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## Outcome of Twin Pregnancies after Selective Fetal Reduction

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**Objective:** To evaluate the safety and efficacy of selective fetal reduction (SFR) and compare the outcome of twin pregnancy after SFR in multiple pregnancy induced by assisted reproductive technology (ART) with that of natural twin pregnancy.

**Methods:** From September 1995 to March 2002 in Ajou University Hospital, SFR was performed in 79 patients whose gestational sacs were more than 3. Of these 79 patients, 47 patients resulted in twin pregnancy after SFR. SFR was performed using transvaginal intracardiac KCl injection at gestational age of 6~9 weeks. Control group was composed of 264 patients with natural twin pregnancy, who delivered after intrauterine pregnancy at 24 weeks, from June 1994 through December 2002. We compared Obstetric and perinatal outcomes between SFR group and natural twin group.

**Results:** Among 47 patients with twin pregnancy after SFR, 2 spontaneous abortion were occurred at intrauterine pregnancy at 8 and 19 weeks. Obstetrical and perinatal outcomes were available in 43 patients. Single intrauterine fetal death was occurred in 1 of 43 (2.3%) patients in SFR group. Incidence of preterm labor, premature rupture of membrane, preeclampsia and placenta previa were similar, but gestational diabetes mellitus (GDM) was occurred more frequently in SFR group (3 (7.0%) vs 4 (1.5%), p=0.02). Mean gestational age, mean birth weight, incidence of discordancy, use of intubation and ventilation, incidence of fetal anomaly, low (<7) Apgar score and intrauterine growth restriction were similar in both groups.

**Conclusion:** Twin pregnancy after SFR has the increased incidence for GDM but other obstetric and perinatal outcome was similar compared with natural twin pregnancy. So SFR is a safe and effective procedure, so we suggest SFR is needed in multifetal pregnancy more than triplet.

**Key Words:** Selective fetal reduction, Twin pregnancy, Assisted reproduction technology

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264 .

2.

1)

14

?-hCG 3

2~3 ?-hCG 5~6

1~2

1.2 1%

20~30% 가 3-5

가

2)

7~10

4.6.7

가 .

8

9-15 (lithotomy) 10% povi-

done iodide

(probe)

가

가

가

1.

1.0 ml (2 mEq/ml) KCl

1995 9 2002 3 30

1~2

47

1994 6 2002 12 1

24 1 2

가 3~4

3) 1 2~3

가

가

가 20%

가 1 5 Apgar

가 7

4) T

(chi-square) p<0.5

1.

(47 ) 30.1 ±3.1

23~36

가 23 (48.9%) , 16 (34.1%) , 8 (10.7%)

(13 , 27.7%)가가 (11 , 23.4%), (7 , 14.9%), (4 , 8.5%), (4 , 8.5%), (6 , 12.8%), (2 , 4.2%)

가 41 (87.2%) ,

가 6 (12.8%)

6<sup>+2</sup>~8<sup>+5</sup> 7.7

(Table 1). 1994

6 2002 12

24 264

**Table 1.** Characteristics of patients with twin pregnancy after selective fetal reduction

Total number	47
Age (years)	30.1 ±3.1 (23~36)
Initial number of fetus	
3	23 (48.9%)
4	16 (34.1%)
>5	8 (17.0%)
Gestational weeks when performed SFR	7.7 (6 <sup>+2</sup> ~8 <sup>+5</sup> )

SFR: selective fetal reduction

2.

47 42

8 3~4 2

7<sup>+4</sup>

7

가 7<sup>+5</sup>

가 19 가

3.

47 45 24

2

43 1 21

35 1

36<sup>+1</sup>

2830 gm, 1 5 Apgar 가

8 , 9

43 264

30.1 ±3.1 28.4 ±4.0

6 59 (14.0%

vs 22.3%, p=0.257), 가 15

84 (34.8% vs 31.8%, p=0.018),

**Table 2.** Obstetric outcome in twin after SFR and spontaneously conceived twin group

	Twin after SFR group (n=43)	Natural twin group (n=264)	p value
Age (years)	30.1 ±3.1 (23~36)	28.4 ±4.0 (20~41)	NS
Preterm labor	6 (14.0%)	59 (22.3%)	NS
PROM	15 (34.9%)	84 (31.8%)	NS
Preeclampsia	5 (11.6%)	49 (18.6%)	NS
GDM	3 (7.0%)	4 (1.5%)	0.022
Placenta previa	1 (2.3%)	4 (1.5%)	NS

