리를 open culture방법과 oil drop culture방법을 비교함으로써 민감도 (sensitivity)가 높은 태아제대혈청 정도관리법을 알아보고자 시행하였다.

생쥐 제1대잡종을 이용하여 과배란 유도된 생후 6~8주된 암컷과 생후 12주된 생식력이 확인된 숫컷을 이용하여 체외수정을 수행하였다. 체외수정 후 24시간에 2세포기 배아를 획득하여 Ham's F-10에 0.4% BSA가 첨가된 배양액을 기본배양액으로 하였으며 실험에 이용되는 serum은 Ham's F-10에 10%의 농도가 되도록 하였다. Open culture방법은 2-well dish를 이용하여 배양액을 2.5ml이 되도록하였고 oil drop culture방법은 배양액을 25μl로 하였고 평형이 이루어진 mineral oil로 covering하였다.

실험의 결과 Ham's F-10에 0.4% BSA가 첨가된 대조군의 경우는 open culture방법과 oil drop culture방법간에 포배기로의 발생률과 탈각률이 유사한 결과를 나타냈다. 그러나 14예의 태아제대혈청의 검사결과 10예에서는 포배기로의 발생률과 탈각률에서 두 방법간에 차가 보이지 않았으나 4예에서는 open culture방법보다 oil drop culture방법에서 발생률이 좋은 것으로 판정되었다. 그러므로 open culture방법이 생쥐 2세포기 배아의 발생에 더 민감한 결과를 나타냈다.

본 연구 결과 생쥐배아를 이용한 태아제대혈청의 정도관리를 위해서는 민감도가 높은 open culture방법이 더 적절한 것으로 사료된다.

P-4 Outcome of fertilization and embryonic development after combined conventional IVF and ICSI in the sibling oocytes of non-male factor couples

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Intracytoplasmic sperm injection (ICSI) was first applied as a treatment to couples that were infertile due to male factors. Recently, ICSI technique has been used on the other indications, such as previously failed conventional IVF, immunological or unexplained infertility. Herein, we reported the results of a study comparing the outcome of fertilization and embryonic development obtained in the half-ICSI cycles with normal sperm parameters. Half-ICSI procedure, combining conventional IVF and ICSI were performed on sibling oocytes in the same cycle, were carried out 63 cycles from January 1995 through June 1997. There was no significant difference in fertilization rate per oocyte between conventional IVF (57.4%) and ICSI (63.4%), however, there were total fertilization failure after conventional IVF in 6 (11.1%) of 63 cycles and none after ICSI. The incidence of abnormal fertilization, poly pronucleus (3-PN), after conventional IVF (5.4%) was significantly ($p<0.01$) higher than after ICSI (0.7%). The pattern of embryonic development, cleavage rate and quality of embryos, were similar in both groups. But, in endometriosis infertile group, incidence of good and fair embryos after ICSI (60.0%) was higher than after conventional IVF (29.2%). In conclusion, ICSI does not offer better outcome of fertilization and embryonic de-

velopment as compare with conventional IVF in the sibling oocytes of non-male factor couples. Further studies are needed to determine whether or not half-ICSI is beneficial in subgroup of infertile couples.

P-5 IFN-γ IL-10 and TGF-β1 Secretion in Response to Trophoblast and Progesterone in Women with Unexplained Recurrent Spontaneous Abortion and Fertile Controls

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OBJECTIVES: A dichotomous Th1 (IFN-γ) and Th2 (IL-10) cytokine profile has been associated with reproductive failure and success, respectively. TGF-β is an important immunoregulatory molecule which can either promote or inhibit Th1-type immunity depending on T-cell susceptibility. Progesterone also has immunoregulating effects and has been reported to induce Th2 cytokine secretion in Th1 cytokine producing T-cell clones. The purpose of our study was to determine the levels of IFN-γ, IL-10 and TGF-β secreted by peripheral blood mononuclear cells (PBMC) form women with unexplained recurrent abortion (URA) and fertile controls in response to trophoblast with and without progesterone.

STUDY DESIGN: Peripheral blood mononuclear cells (PBMC) from 32 nonpregnant women with URA and 10 nonpregnant women with normal reproductive histories were cultured for 4days with and without trophoblast (Protein concentration: 30 μg/ml) in the presence and absence of progesterone [10^{-5}M]. Cytokines were measured by ELISA in the 4 day culture supernatants.

RESULTS: Spontaneous secretion of IFN-γ was significantly higher in culture supernatants from women with URA than in supernatants from women with successful reproductive histories (289.09 ± 44.86 pg/mL vs. 53.55 ± 5.98 pg/mL, $p<0.005$). IL-10 levels were detected in trophoblast stimulated culture supernatants form only one of the fertile controls and in only 3 trophoblast stimulated culture supernatants from women with URA. TGF-β_1 levels in supernatants from cultures that did not contain trophoblast from control women were significantly higher than levels in similar cultures prepared from women with URA (1.47 ± 022 ng/mL vs. 0.92 ± 0.07 ng/mL, $p<0.05$). Progesterone attenuated IFN-γ and IL-10 secretion by trophoblast-stimulated PBMC in all culture supernatants from both fertile women and women with URA. Progesterone also attenuated TGF-β_1 secretion in response to trophoblast in women with URA but had no effect in fertile controls.

CONCLUSION: These data indicate that there are significant differences between women with URA and women with normal reproductive histories in their regulation of the Th1 cytokine IFN-γ and TGF-β_1 in response to trophoblast and progesterone. These data also suggest that pro-