ISBN 978-952-92-1662-8 (paperback) ISBN 978-952-10-3747-4 (pdf) http://ethesis.helsinki.fi University Printing House Helsinki 2007

Outcome of Singleton Pregnancy after Assisted Reproductive Treatment Piia Poikkeus Academic Dissertation Department of Obstetrics and Gynaecology Helsinki University Central Hospital University of Helsinki Finland

## Abstract:

Singleton pregnancies achieved by means of assisted reproductive treatment (ART) are associated with increased obstetric and neonatal risks in comparison with spontaneously conceived singleton pregnancies. The impact of infertility- and treatment-related factors on these risks is not properly understood. In addition, the psychological effects of infertility and its treatment on the experience of pregnancy have scarcely been studied. Thus, the aim of the present study was to evaluate the importance of infertility- and treatment-related factors on prediction of pregnancy outcome, obstetric and neonatal risks, fear-of-childbirth and pregnancy-related anxiety.

The subjects consisted of infertile women who achieved a singleton pregnancy by means of *in vitro* fertilisation (IVF) or intracytoplasmic sperm injection (ICSI). The control groups comprised spontaneously conceiving women with singleton gestations. Early pregnancy outcome was assessed by means of assay of serum human chorionic gonadoptrophin (hCG) in single samples. Other outcome data were collected from patient records, national Health Registers and via prospective questionnaire surveys.

Viable pregnancies were associated with significantly higher serum hCG levels 12 days after embryo transfer than non-viable pregnancies. Among singleton pregnancies, aetiological subgroup, treatment type or the number of transferred embryos did not impair the predictive value of single hCG assessment.

According to the register-based data, age-, parity- and socioeconomic status- adjusted risks of gestational hypertension, preterm contractions and placenta praevia were more frequent in the ART pregnancies than in the control pregnancies. Significantly higher rates of induction of delivery and Caesarean section occurred in the ART group than in the control group. The risks of preterm birth and low birth weight (LBW) were increased after ART pregnancy. Duration or aetiology of infertility, treatment type (fresh or frozen IVF or ICSI) or rank of treatment did not contribute to the risks of preterm birth or LBW. In addition, the risks of preterm birth and LBW remained elevated in spite of of the number of transferred embryos. Although mean duration of pregnancy was shorter and mean birth weight lower in the ART pregnancies than in the control pregnancies, these differences were hardly of clinical significance.

Fear-of-childbirth and pregnancy-related anxiety were equally common to women conceiving by means of ART, or spontaneously. Partnership of five to ten years appeared to be protective as

regards severe fear-of-childbirth, whereas long preceding infertility ( $\geq$  seven years) had the opposite effect.

In conclusion, an early hCG assessment maintained its' good predictive value regardless of infertility- or patient-related factors. Further, we did not recognise any infertility- or patient-related factors that would expose infertile women to increased obstetric or neonatal risks. However, a long period of infertility was associated with severe fear-of-childbirth.

Link to e-thesis http://urn.fi/URN:ISBN:978-952-10-3747-4