PROM: premature rupture of membranes, GDM: gestational diabetes mellitus, p<0.05: clinically significant

**Table 3.** Perinatal outcome in twin after SFR and spontaneously conceived twin group

	Twin after SFR group (n=43)	Natural twin group (n=264)	p value
Gestational ages (weeks)	35.0 ±1.6	34.9 ±3.1	NS
24 <sup>+1</sup> ~28 <sup>+0</sup> weeks	0	15 (5.5%)	
28 <sup>+1</sup> ~32 <sup>+0</sup> weeks	1 (2.3%)	16 (5.8%)	
32 <sup>+1</sup> ~36 <sup>+0</sup> weeks	30 (69.8%)	98 (35.6%)	
=36 <sup>+1</sup> weeks	12 (27.9%)	146 (53.1%)	
Birth weight (gm)	2238.6 ±440.5	2255.5 ±537.8	NS
Birth weight discordancy	5 (11.6%)	35 (12.7%)	NS
IUGR	9/85 (10.6%)	66/513 (12.8%)	NS
Intubation	4/85 (4.7%)	55/513 (10.7%)	NS
Ventilator assistance	2/85 (2.4%)	48/513 (9.3%)	NS
Apgar score			
1 min <7	12/85 (14.1%)	123/513 (23.9%)	NS
5 min <7	4/85 (4.7%)	56/513 (10.9%)	NS
Anomaly	1/85 (1.2%)	22/513 (4.3%)	NS

IUGR: intrauterine growth restriction, p<0.05: clinically significant

5 49 (11.6% vs 18.6% p=0.315), 5 35 (11.6% vs 12.7%,  
 3 4 (7.0% vs 1.5%, p=0.022), p=0.840)  
 1 4 (2.3% vs 1.5%, p=0.669) 43 1  
 (Table 2). 4  
 11 가  
 85  
 4. 513 (2238.6 ±440.5 gm vs 2255.5 ±537.8 gm, p=0.783).  
 9 66 (10.6% vs 12.8%, p=0.710),  
 (35.0 ±1.6 vs 34.9 ±3.1 , p=0.931) 4 55 (4.7% vs 10.7%, p=0.204),

