

GnRH Antagonist (Cetrotide) Short Protocol

A Study for GnRH Antagonist (Cetrotide) Short Protocol in Controlled Ovarian Hyperstimulation

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Objective: The aim of this study was to evaluate the outcome the GnRH antagonist (Cetrotide) short protocol in controlled ovarian hyperstimulation comparing with GnRH agonist long protocol.

Materials and Method: From July 2000 to November 2001, 26 patients, 28 cycles were performed in controlled ovarian hyperstimulation by GnRH antagonist and GnRH agonist. GnRH antagonist (Cetrotide) was administered in 12 patients (14 cycles, Group 1) and GnRH agonist (Lucrin, Sub Q, Group 2) in 14 patients (14 cycles). Ovulation induction was performed by hMG (Pergonal) in group 1, and by Combo (Metrodine HP + Pergonal) in group 2. We compared the fertilization rate, good quality embryo, and clinical pregnancy rate between the two groups. Student-t test and Chi-square were used to determine statistical significance. Statistical significance was defined as $p < 0.05$.

Results: Ovarian hyperstimulation syndrome did not occurred in which estradiol (E_2) level was 3874 ± 809 pg/ml and the number of retrieved oocytes was 18.4 ± 2.4 . The number of used gonadotropin ampules was significantly decreased in Group 1 (26.0 vs. 33.1, $p < 0.04$). There were no significant difference in the number of preovulatory oocyte (10.6 ± 6.9 vs. 10.0 ± 6.1), fertilization rate (74.8 ± 23.4 vs. 72.2 ± 21.8), good quality embryo (58.7 ± 23.6 vs. 38.7 ± 36.6), and embryo transfer (4.3 ± 1.6 vs. 4.4 ± 1.6). Although the age of the group 1 was older than the group 2 (34.4 vs. 30.8), there was no significant difference in clinical pregnancy rate (50.0% vs. 57.1%).

Conclusions: We suggest that GnRH antagonist was a safe, effective, and alternative method in the controlled ovarian hyperstimulation, especially in PCOD patients who will be develop the ovarian hyperstimulation syndrome.

Key Words: GnRH antagonist, Ovarian hyperstimulation syndrome

	GnRH agonist	GnRH gonadotrophic cell	GnRH down-regulation
	GnRH		가
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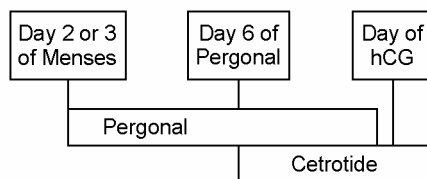
가
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3, estradiol 가

GnRH antagonist GnRH
GnRH 2000 6 2001 11

GnRH antagonist agonist
LH, FSH 가 가 26 . 12 (14
flare-up GnRH) GnRH antagonist (Cetrotide 0.25 mg, ASTA
Albano ,² Olivennes ,³ Borm⁴) GnRH agonist (Lucrin subQ, ABBOT)
GnRH antago-
nist GnRH agonist , GnRH antagonist 2~3
gonadotropin hMG (Pergonal) 3 ampules ,
GnRH antagonist 6~7 Cetrotide
Hernan- 0.25 mg
dez⁵ GnRH antagonist hMG ,
50% 18 mm hCG (Profaci, Serono)
10,000 IU . GnRH agonist
21 Lucrin (SubQ) 0.2 cc (1 mg)
GnRH antagonist , 2 hMG Me-
GnRH agonist trodin HP gonadotrp
가 hCG (Figure 1). hCG
, 36 72
GnRH
antagonist 가 (Intracytoplasmic sperm

GnRH Antagonist (Cetrotide) Regimen



GnRH Agonist (Lucrine) Regimen

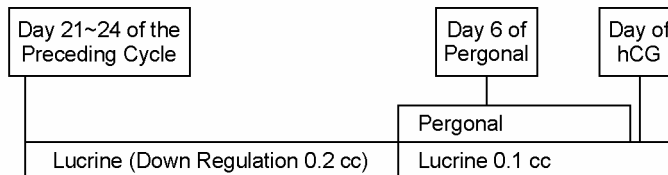


Figure 1. Schematic presentation of the treatment regimens.

injection, ICSI) . , Group 1 4 ,
 (Progest,) 1.5~2 cc (75~100mg) 6 , 4 , 2 , 1
 8 , Group 2 6 , 2 ,
 gonadotropin , 3 , 3 , 1
 , Good quality embryo , (Table 1). 7 Group 1 4
 , Group 2 3 2
 , hCG
 E₂ 가 3,000 pg/ml , 가
 가 15 (Table 1).
 3 , 6 , hCG LH, FSH, E₂ Group 1 가

student t-test Chi-square
 , p<0.05

2000 6 2001 11

GnRH antago-
 nist short protocol GnRH
 agonist long protocol
 . Group 1 GnRH antagonist 12 (14
) 가 , Group 2
 GnRH agonist 14 (14)

(Table 1).
 , Group 2 3 2
 , hCG
 LH, FSH, E₂
 3 LH (mIU/ml) 5.5 ±1.5 , FSH
 (mIU/ml) 4.0 ±1.0 , E₂ (pg/ml) 40.2 ±7.6 . Gn
 RH antagonist , 6~7
 LH, E₂ 2.1 ±1.3, 650 ±
 315 , hCG LH, FSH, E₂
 3.3 ±2.7, 6.5 ±0.7, 3874 ±809 (3078~
 4923) . 18.4 ±2.4
 (Table 2).

