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Impact of Oocyte Denuding Time on Intracytoplasmic Sperm Injection Outcomes

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Objectives: Intracytoplasmic sperm injection (ICSI) is now very successful micromanipulation technique used in the assisted reproduction, especially in couples with severe male factor infertility. In preparation for ICSI, oocytes have to be denuded from cumulus and corona cells using a combination of enzymatic (hyaluronidase) and mechanical (pipetting) method. Although it is well known that the best IVF results are obtained when the oocytes are inseminated 2~6 hr after retrieval, there are controversies regarding the timing of oocyte denudation and microinjection in ICSI. The purpose of this study is to investigate the effect of timing of oocyte denudation and microinjection on ICSI outcomes and determine optimal denudation timing.

Methods: Retrospective analysis was done on 135 ICSI cycles performed in 2006 where the time of oocyte retrieval and denudation were recorded. We divided ICSI cycles into three groups according to the taking time from oocyte retrieval to denudation: group 1 included cases with <2 hr, group 2 included cases with ≥ 2 hr and <4 hr and group 3 included cases with ≥ 4 hr. And the minimum time after oocyte retrieval for microinjection is 3hr. Chi square and One Way ANOVA were used for statistic analysis.

Results: The mean age of the women (34.4 ± 3.4 , 34.7 ± 3.4 , and 34.1 ± 3.8 years respectively) and the number of retrieved oocytes (11.3 ± 6.9 , 10.1 ± 8.6 , and 11.1 ± 8.8 respectively) in each group did not differ statistically. Analysis of three groups showed no statistically significant differences in the rate of matured oocytes (80.1 ± 16.6 , 80.5 ± 19.3 , and $80.7 \pm 17.3\%$ respectively), fertilization rate (73.8 ± 19.0 , 74.1 ± 19.0 , and $73.9 \pm 20.3\%$ respectively), and pregnancy rate (31.3, 26.3, and 32.3% respectively).

Conclusion: Although it is clear that pre-incubation of oocytes prior to IVF induce cytoplasmic maturation that may eventually increase fertilization and pregnancy rates, this study shows conflicting finding the effect of pre-incubation time on ICSI. However, it is necessary to have optimal time for pre-incubation in ICSI as in IVF because too early injection makes it difficult to observe an pronuclei on proper time and too early injection results in in-vitro ageing.

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Risk of Birth Defects in Pregnancies Associated with IVF/ICSI: Ten Years Experience of a Single IVF Center

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Objectives: To determine the risk of birth defects in infants conceived through IVF/ICSI as compared with naturally

conceived infants.

Methods: We compared the overall birth defects of infants conceived by IVF/ICSI (n=1776) at Cheil general hospital from Aug. 1997 through Aug. 2006, with a cohort of naturally conceived children (n=3445). These data were obtained from the clinical data from the obstetric and pediatric records, including the information obtained through telephone. We also performed the analysis of the birth defects by the type of each ART procedure (i.e., IVF vs ICSI) in infants delivered after 20 weeks of gestation.

Results: The overall incidence of birth defects for IVF/ICSI infants were 4.2% (n=75), which was higher than that of the control group (3.0%) (p=0.02). When major defects were evaluated by affected organ system in IVF/ICSI infants, cardiovascular (1.4%, n=25), musculoskeletal (0.5%, n=9) and orofacial (0.45%, n=8) defects are most frequently affected, additionally, the rate of chromosomal abnormality was 0.7% (n=12). The commonly affected organ in the natural conceived infants were orofacial (3.0%), musculoskeletal (2.0%), central neural system (1.8%) and cardiovascular (1.3%) defects, in order. The odds ratio for having any major congenital anomaly was 1.4 (95% CI 1.047~1.917) in IVF/ICSI group. When each IVF procedure was compared, an increased odds ratio was found in the crude analysis for ICSI group. We found the same result after the adjustment for maternal age (OR=1.742; 95% CI 1.112~2.730) in ICSI group, but the risk was not increased in IVF group (OR=0.677; 95% CI 0.383~1.197).

Conclusion: Major birth defects were slightly increased in infants conceived through IVF/ICSI. Especially, ICSI conceived children had higher chance of birth defects than naturally conceived children or IVF children. Furthermore, larger, population based studies are needed for the systematic evaluation of the obstetric and perinatal outcomes, as well as long-term follow-up of these children.

P-43 Risk of Monozygotic Twins after Blastocyst Transfer: A Meta-analysis

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Objectives: It has been known that IVF/ICSI treatment increases the incidence of monozygotic twins (MZT) three to twenty times compared to general population; 0.42% in general population and 1.2~8.9% in IVF population. After the first report of an increased rate of MZT with blastocyst transfer in 1998, its precise incidence has not been established. Several authors reported an increased incidence of MZT after blastocyst transfer compared to conventional cleavage stage embryo transfer, but the results were somewhat inconsistent. Since MZT is a rare event and several studies lack a power to show an increased incidence of MZT with blastocyst transfer, this may not allow for the statistical significance to be reached. The aim of this meta-analysis was to assess whether the incidence of MZT after blastocyst transfer increase compared to day 3 embryo transfer in fresh IVF cycles.

Methods: A literature search of the National Library of Medicine and the National Institutes of Health (PubMed) was performed using the key words 'monozygotic twins' and 'blastocyst'. The last search date was August 2007. The original