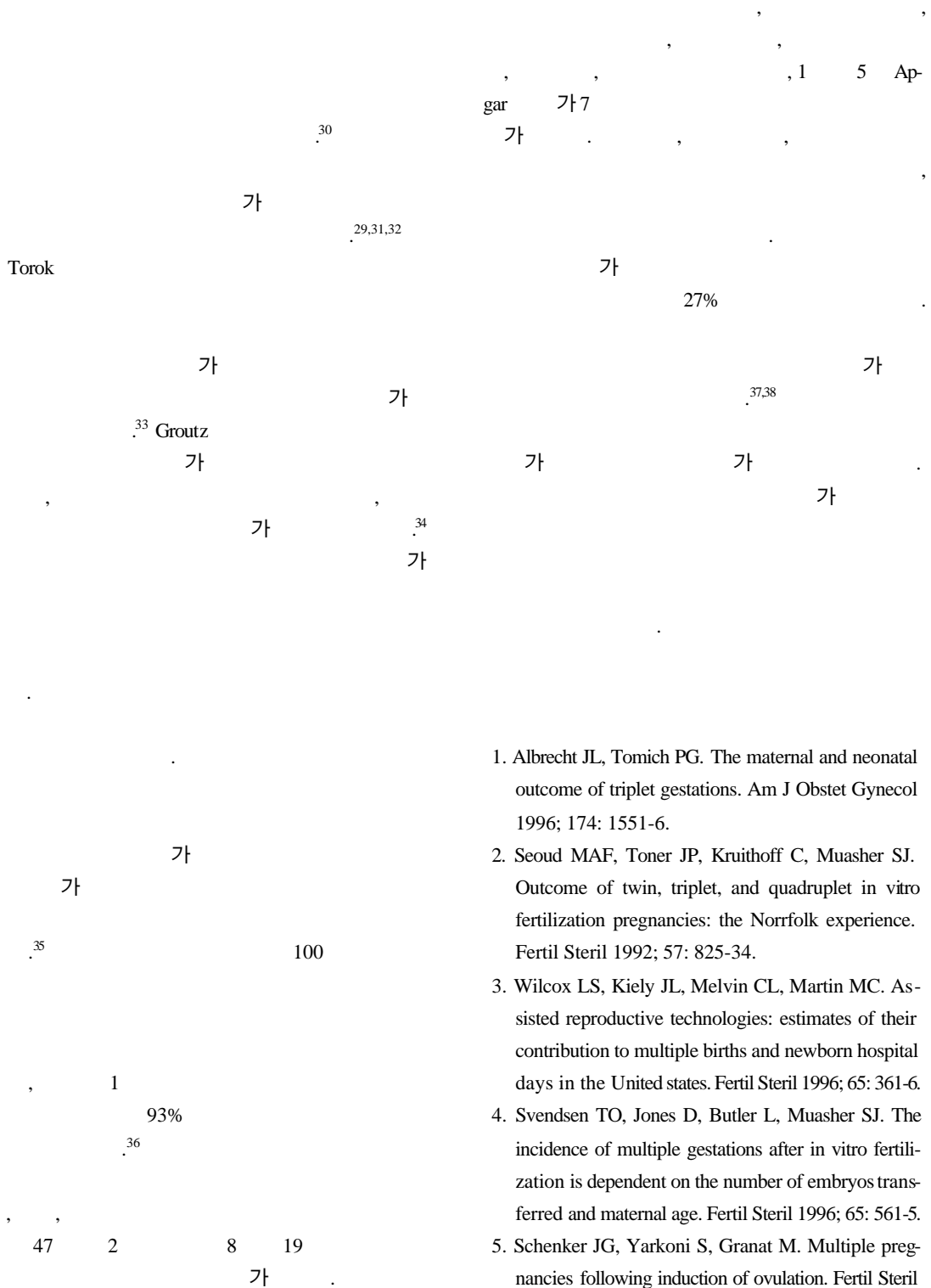
2 48 (2.4% vs 9.3%, p=0.247)

1 Apgar 가 7

12 123 (14.1% vs 23.9%, p=0.071) , 5 Apgar 가 7 4 56 (4.7% vs 10.9%, p=0.123) 1 22 (1.2% vs 4.3%, p=0.468) (Table 3).

1978 Aberg Hurler 24 33 (exsanguination) 가 hypertonic 5% NaCl 가 (hyaline membrane disease), (intraventricular hemorrhage), 가 (transabdominal) (transvaginal) 9~14 6~10 10 10 가 10 가 1990 103 , 15 , 35.5 ±3.7, 31.8 ±2.7, 2473 ± 31.0 ±1.7 745 gm, 1666 ±441 gm, 1414 ±368 gm 10 가 30.3%, 42%, 20% 41.5%, 92.3%, 75% 1% 18 20~ Evans 846 238 30% 가 3~5 9.2 ±1.8 11.3 ±1.8 24 가 13.1%, 1986 1991 16.2%, 1991 1993 가 8.8% 25 28 가 5% 가

84% 가  
 .<sup>21</sup> Lynch Tabsh (18.6% vs 8.2%, RR 2.27) 35  
 (20.9% vs 10.4%, RR 2.0)  
 .<sup>9,20</sup> 가 .<sup>25</sup> Antsaklis  
 9 11  
 10  
 7.7 , 37  
 가  
 14 가 . Yaron  
 ,  
 .<sup>21</sup> Ge- .<sup>26</sup> Alexan-  
 va 19 11 der  
 ,  
 , Silver ,  
 19 가  
 .<sup>27,28</sup>  
 .<sup>22</sup> Lipitz (11~ Fasouliotis 1993 1996  
 12 ) (13~14 )  
 .<sup>23</sup>  
 1400 12.3% 33.3% 4  
 50% 66.7% 4  
 24 .  
 .<sup>24</sup> 75.2% 가 .  
 가 8 가 ,  
 가 .<sup>6+6</sup>  
 가 .<sup>29</sup>  
 가 4 가 3  
 가 . Melgar  
 . Lipitz



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