Group 1 34.4 Group 2 30.8
 (10.6 ±6.9 vs. 10.0 ±6.1),
 (74.8 ±23.4 vs. 72.2 ±21.8)
 가 . 8 Gr-
 ade I, II

Good quality embryo (GQE)

Group 1 Group 2 38.7 ±36.6%
 58.7 ±23.6% Gr-
 oup 1 50.0%, Group 2 57.1% 가
 Group 2
 Group 1
 (PESA)

Table 1. Comparison of Clinical characteristics

	Group 1	Group 2
Duration of Infertility (yr)	5.0 ±3.6	4.3 ±3.1
Primary Infertility (cycle)	11	9
Secondary Infertility	3	5
Tubal factor	4	6
Ovulatory factor	6	2
Uterine factor	2	0
Male factor	4*	3
Endometriosis	0	3
Unexplained	1	1

*: Included obstructive azoospermia and severe oligo-azoospermia

Table 2. Serum hormone concentration in polycystic ovary pattern of GnRH antagonist group

	LH (mIU/ml)	FSH (mIU/ml)	E ₂ (pg/ml)
MCD #3	5.5 ±1.5	4.0 ±1.0	40.2 ±7.6
MCD #6	2.1 ±1.3		650 ±315
Day of hCG	3.3 ±2.7	6.5 ±0.7	3874 ±809

Table 3. Comparison of clinical outcomes

	GnRH Antagonist	GnRH Agonist
Age (years)	34.4 ±3.8*	30.8 ±3.7
PO (n)	10.8 ±7.1	10.0 ±6.1
Gonadotropin ampules (n)	26.0 ±5.9†	33.1 ±9.7
2 PN (n)	7.1 ±4.6	6.7 ±4.2
FR (%)	75.0 ±24.4	72.2 ±21.8
GQE (%)	60.1 ±23.9	38.7 ±36.6
ET (n)	4.3 ±1.6	4.4 ±1.6
CPR (%) / cycle	50.0 (7/14)	57.1 (8/14)

PO: preovulatory oocyte, PN: pronuclear, FR: fertilization rate, GQE: good quality embryo (8 cell Grade (1+2) / 2 PN), ET: Embryo transfer, CPR: clinical pregnancy rate

* , † : p<0.05

1 9
hMG Group 1
26.0 ±5.7, Group 2 33.1 ±9.7
hMG Group 1
(p<0.04) (Table 3). Cetrotide 4.7 ±0.4
GnRH antagonist GnRH agonist
, 1, 2, 3
, 1 GnRH antagonist
GnRH agonist
gonadotropin
GnRH agonist down
regulation antagonist

GnRH agonist
GnRH antagonist
GnRH agonist
GnRH antagonist
Cetrorelix, Ganirelix, Abarelix, Acyline, FE200486, Tevarelix, Nal-Glu, Azaline B, Antide
Cetrorelix Ganirelix 2가
가
Cetrorelix 3 mg gonadotropin 6~7 (French protocol) 0.25 mg gonadotropin 5 (Lubeck protocol) Michael⁸
GnRH antagonist 0.25 mg 가 , Olivennes³
3 mg LH surge
,
가 GnRH antagonist
, hCG E₂ 가 3874 ±809 (3078~4923) pg/ml ,
18.4 ±2.4 가
, GnRH antagonist가
Albano²
GnRH antagonist 1.1%
vs. 6.5% , Borm⁴
N- hydrophobic 6 2.4% vs. 5.9% Hamori⁹
D-arginine cetrotide
3 antagonist (cetrorelix, ganirelix) , Albano¹
.6 GnRH antagonist gonadotropin
, GnRH
GnRH agonist 26.0 ±5.7 33.1 ±9.7 (p<0.04) gonadotropin
gonadotropin
, GnRH agonist Michael⁸ GnRH antagonist가
regulation antagonist

Albano ², Olivennes ³, Borm ⁴ GnRH antagonist
 Hernandez⁵ GnRH antagonist
 50.0% vs. 19.2% (GnRH agonist) vs. 20.1% (GnRH antagonist)
 Michael⁸ 19.2% (GnRH agonist) vs. 20.1% (GnRH antagonist)
 , Nikolletos
 10
 GnRH antagonist 14.28% (3/21) vs. GnRH agonist (9.52%, 2/21)
 Hamori ⁹ 8.4 vs. 10.9
 , The European and Middle East Orgalutran Study Group¹¹ 7.9 vs. 9.6
 GnRH antagonist
 10.6 ±6.9 vs. 10.0 ±6.1
 Group 1 6 Group 2 2
 Grade 1, 2
 Good quality embryo GnRH-antagonist
 GnRH-antagonist
 GnRH-antagonist
 , GnRH-antagonist
 Hernandez⁵ GnRH antagonist
 GnRH antagonist

Albano ¹² GnRH antagonist
 hCG
 progesterone
 8
 GnRH antagonist
 GnRH agonist
 가
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