

불임 환자의 치료에서 Mild Ovarian Hyperstimulation을 이용한 Single IUI와 Double IUI의 비교

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A Comparison Study of Single with Double Intrauterine Insemination with Mild Ovarian Hyperstimulation for Infertility Patients

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Objective: To compare the clinical efficacy of double intrauterine insemination with single intrauterine insemination in GnRH antagonist combined ovarian hyperstimulation (Mild ovarian hyperstimulation)

Materials and Methods: From Jan. 2001 to Jul. 2004, a retrospective clinical analysis was done of a total of 295 cycles in 170 patients who underwent ovarian hyperstimulation for ART (assisted reproductive technique). Subjects were divided into three groups; only clomiphene citrate ovarian hyperstimulation (n=55, 95cycles), GnRH antagonist combined ovarian hyperstimulation (soft ovarian hyperstimulation) (n=66 99cycles), and GnRH agonist combined ovarian hyperstimulation (short protocol) (n=49, 101cycles) Each group were randomly divided into two subgroups. One group underwent single IUI and the other group underwent double IUI.

Results: GnRH antagonist group and GnRH agonist group had similar pregnancy rate. In GnRH antagonist Group, pregnancy rate was 36.1% in single IUI subgroup and was 36.6% in double IUI subgroup. These finding were not statistically significant. And Pregnancy rate was 20.8% in single IUI subgroup and was 19.3% in double IUI subgroup in single clomiphene citrate group, and 36.3% in single IUI subgroup and was 33.3% in double IUI subgroup in GnRH agonist group. These finding were not statistically significant, too.

Conclusion: Pregnancy rate of GnRH antagonist was high and complication rate such as OHSS and multiple pregnancy was lower. In GnRH antagonist group, to compare with single IUI and double IUI, the result do not statistically differ. So GnRH antagonist single injection with single IUI was relatively comparable ART in infertility patient.

Key Words: Mild controlled ovarian hyperstimulation, Single IUI, Double IUI

가 가
가 1 (anatomical factor infertility),
10~15% 가 (unexplained infertility), (male fac-

tor infertility), factor infertility), fertility)	(cervical (anovulatory in- fertility)	GnRH agonist	GnRH antagonist
가	5~30%	6	2~3
가	Clomi- 2 CC	7 double IUI가 double IUI	single IUI가 가 Random 8 single IUI
phene citrate (CC)	GnRH	9 double IUI가 double IUI	Silverberg 9
(premature LH surge)가 1984 Porter 4	GnRH agonist 3 GnRH ago- nist	single IUI antagonist lution	9 double IUI mild ovarian hyperstimu- lation single IUI double IUI
GnRH agonist	GnRH antagonist	170	CC single IUI 23
Diedrich 5	3 GnRH antagonist	가 1994 가 protocol IUI 23	55 , 95 42 , double IUI 32 53 49 , 101 49 , double IUI 26

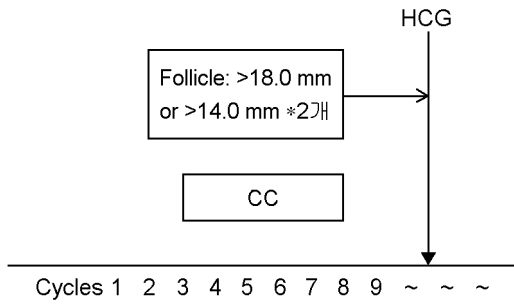


Figure 1. CC single ovarian hyperstimulation

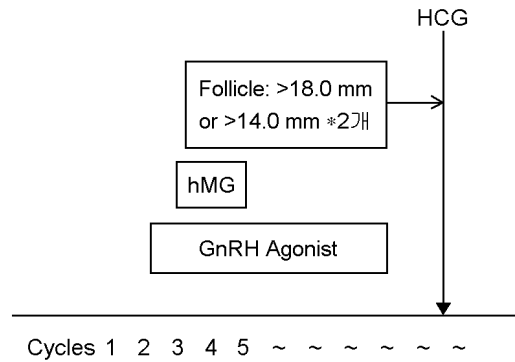


Figure 2. GnRH agonist combined Short protocol

52 가 , GnRH antago-
nist Mild ovarian hyperstimulation
66 , 99 single IUI 33
46 , double IUI 33 53
single IUI double IUI

2.

