

난소의 자궁내막종에 대한 다양한 치료적 적용에 따른 체외수정 및 배아이식술 결과의 비교 연구

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Comparison of IVF-ET Outcome after Various Therapeutic Approaches for Ovarian Endometriomas

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Objective: To compare COH characteristics and IVF outcomes among IVF-ET patients who were treated with various therapeutic modalities for ovarian endometriomas and to propose effective pre-cyclic therapeutic modalities to improve IVF-ET outcomes in the patients with ovarian endometriomas.

Methods: All cases that had undergone IVF-ET after laparoscopy between January 1997 to August 2003 were reviewed. Forty-eight patients with tubal factor were assigned to Group I. Twenty seven, 22 and 38 patients diagnosed as severe pelvic adhesion with ovarian endometriomas by laparoscopy received only medical therapy (Group II), cyst aspiration (Group III), and sclerotherapy (Group IV), respectively. Laparoscopic cystectomy was performed in 20 patients (Group V). Resistance index was measured on day administering hCG.

Results: As compared with Group I, in Group II resistance index increased ($p<0.05$) but number of oocytes, good-quality oocyte ratio (mature and intermediate oocytes/total retrieval oocytes), fertilization rate, and embryo development rate decreased ($p<0.05$). In Group III fertilization rate and embryo development rate decreased ($p<0.05$). There was no difference between Group IV and Group I in all parameters except basal FSH which increased ($p<0.05$). In Group V basal FSH, and resistance increased ($p<0.05$) and number of oocytes and good-quality oocytes ratio decreased ($p<0.05$).

Conclusion: Sclerotherapy is an effective therapeutic option which can be done prior to IVF-ET cycles in the patients with ovarian endometriomas. Further studies on a large scale are necessary to confirm these data.

Key Words: Ovarian endometriomas, Sclerotherapy, Cystectomy, IVF-ET

30%

(the Revised

American Fertility Society)

0~7.0% 0~50.3%

.²

가

가 ()

(poor reproduc-

.¹⁴⁻¹⁸

tive outcome)

가

.^{3,4}

(poor ovarian reserve)

.^{5,6}

.⁷

가 (47%)

.^{7,8}

1.

1997 1 2003 8

가 (gold

standard)

가

2.

(advanced endometriosis-

48

associated infertility)

(Group I).

가

.^{9,10}

(window operation)

(frozen pelvis)

가

27

(Group II), 22

(Group

III), 38

가

(Group IV).

.¹¹⁻¹³

Table 1. Clinical characteristics in the control group and the study population

	Group I (n=48) [n=8]	Group II (n=27) [n=10]	Group III (n=22) [n=10]	Group IV (n=38) [n=20]	Group V (n=20) [n=8]
Age	30.9±2.4	30.8±2.53	31.0±2.4	29.8±2.5	31.6±2.2
Type (%)					
Primary	30 (62.5)	17 (63.0)	18 (81.8)	21 (55.3)	13 (65.0)
Secondary	18 (37.5)	10 (37.0)	4 (18.2)	17 (44.7)	7 (35.0)
Duration (months)	25.3±12.7	27.5±14.3	29.5±12.7	26.8±13.5	30.0±15.0
Basal FSH	5.3±1.3*	5.4±0.9†	6.0±0.7	5.9±1.1	6.4±0.9*†
[Bilateral endometrioma] (mIU/mL)	[5.3±1.3*†]	[6.0±0.8]	[6.1±0.6]	[6.4±0.8*]	[7.0±1.2†]
Largest cyst size (mm)	-	25.3±7.7	22.2±7.0	24.2±8.7	26.3±7.8

[]: bilateral endometrioma, Mean ± SD, *†: p<0.05 by Scheffe test

20 가 .

(Group V). 3.

Group II, Group III, Group IV Group V

10 , 20 , 8 .

3

1~2 .

99.9% 가 1 3 Group I Group II Group V

5% 1/10 (p<0.05)

가 Group I Group IV Group V

(p<0.05).

가 (Table 1).

(basal FSH) (COH)

(conventional GnRH agonist long step-down protocol) 가 .

Group I Group V

(p<0.05)

(resistance index) Group I Group IV Group V

(p<0.05).

