentrations of 52.22 IU/l and 33.43 IU/l respectively. Pregnancies miscarried had a predicted hCG doubling time of 34.82 hrs whereas in ectopic pregnancies it was 69.04 hrs ($P=0.01$). Doubling time of hCG had no significant difference neither between viable pregnancies and non-viable pregnancies nor between singleton pregnancies and multiple pregnancies.

Conclusions: A single hCG reading on day 14 post-OPU helps to predict continuing viable pregnancies and differentiating singleton from multiple pregnancies. On the other hand predicted doubling time of beta hCG has a predictive value in differentiating ectopic pregnancies from early miscarriages.