1)

(1) Clomiphene citrate group

3 5 clomiphene citrate 100
mg , 8

(E2)

18.0 mm

14.0 mm

가 2

hCG 10,000 IU (Figure 1).

(2) GnRH agonist ovarian hyper-
stimulation (Short protocol)

2 leuprolide acetate
0.2 cc (1.4 mg) 3 , 4

hMG 150 IU/d

가 7 hMG
group 18.0

mm 14.0 mm

가 2 hCG 10,000 IU

(Figure 2).

(3) GnRH antagonist ovarian hyper-
stimulation (Mild ovarian hyperstimulation)

3 5 clomiphene
citrate 100 mg , 6

hMG 150 IU/d 5~6

가 100~150 pg/ml

12.0~14.0 mm Cetorelix (GnRH anta-
gonist) 3.0 mg

18.0 mm

14.0 mm

가 2

hCG 10,000 IU

(Figure 3).

2)

2~3

20~30

2 ml

(Ham's F=10;

Sigma, St. Louis, MO)

300 ×g

5~10

2 ml

300 ×g

5

1 ml

가 45

1

single IU hCG 34

double IUI

hCG 12

hCG 34

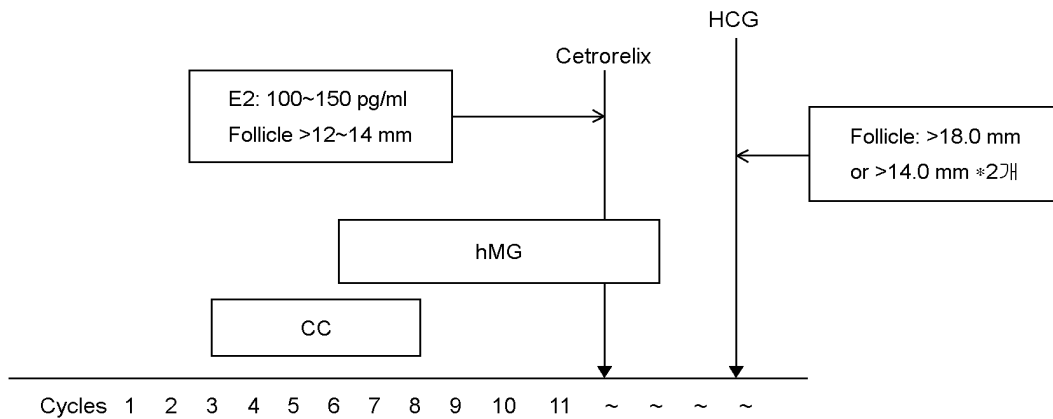


Figure 3. GnRH antagonist Mild ovarian hyperstimulation

3)				10.4%, double IUI	19.3%,
가				12.7%	GnRH agonist
12	β -hCG	(>10)		36.3%,	17.0%, double IUI
mIU/mL)	2~4			33.3%,	16.7%
					GnRH antagonist
	3			36.1%,	22.4%, double IUI
				36.6%,	26.8%
					single IUI double IUI
4)					
	chi-square test	student's t-test		CC	GnRH agonist
	, $p < 0.01$			GnRH antagonist	p-value < 0.01 , < 0.01
				GnRH agonist	GnRH antagonist
					가
1.				CC	GnRH antagonist
CC					GnRH agonist 15
	3.8 \pm 2.5	31.4 \pm 5.9		1	
		, GnRH agonist		CC	11
		33.4 \pm 5.8		GnRH agonist	15
	4.8 \pm 3.2	, GnRH antagonist		antagonist	24
32.5 \pm 4.7		4.7 \pm 2.4			1
					GnRH ago-
2.				nist	GnRH antagonist
				(Table 1).	
1)		single IUI	double IUI	2)	
				single IUI	double IUI
	CC				
single IUI		20.8%,		single IUI	CC
					10%,

