수정란 이식을 실시하였으며 이중 180명이 임신하였다 (임신율 180/511 ; 35.2%).

수정율은 난자채취 직후나 일정시간 경과한 후나 차이가 없었다. 임신율에서도 시간대 별로 통계적 유의차는 발견할 수 없었지만, 난자채취 후 3시간 이내에 정자직접주입법을 실시한 경우에는 다소 임신율이 낮아지는 경향이 관찰 되었다. 따라서 정자직접주입법을 실시할 때에도 최소한 3시간의 전배양은 필요하다고 사료된다.

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In Vitro Maturation of Human Immature Oocytes Following Exposure to Cryoprotectant and Cryopreservation : Incidence of Chromosomal Abnormalities and Limited Effect on the Second Meiotic Spindle.

Inferitility Medical Center, Genetics Laboratory, CHA General Hospital, Seoul, 135-081, Korea.

SE Park · WY Son · SH Lee · WS Lee · Ka Lee · HM Chung · JJ Ko · KY Cha.

Objectives : Successful cryopreservation of human immature oocytes would be essential to establish ovum bank. Recently, survival rate and maturation rate of frozen-thawed immature oocytes have been improved progressively in mammalian species. However, there are few reports on the attempts to freeze germinal vesicle(GV) stage human oocytes. We have found that the human GV stage oocytes showed a low survival rate and a poor developmental capacity(ESHRE 1994;O-128). The reason for these phenomena is unclear.

Therefore, purposes of the present study were : (1) to investigate the incidence of chromosomal anormalities after freezing-thawing, and (2) to investigate the organization of microtubule system of the human oocytes matured in vitro after cryopreservation at GV stage.

Design : Oocytes with no treatment (Group 1), 1, 2-propanediol (PROH) treated oocytes without freezing-thawing (Group 2), and frozen-thawed oocytes (Group 3) were cultured in the medium containing gonadotropins. Gimsa or fluorescence in situ hybridization (FISH) method. Spindle structure was visualized by monoclonal anti-tubulin antibody and TRITC-conjugated second antibody.

Results : Incidences of chromosomal abnormalities were 33.3% (aneuploidy 1; polyploidy 3) in Group 1, 41.4% (aneupoidy 9; polypoidy 3) in Group 2 and 77.8% (aneupolidy 12; polyploidy 9) in group 3. There was significant difference between 33.3 % and 77.8 ($p<0.01$). Incidence of spindle 35.3 % in Group 2 (disorganized shape 5; no spindle 1), and 70.0% in Group 3 (disorganized shape 6; no spindle 8). Higher incidence of abnormalities was found in frozen-thawed oocytes($p<0.01$).

Conclusion : 1. Exposure to PROH itself at the GV-stage had no influence on the chromosomal abnormalities and organization of microtutule system in human immature oocytes. 2. Human oocytes matured in vitro after cryopreservation showed chromosomal and spindle abnormalities. 3. Increased incidence of chromosomal abnormalities in frozen-thawed oocytes cryopreservation. 4. Further studies should be addressed to reuced the incidence of chromosomal and spindle abnormalities and to find out the optimal cryopreservation method of human immature oocytes to improve rates of survival, fertilization, and development after thawing.