9. 연령에 따른 누적배아지수는 연령이 증가함에 따라 감소하는 경향이 있는데 (r=-0.18, P=0.007) 이때 각 연령군에 따른 임신율과의 예측값은 30세미만에서는 34점 이상 (민감도 100%, 특이도 35.0%), 30~34세군에서는 60점 이상(민감도 75.0%, 특이도 72.8%), 35~40세군에서는 46점 이상 (민감도 54.5%, 특이도 73.3%), 40세 이상인 군에서는 38점 이상 (민감도 100%, 특이도 83.3%)에서 가장 좋은 예측값를 보였다.

이상의 결과로 ICSI시술에서 누적배아지수는 임신율을 예측할 수 있는 좋은 지표이며 특히 누적배아지수가 60~79점일 때 가장 좋은 임신율을 예측할 수있을 것으로 사료된다.

16 Viable high pregnancies obtained from frozen-thawed blastocysts: experience of more than 350 transfer cycles

Cho Hyon Jin[1], Yoon San Hyun[1], Yoon Hye Gyun[1], Lee Won Don[1], Lee Sang Won[2], Lee Seung Gu[2], Park Se Pill[3] and Lim Jin Ho[1]

[1]Maria OB/GYN., [2]DaeGu Maria OB/GYN. [3]Maria Infertility Medical Institute

Since the first pregnancy after replacement of a frozen-thawed human blastocyst occurred in 1985, several attempts have been made to cryopreserve embryos at the blastocyst stage (Cohen et al., 1985; Trounson et al., 1988; Nakayama et al., 1995; Kaufmann et al., 1995). However, the pregnancy rates were not greater than those obtained with cryopreserved early cleaving or pronuclear embryos.

In our infertility clinic, if patients with more than 3 good embryos occur on day 2 after insemination, their embryos are routinely cocultured with cumulus cells in YS medium containing 20% hFF until 5- or 6-day, and then the best two or three blastocysts are transferred, whereas surplus blastocysts are frozen, in accordance with their quality. We have accumulated the large series to date evaluating the use of cryopreserved blastocysts for infertility patients undergoing IVF-ET. Practically, viable high pregnancies (Ongoing pregnancy rate/ET: 38.3 %) in our clinic were established following the cryopreservation, thawing, and replacement of in vitro cocultured

Table. Outcomes of the transfer of frozen-thawed blastocysts

	Conventional ET	Frozen-thawed ET	
	Blastocyst stage (1996. 6 – 1997.8) Control I	Pronuclear stage (1995.1. – 1997. 8) Control II	Blastocyst stage (1995.7 – 1997.8) Experience
No. of cycles	1697	124	360
No. of 2 PN	16482	1152	–
No. of blastocysts	9565	–	1607
No. of transfer cycles	1681	120	350
No. (%) of survived embryos	–	910 (79.0)	1080 (67.2)
No. (mean) of transferred embryos	3948 (2.3)	601 (5.0)	947 (2.7)
Implantation rates			
no. (%) of G-sac	1066 (27.0)	40 (6.7)	202 (21.3)
no. (%) of FHB (+).	896 (22.7)	37 (6.1)	179 (18.9)
No. (%) of clinical preg./ET	827 (49.2)	28 (23.3)	156 (44.6)
No. (%) of OG preg./ET	672 (40.0)	25 (20.8)	134 (38.3)

expanding blastocysts.

Blastocysts were cryopreserved during controlled-rate freeze cycle (-2℃/min to -7℃, manual seeding at -7℃, -0.3℃/min to -38℃, and -196℃ LN_2) following the stepwise addition of cryoprotectant (0.55M and 1M glycerol + 0.2M sucrose in DPBS containing 20% hFF, respectively). Blastocysts were thawed quickly followed by stepwise removal of cryoprotectant (0.55M glycerol + 0.4M sucrose, 0.44M, 0.33M, 0.22M, 0.11M and 0.00M glycerol + 0.2M sucrose in DPBS containing 20% hFF, respectively) and cocultured for 2 hrs or 18 hrs with cumulus cells. Blastocyst transfers were routinely performed using a Tomcat catheter into the intrauterus from 4- to 4.5 days following ovulation. The results obtained from this retrospective study are as follows.

There are several advantages in cases of transferring human embryos to the uterus at the blastocyst stage; better synchronization of the uterine endometrium and embryo is possible to select better quality embryos with implantation potential for transfer and to reduce the risk of a multiple pregnancy by the selection of only one or two better quality embryos. Therefore, these data also suggest that freezing at the blastocyst stage for a high cumulative success rate is a reliable method in IVF-ET technology.

17 The direct effect of epidermal growth factor (EGF) on nuclear maturation and EGFR expression in human oocytes

Won-Young Son, Se-Yul Han, Ji-Ohn Son, Hyung-Min Chung, Eun-Kyung Kim, Jung-Jae Ko, Tae-Ki Yoon, and Kwang-Yul Cha

Infertility Medical Center, CHA General Hospital, College of Medicine, Pochon CHA University

The present study was accomplished 1) to examine the direct effect of the EGF on the nuclear maturation of the human oocytes without cumulus cells, and 2) to examine the existence of EGF receptor (EGFR) in the oocytes. The human immature oocytes were collected from patients undergoing ovulation induction. The GV-stage oocytes were completely denuded cumulus cells and corona cells and cultured in the TCM 199 medium with or without EGF (50 ng/ml). After 36 hours of culture, maturation rate was evaluated by the first polar body extrusion. The maturation rate was 75% (13/17) and 35.7% (5/14) in the presence and absence of EGF, respectively ($p < 0.05$). There was a positive effect of EGF on the maturation of the denuded immature oocytes. The existence of EGFR transcripts and proteins in the GV oocytes were determined by reverse transcription-polymerase chain reaction and immunocytochemistry, respectively. EGFR transcripts and proteins were detected in the oocytes. The results of the present study indicate that EGF can react directly through the EGFR in the oocytes to promote the nuclear maturation of the oocytes.