Table 1. single IUI double IUI

	Mild ovarian hyperstimulation		CC		GnRH agonist group (Short protocol)	
	Single	Double	Single	Double	Single	Double
No. patient	36	30	24	31	22	27
No. of cycle	58	41	48	47	47	54
No. of pregnancy	13	11	5	6	8	9
Pregnancy rate (%)	*36.1	*36.6	20.8	19.3	*36.3	*33.3
Pregnancy rate for cycle (%)	22.4	26.8	10.4	12.7	17.0	16.7
OHSS	1	0	1	1	3	2
Twin	0	0	0	0	1	0

*: p-value <0.01

Table 2. Male factor infertility single IUI double IUI

	Mild ovarian hyperstimulation		CC		GnRH agonist group	
	Single	Double	Single	Double	Single	Double
No. of patient	7	8	6	8	6	10
No. of cycle	11	17	10	16	12	16
No. of pregnancy	3	5	1	4	3	5
Pregnancy rate for cycle (%)	27	29	10	25	25	31

Table 3. Unexplained factor infertility single IUI double IUI

	Mild ovarian hyperstimulation		CC		GnRH agonist group	
	Single	Double	Single	Double	Single	Double
No. of patient	14	15	11	16	7	8
No. of cycle	17	15	14	25	14	17
No. of pregnancy	5	4	2	1	3	2
Pregnancy rate for cycle (%)	29	27	14	4	20	12

double IUI 25% GnRH 3)
 agonist 25%, double IUI single IUI double IUI
 31% GnRH antagonist
 single IUI 27%, do- CC single IUI
 29% (Table 2) 14%, double IUI 4%
 double IUI가 single IUI GnRH agonist 20%,
 double IUI 12% GnRH

				GnRH antagonist	GnRH GnRH agonist
가					
					6
Clomiphene citrate (CC)		2		GnRH antagonist single dose regimen	multiple dose re- multiple dose regimen
CC				agonist/antagonist	5~6 HCG
				Cetrorelix	1997
GnRH	가			Albano et al. ¹⁶	0.5 mg, 0.25 mg, 0.1 mg cetro- relix
	가				0.1 mg cetrorelix
					0.25 mg 0.5 mg
			가 가		
			가		3
	GnRH agonist				0.25 mg
GnRH agonist				Single dose regimen	clomiphene citrate
agonist				GnRH	
				8~9	cetrorelix 3 mg
				Michael et al ¹⁷	2003 multiple
				dose regimen	single dose regimen
	가			GnRH antagonist	single dose regimen
		3,13		cetrorelix	
GnRH agonist				가 100~150 pg/ml	12.0~14.0
pian study ¹⁴	GnRH agonist		Euro-	single injection	
가					
			가가		18 mm 가
			가		hCG
	가				6%
					15
GnRH antagonist	GnRH agonist				2~3
					swim-up method
	가 1994		Diedrich	5	
3	GnRH antagonist		cetrorelix, ganirelix		
가					

double IUI가 single IUI
 IUI
 single IUI가
 가 dou-
 ble IUI가
 Silverberg ⁹ double IUI가
 single IUI
 (fertilization)
 가
 가
 hCG 36
 double IUI
 single IUI
 가
 10~20 ⁹ hCG 12~34 가 Silverberg ⁹ single IUI 1/4
 frozen sperm
 Diedrich ² hCG 34~60
 12~34 agonist , CC GnRH
 GnRH antagonist
 GnRH
 agonist GnRH antagonist
 가
 GnRH agonist GnRH anta-
 gonist
 IUI hCG 34 single
 double IUI
 hCG 12 double IUI
 34
 double IUI
 single IUI ¹¹ Saeed A.
 single IUI
 double IUI가
 가
 Ransom ⁸ single IUI가

Saeed A. ¹⁰

가 single IUI가 double IUI 가 가 가 가 GnRH antagonist mild ovarian hyperstimulation GnRH agonist short protocol double IUI single IUI single IUI

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