P-30 Choline-based 용액을 이용한 동결-융해 법이 인간 난자의 생존율에 미치는 영향

최수진 · 김수경 · 송상진 · 박용석 · 변혜경

성균관대학교 의과대학 삼성제일병원 생식생물학 및 불임연구실

Background & Objectives: 난자의 동결 보존은 최근 여러 연구가들에 의해 시도되어, 성숙 난자의 동결 보존과 이를 이용한 성공적인 임신이 몇 차례 보고 되었으나 아직 난자 동결보존에 대한 방법이 확립되지 않아 융해 후 난자의 생존율과 임신 성공률이 매우 낮다. 동결 단계 동안 첨가되는 sodium 은 융해 후 세포막의 분열과 세포기능의 변형에 주요 원인이 된다. 이러한 현상은 동결 용액 sodium 대신 choline을 사용함으로써 세포막의 안정화 효과를 가져와 동결에 의한 손상을 감소 시킬 수 있다. 따라서 본 연구에서는 cholind을 이용한 동결 용액 사용에 따른 난자 생존율을 알아보고자 하였다.

Method: 난자 채취 후 세포질 내 정자 주입술 (ICSI)을 실시 하지 않은 미성숙 난자를 24시간 체외 배양한 후 2가지 동결-융해 법을 실시하였다. 방법1) 1.5 mol/l PROH-0.2 mol/l sucrose가 첨가된 choline-based DPBS 용액으로 동결하였으며, -6℃에서 식빙 (seeding)을 시행하였다. 동결된 난자는 0.5 mol/l과 0.2 mol/l의 높은 sucrose 농도의 용액을 사용하여 융해하였다 (n=17). 방법2) 1.5 mol/l PROH-0.1 mol/l sucrose를 첨가한 choline-based DPBS용액으로 동결하였으며, -7℃에서 식빙하였다. 융해는 PROH와 sucrose의 농도가 단계적으로 감소된 용액에서 이루어졌다 (n=10).

Results: 난자의 생존율을 비교하면, 방법1은 88.2% (15/17)를 방법2는 90.0% (9/10)를 각각 나타냈으며, 두 군간 통계적 차이는 없었다.

Conclusions: 본 연구에서 사용된 Choline-based DPBS 이용한 동결-융해 법은 유리화 동결법의 단점인 액화질소를 통한 오염 가능성을 제거한 효과적인 인간 난자 동결 방법으로 이용될 수 있으리라 기대된다.

P-31 Clinical Evidence of Endometrial Proliferation in Endometriosis: Is it Pivotal role in this Disease?

Kim MR, Chang HJ, Kim HB, Hwang KJ

Department of Obstetrics & Gynecology, Ajou University School of Medicine, Suwon, Korea

Background & Objectives: To exmaine the clinical evidence of endometrial proliferation in endometriosis based on molecular markers evaluation.

Method: Six hundred thirty-one infertile women, 433 with endometriosis and 198 controls without the disease. The presence of endometriosis was documented laparoscopically and scored according to the American Fertility Society classification. We confirmed the endometrial polyps by pathologic examination after hysteroscopic polypectomy. We evaluated the expression of Ki-67, Cox-2, NF-κB, cell proliferation assay (MTT assay), and Bcl-2 expressions.

Results: There was no significant difference between groups with regard to age, mean duration of in-

fertility. Endometrial polyps were found in 273 women (63.0%) with endometriosis and in 59 controls (29.8%, p=0.0000). Their frequency differed significantly according to stage of endometriosis. In endometriosis group, expressions of Ki-67, Cox-2, and Nf-kB were significantly higher than that in the control group. Cell proliferation was significantly increased also in endometriosis group ($p<0.05$). But expression of Bcl-2 was significantly lower than that in the control group.

Conclusions: We suggested incereased endometrial proliferation was one of the possible mechanisms in endometriosis. Taken together, we strongly recommend hysteroscopy if endometriosis is detected in a woman undergoing evaluation for infertility.

P-32 Determination of Bisphenol A Concentrations in Human Umbilical Cord Blood Serum and Amniotic Fluid

Yoon JM[1], Kim SK[2], Do BR[3], Park JH[2], Cho DJ[1], Kim SK[1], Song CH[1], Yoon YD[2]

[1]Department of Obstetrics and Gynecology, College of Medicine, Yonsei University, [2]Laboratory of Toxicogenomics for Endocrine Disruptors and Reproductive Endocrinology, Department of Life Science, Hanyang University, [3]BioEngineering Institute, CoreStem Inc.

Background & Objectives: There is broad human exposure to bisphenol A (BPA), an estrogenic endocrine-disrupting chemical widely used for the production of plastic products as well as in dentistry and food packaging. BPA is reported to affect preimplantation embryos or fetuses and alter their postnatal development and sexual maturity at the very doses detected in the environment. In the present study, BPA concentrations were determined in the human umbilical cord blood serum and amniotic fluid in order to estimate the risk of BPA exposure to human fetuses.

Method: All the human biological fluids were obtained from women who visited the department of Obstetrics and Gynecology in Yonsei University Medical Center, with informed consent. The umbilical cord blood samples were obtained at full-term delivery and the amniotic fluids were obtained by amniocentesis at 20 weeks gestation (early pregnancy). The determination of BPA concentrations was performed by a novel enzyme-linked immunosorbent assay (ELISA) for BPA, which was developed by Takeda chemical industries. The assay range was 0.2~50 ng/ml of BPA. The cross-reactivity for 17β-estradiol was below 0.001%.

Results: The mean serum BPA concentrations in umbilical cord blood were 10.37 ng/ml, and individual values were ranged from 6.83 to 19.05 ng/ml. Compared to the level in the umbilical cord blood serum, surprisingly much higher concentration, 301.19±255.58 ng/ml (mean ± SD) of BPA was detected in the amniotic fluids.

Conclusions: Present study demonstrated the presence of BPA in the human umbilical cord blood serum and amniotic fluid and these results suggest the possibility of significant exposure to the fetus during the prenatal period, although there is much to be elucidated about the involvement of early BPA exposure in