Table 2. COH characteristics in the control group and the study population

Total	Group I (n=48)	Group II (n=27)	Group III (n=22)	Group IV (n=38)	Group V (n=20)
COH duration (days)	10.8±1.6	11.0±1.2	10.9±1.7	10.6±1.5	10.7±1.7
Gonadotropin ampoules (75 IU/A)	31.6±2.9*	32.4±2.7	33.1±2.7	32.7±3.7	34.3±2.5 [†]
Peak E ₂ (pg/mL)	3214.6±829.2 ^{*,†}	2597.4±648.8*	2691.8±711.4	2832.9±799.7	2508.0±819.3 [‡]
Endometrial depth (mm)	10.5±2.2	10.7±2.1	10.0±2.2	9.8±2.8	10.9±2.4
Higher RI on cyst	0.52±0.05 ^{*,†}	0.57±0.06 ^{*,‡,¶}	0.53±0.03 [‡]	0.52±0.05 ^{¶,***}	0.52±0.05 ^{‡,***}
<hr/>					
Bilateral ovarian endometriomas	[n=48]	[n=8]	[n=10]	[n=20]	[n=8]
COH duration (days)	10.8±1.6	12.0±1.3	11.1±1.7	10.3±1.1	11.5±2.0
Gonadotropin ampoules (75 IU/A)	31.6±2.9 ^{*,†}	32.3±2.5	34.3±2.5	35.6±3.6*	35.6±2.1 [†]
Peak E ₂ (pg/mL)	3214.6±829.2 ^{*,†,‡}	2266.3±594.3*	2346.0±680.1 [†]	2668.0±830.7	1968.8±596.4 [‡]
Mean RI on both ovaries	0.52±0.02 ^{*,†}	0.59±0.03 ^{*,‡,¶}	0.51±0.02 [‡]	0.52±0.02 ^{¶,***}	0.59±0.05 ^{‡,***}

Mean ± SD, ^{*,†,‡,¶,***}: p<0.05 by Scheffe test, RI: resistance index, Higher RI on cyst: RI in unilateral endometrioma and higher RI in bilateral endometriomas, Mean RI on both ovaries: mean value of RI on ovarian arteries of both ovaries

(p<0.05). Group II

(Peak E₂ level) Group I Group II Group III Group I Group IV

Group V (p<0.05) (p<0.05)

Group I Group II Group III

Group II, Group III, Group V Group I (p<0.05).

가 (p<0.05)

가 (p<0.05)

(higher RI) 가 (p<0.05)

Group I, Group III, Group Group II, Group III, Group V

IV Group II Group V Group I Group V (p<0.05)

(p<0.05) (Table 2). Group II, Group III, Group V

Group I Group IV (p<0.05).

Group II Group V Group I Group II Group III

(p<0.05). Group Group I (p<0.05).

II Group I Group IV Group II, Group III, Group V

(p<0.05) Group I Group I (p<0.05)

Table 3. IVF-ET outcomes in the control and study groups

Total	Group I (n=48)	Group II (n=27)	Group III (n=22)	Group IV (n=38)	Group V (n=20)
Total No. of oocyte	9.5±5.3 ^{*,†}	5.8±2.1 [*]	6.6±2.4	7.6±3.9	5.3±2.2 [†]
No. of good quality oocyte (GQOR ^{††} , %)	6.6±4.6 ^{*,†} (67.2)	2.9±1.5 [*] (50.3)	4.0±2.0 (61.0)	5.4±3.1 (70.6)	2.6±1.4 [†] (48.1)
No. of fertilized oocyte (FR ^{‡‡} , %)	6.4±4.3 [*] (66.6)	3.2±1.5 ^{*,‡} (54.8)	3.9±2.2 (58.2)	5.8±3.3 [†] (76.8)	23.9±2.1 (72.6)
Total No. of embryo (CR ^{¶¶} , %)	5.6±3.9 ^{*,†} (88.9)	2.2±1.1 ^{*,‡} (68.6)	2.7±1.5 ^{†,¶} (70.6)	5.2±3.0 ^{‡,¶} (89.6)	3.4±1.8 (88.3)
No. of good quality embryo	3.9±3.4 ^{*,†,‡}	1.1±0.8 [*]	0.9±0.8 [†]	2.5±2.0	1.6±1.0 [‡]
No. of embryo transferred	3.8±1.8 ^{*,†,‡}	2.2±1.1 ^{*,¶}	0.9±0.8 [†]	3.9±1.7 ^{¶, **}	1.6±1.0 ^{‡, **}

