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Outcomes of IVF-ET in Infertile Patients with Failed Microsurgical Reversal of Tubal Sterilization

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Objective: To evaluate the clinical outcomes and influencing factors of in vitro fertilization and embryo transfer (IVF-ET) in patients with failed pregnancy after microsurgical reversal of tubal sterilization.

Materials and Methods: From January, 1997 to December, 2000, IVF-ET was performed in two groups; the study TR (tubal reanastomosis) group consisted of 147 cycles in 66 patients with failed microsurgical reversal of tubal sterilization, and the control group of 115 cycles in 67 patients with bilateral tubal occlusion (BTO). The two groups were evaluated and compared for clinical characteristics, clinical pregnancy rates, and factors influencing the outcomes of IVF-ET.

Results: Compared with the control BTO group, age and the previous parity were significantly higher (36.3 ± 2.7 vs. 33.6 ± 2.0 years, $p < 0.05$; 1.6 ± 0.7 vs. 0.2 ± 0.4 , $p < 0.05$), and the clinical pregnancy rate per cycle was significantly lower (23.8% (35/147) vs. 29.3% (34/115), $p < 0.05$) in the TR group. Difference in the clinical pregnancy rates was age-related, since there was no significant difference between the two groups, except for the previous parity (1.6 ± 0.7 vs. 0.1 ± 0.3 , $p < 0.05$), when the patients aged 37 years or older were excluded. No difference was found in terms of the following: the proportion of controlled ovarian hyperstimulation (COH) cycles with GnRH agonist ultrashort protocol, the duration of COH, the dosage of gonadotropins used, and the numbers of oocytes retrieved and of embryos transferred, irrespective of age correction.

Conclusions: The outcomes of IVF-ET following the failed microsurgical reversal of tubal sterilization depend upon patient age. The previous fertility of patients does not seem to be a factor of better IVF-ET prognosis.

Key Words: Tubal sterilization, Microsurgical tubal reversal, IVF-ET, Age, Pregnancy rate, Previous fertility

(tubal obstruction)

(tubal sterilization) 가 가 ,

가

가

가

가

가, 15 2

가

가,

가,

가 가 FSH ,

estradiol (E₂) ,

1.3~15% , (ongoing pregnancy

(reversal of tubal sterilization or tubal re-

anastomosis, TR) , 0.2% rate), ,

,¹ ,¹⁵

가

가

1959 가 ,

Walz² , 가

60~80%

,³⁻⁸ 가

가 ,

가

,⁹ Seiler¹⁰ 1.

35 1997 1 2000 12

가

(tubal reanastomosis, TR)

40 1

40~60% ,¹¹⁻¹³ 66 147

35 ,¹⁴

(IVF-ET) occlusion, BTO) (bilateral tubal

67 115

(hysterosalpingography, HSG), methylene blue

가 . 6-0 polyglycolic acid (Dexon)
(mesosalpinx)

(intra- 7-0, 8-0 polyglactin (Vicryl)
cytoplasmic sperm injection, ICSI) 2, 6, 10 3
(cryopreservation) , .
. 40 (Surgical Micro-
가 scopic System SMS-ST, Applied Fiberoptics, USA)
. 6 ,

2. (unipolar electrocautery)
2-0 monofilament nylon splint
TR BTO , 7
1) .

(basal
body temperature, BBT) , ,
, hydrocortisone 1 gm heparin
, 1,000 IU lactated Ringer's solution 200 ml
(postcoital test, PCT),
가 conjugated equine
가 estrogen (CEE, Premarin) 가
(hydrotubation)
(fimbriectomy) , 1
, (HSG)

가 2)
. 9,17,18 . 15-16
microscissor LH, FSH estradiol (E₂) ,
, 가 14
(cornual portion), (isthmic portion), (am-
pullary portion) . 21 GnRH agonist
methylene GnRH agonist
blue , 3

LH, E₂, progesterone (P₄) , 3.
LH<5 mIU/ml, E₂<50 pg/ml, P₄<1 ng/ml

GnRH agonist Student's t-test chi-square test, p<0.05

18 mm 16 mm
가 3 E₂ 가
, 10 mm E₂ 66
가 300 pg/ml hCG 10,000 IU 31.8 ±1.3 (mean ±SD) , 50.8 ±

hCG 10,000 IU 36 28.2 .
43 (65.1%) 가 ,
13 (19.7%) .

2 ml Dulbecco's phosphate buffered saline (D-PBS) , Yoon's ring 가 51 (77.3%)
2 ml D-PBS 가 , 11
가 . (16.6%), minilaparotomy 4
D-PBS (6.1%) .

