Combined treatment of endometriosis: IVF results

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Objectives. It has been estimated that endometriosis affects approximately 25−50% of infertile women. Long-term treatment with GnRH agonists before IVF may increase fertility rates in advanced-stage disease by means of increased numbers of retrieved oocytes and transferred embryos, higher implantation and pregnancy rates. Some authors suggest that laparoscopy in combination with GnRH treatment remains the most effective treatment of patients with endometriosis after several unsuccessful IVF treatments. The objective of this study was to evaluate the effect of combining laparoscopy with long-term GnRH treatment on IVF results in patients with different stages of endometriosis.

Methods. During 2005-2009 combined treatment was used on 100 endometriosis patients with up to 9 unsuccessful IVF treatments and infertility for more than 6 years. All patients underwent laparoscopic surgery in combination with postoperative treatment for 3-6 months using GnRH agonists. Induction of superovulation for IVF was started 2-3 weeks after last injection of GnRH. For statistical analysis all patients were divided into two groups according to severity of endometriosis as stated by ASRM criteria: Group 1 (stage I-II) 54 and Group 2 (stage III-IV) 46 patients. All statistical tests (t-test and χ^2 test) were performed using PASW 18.0 software.

Results. The study groups were similar in general characteristics and laparoscopic findings. Primary infertility and previously diagnosed endometriosis were more common in Group 2. After a maximum of 4 IVF cycles, clinical pregnancy was diagnosed in 68 (68.0%) patients; 38 (70.4%) in Group 1 and 30 (65.2%) in Group 2. Majority of the patients conceived during the first two IVF cycles (86.8% in Group 1 and 66.7% in Group 2). Even though there were no statistical differences in miscarriage and delivery rates, patients with moderate-severe endometriosis showed a tendency for elevated miscarriage rate (26.7% vs. 15.8%).

Conclusion. Although we did not find a statistical difference in pregnancy outcome between groups with various stages of endometriosis, combined treatment including laparoscopy and prolonged GnRH agonist treatment before IVF is effective for achieving pregnancy in patients with endometriosis after several unsuccessful IVF trials.

Table 1. General characteristics

Characteristic	Group 1 I-II stage of endometriosis n=54 n (%)	Group 2 III-IV stage of endometriosis n=46 n (%)	p-value Group 1 vs. Group 2
Average age (years)	34.2±4.5	33.5±4.2	NS
Body mass index (kg/m^2)	22.6±2.9	21.7±2.6	NS
Regular menstruation	49 (90.7)	44 (95.7)	NS
Painful menstruation	18 (33.3)	19 (41.3)	NS
Primary infertility	16 (29.6)	19 (41.3)	NS
FSH value before treatment (IU/l)	7.9±3.2 n=32	7.9±5.7 n=35	NS
Duration of infertility (years)	6.3±3.0 n=50	6.7±3.9 n=44	NS

Where appropriate, values are given as mean ± standard deviation.
NS – statistically not significant (p>0.05)

Table 2. Previous infertility history and laparoscopic findings

Characteristic	Group 1 n (%)	Group 2 n (%)	p-value[a] Group 1 vs. Group 2
Previously laparoscopically diagnosed endometriosis	14 (25.9)	25 (54.3)	0.004a
Previously performed IVF	38 (70.4)	35 (76.1)	NS
Previous IVF pregnancy	8 (14.8)	7 (15.2)	NS
Pelvioperitonitis (Chronical and adhesive)	24 (44.4)	26 (56.5)	NS
Permeability of fallopian tubes (at least one)	34 (63.0)	29 (63.0)	NS
Myoma of uterus	11 (20.4)	7 (15.2)	NS

[a]t-test; NS – statistically not significant (p>0.05)

Table 3. Pregnancy outcome of combined treatment			
Characteristic	Group 1 n (%)	Group 2 n (%)	p-value Group 1 vs. Group 2
Clinical pregnancies	38	30	NS
Conceived during I-II attempts	33/38 (86.8)	20/30 (66.7)	NS
Conceived during ≥III attempts	4/38 (10.5)	4/30 (13.3)	NS
Conceiced spontaneously after I-II negative IVF cycles	1/38 (2.6)	6/30 (20.0)	NS
Miscarriages	6 (15.8)	8 (26.7)	NS
Deliveries	32 (59.3)	22 (47.8)	NS

NS – statistically not significant (p>0.05)