Bilateral ovarian endometriomas	[n=48]	[n=8]	[n=10]	[n=20]	[n=8]
Total No. of oocyte	9.5±5.3 ^{*,†}	4.4±1.6 [*]	5.8±2.1	6.9±2.6	4.0±1.3 [†]
No. of good quality oocyte (GQOR, %)	6.6±4.6 ^{*,†} (67.2)	1.9±1.0 [*] (50.3)	3.1±1.5 (61.0)	4.8±2.1 (70.6)	1.8±0.7 [†] (48.1)
No. of fertilized oocyte (FR, %)	6.4±4.3 [*] (66.6)	2.0±0.9 [*] (54.7)	3.4±2.0 (58.6)	5.2±2.3 (75.4)	2.8±1.8 (68.8)
Total No. of embryo (CR, %)	5.6±3.9 ^{*,†} (88.9)	1.5±0.5 [*] (75.0)	2.3±1.2 [†] (67.7)	4.4±2.0 (84.6)	2.3±1.6 (81.8)
No. of good quality embryo	3.9±3.4 ^{*,†}	0.8±0.5 [*]	0.6±0.7 [†]	2.1±1.3	1.3±1.0
No. of embryo transferred	3.8±1.8 ^{*,†,‡}	1.5±0.5 [*]	0.6±0.7 ^{†,¶}	3.5±1.7 [¶]	1.3±1.0 [‡]

Mean ± SD, ^{*,†,‡,¶, **}: p<0.05 by Scheffe test, ^{††,‡‡,¶¶}: p<0.05 by Chi-square test, ^{†, ‡}: p>0.05 by Chi-square test.
 GQOR: good quality oocyte ratio (mature and intermediate oocytes/total retrieval oocytes), FR: fertilization rate, CR: cleavage rate

Group III Group V Group IV
 (p<0.05), (Group III)
 가 (Table 3).
 (Group I) 가
 (Group II) (p<0.05).
 가 (p<0.05) 가 (p<0.05). (Group IV)
 (p<0.05)

Table 4. Pregnancy outcomes in the control and study groups

Total	Group I (n=48)	Group II (n=27)	Group III (n=22)	Group IV (n=38)	Group V (n=20)
CPR (%)	16/48 (33.3)	6/27 (22.2)	4/22 (18.2)	11/38 (28.9)	3/20 (20.8)
OPR (%)	14/48 (29.2)	5/27 (14.8)	3/22 (13.6)	10/38 (26.3)	3/20 (15.0)
IR (%)	25/185 (13.5)	6/30 (20.0)	5/19 (26.3)	18/96 (18.8)	5/32 (15.6)
<hr/>					
Bilateral ovarian endometriomas	[n=48]	[n=8]	[n=10]	[n=20]	[n=8]
CPR (%)	16/48 (33.3)	1/8 (12.5)	2/10 (20.0)	5/20 (25.0)	2/8 (25.0)
OPR (%)	14/48 (29.2)	0/8 (0)	2/10 (20.0)	5/20 (25.0)	1/8 (12.5)
IR (%)	25/185 (13.5)	1/6 (16.7)	2/6 (33.3)	7/41 (17.1)	2/10 (20.0)

No significance by Chi-square test, expected value (<5)-30~50%: statistically no significance by Chi-square test because the groups in which expected value was less than 5 occupied 30~50%, CPR : clinical pregnancy rate, OPR: ongoing pregnancy rate, IR : implantation rate

가 가 (p<0.05). 80% 100%

(Group V) , 가 11-13.19

가 (p<0.05)

Chang

(p<0.05).

32

34.37% 46.87%

Group I Group II, Group III, Group V Group IV

(folliculogenesis)

.¹⁴ Noma Yoshida

(ultrasound-guided trans-

가 (Table 4). vaginal ethanol sclerotherapy; TV-EST) 83

52.1%

14.9% .¹⁵

10

가 (: 7.5%)

33.3%

. Koike

47.4% 45

(76% vs 76%)
 5.2±3.9
 16

(47% vs 39%)
 가
 13.3%
 5

(poor response)
 5

가
 (reproductive performance)
 1998
 1~3
 II)
 (Group II)
 (Group III)
 (Group IV)

7
 3 가
 20
 (laser vaporization)
 (electro-coagulation)
 (fenestration)
 (capsule ablation)

23.5%
 60%
 6%
 18.8%
 가
 21-24
 (Group II)
 (space occupying lesion)
 가
 (remnant ectopic endometrial tissues)
 가가
 (Group III)
 (Group IV)

(ovarian reserve)
 가
 가
 가
 가
 가

6.2%
 23%
 33.3%
 66.7%
 5,13,23-26

- viously treated with cystectomy to controlled ovarian hyperstimulation. *J Assist Reprod Genet* 2002; 19 (11): 507-11.
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