가 Table 1 .
1
(oocyte-cumulus cell complex, OCCC) , , , 36.3 ±2.7
33.6 ±2.0
(p<0.05),
1.6 ±0.7 0.2 ±

(embryo grading) 가 . 0.4 (p<0.05).
29.3%
Jones catheter . (34/115) 23.8% (35/147)
4 (p<0.05).
GnRH agonist

progesterone in oil 50 mg , , ,
8% progesterone gel (Crinone, Serono, Switzerland) , , ,

11 β-hCG 가 .
3 mIU/ml , 1 36
β-hCG , Table 2 .
5~6 34.3 ±2.2 ,
32.8 ±1.8 가
1.6 ±0.7

Table 1. Comparison of clinical characteristics and IVF-ET outcomes in infertile patients with failed tubal reanastomosis or bilateral tubal occlusion

No.	Failed tubal reanastomosis	Bilateral tubal occlusion	p
Patients	66	67	
Cycles	147	115	
Age of patients (yrs)	36.3 ±2.7	33.6 ±2.0	<0.05
Parity	1.6 ±0.7	0.2 ±0.4	<0.05
Previous IVF-ET cycles	2.3 ±1.5	3.0 ±2.4	
Ultrashort protocol of GnRH agonist (%)	18 (12.2)	17 (14.7)	
Duration of COH (days)	9.7 ±1.9	10.2 ±2.3	
Dosage of gonadotropins used (ampoules)	32.7 ±10.1	33.3 ±11.5	
Oocytes retrieved	9.7 ±6.4	10.4 ±6.0	
Embryos transferred	4.3 ±1.8	4.7 ±1.7	
Embryos with grade I/V - III/V (%)	83.1	76.0	
Clinical pregnancy rate per cycle (%)	23.8 (35/147)	29.3 (34/115)	<0.05

Mean ±S.D.

Table 2. Comparison of clinical characteristics and IVF-ET outcomes in infertile patients aged 36 years with failed tubal reanastomosis or bilateral tubal occlusion

No.	Failed tubal reanastomosis	Bilateral tubal occlusion	p
Patients	37	49	
Cycles	77	86	
Age of patients (yrs)	34.3 ±2.2	32.8 ±1.8	
Parity	1.6 ±0.7	0.1 ±0.3	<0.05
Previous IVF-ET cycles	1.9 ±1.0	2.6 ±1.9	
Ultrashort protocol of GnRH agonist (%)	9 (11.7)	11 (12.8)	
Duration of COH (days)	9.7 ±1.8	10.2 ±2.3	
Dosage of gonadotropins used (ampoules)	30.4 ±8.9	31.6 ±11.2	
Oocytes retrieved	10.5 ±7.4	10.9 ±5.9	
Embryos transferred	4.5 ±1.8	4.9 ±1.7	
Embryos with grade I/V - III/V (%)	82.5	78.0	
Clinical pregnancy rate per cycle (%)	29.9 (23/77)	31.4 (27/86)	

Mean ±S.D.

0.1 ±0.3
(p<0.05).
29.9% (23/77), 31.4% (27/86)
가 . 가 .
, GnRH agonist

,^{10,25} ¹⁷
 가
 Trimbos-Kemper,¹¹ Glock,¹² ¹³
 40
 43~58%

가 . 1959 Walz¹
 Swolin¹⁹ , 1967 FSH 가 가 Glock¹² 44
 1
 44

가 42 44
 4 .

가 , 1998
¹⁴
 가 36
 가

Siegler²⁰
 60%
 ,¹⁷ ²¹ ²² ASRM (American Society for Reproductive Medicine)²⁶ 2000 10 1997
 9 51,344

15,047
 , 12,302
 가 가 27.9%, 39.0%
 1990 Liliford²⁷

가,

1991 Winston²⁸

35~37

^{10,23,24}

37

가

가

가

가

OHSS), (ovarian hyperstimulation syndrome, 가 174 831 1,533 40 50 가 16 272 378 가 2001 Sitko 34 가 37 가 30 56 40 AFS (American Fertility Society)²⁹ 1992 25 26.0%, 19.0%, 25~29 20.0%, 16.0%, 30~34 24.0%, 19.0%, 35~ 39 19.0%, 15.0%, 40 11.0%, 7.0% 가 가 40 가 가³¹ 가³² 가³³ 가 30 33 가 35 . Barlow 35 . Simon 36 . Allan 37 36,961 , Darder 38 가 . Wood 39

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