Table 1. Cycle parameters of patients triggered by GnRH agonist or recombinant hCG			
Variable (mean±SD)	GnRH agonist (n=10)	Recombinant hCG (n=13)	p
Age (y)	24.9±1.8	24.0±1.8	NS
Body mass index (kg/m²)	23.4±1.8	23.8±2.5	NS
FSH ampoules	16.8±7.2	25.7±14.7	NS
Peak estradiol level (pg/mL)	3107±1551	4214±1047	NS
Oocytes retrieved	24.1±7.6	23.0±12.9	NS
Mature oocytes	18.7±12.1	18.9±10.6	NS
OHSS	0	2 (15.4%)	NS
Recipient clinical pregnancy rate	60%	69%	NS

hCG trigger while preventing OHSS in oocyte donation cycles. Ovulation induction with GnRH agonist may be utilized liberally in oocyte donation cycles employing GnRH antagonist suppression to decrease the risk of OHSS without negatively impacting the outcome.

Supported by: None

P-456

Novel Stimulation Protocol to Reduce ART Cost Without Compromising Pregnancy Outcome. A. E. Divita, J. A. Notrica, G. Arenas, E. S. Polak de Fried. CER Medical Institute, Buenos Aires, Argentina.

OBJECTIVE: To evaluate the effectiveness of a low cost novel ovulation induction protocol for IVF/ICSI.

DESIGN: Prospective study.

MATERIALS AND METHODS: Forty non insuline resistant infertile patients underwent IVF/ICSI during August and September of 2004.Twenty out of forty patients received 40 μg of leuprolide acetate twice a day and 650 mg of metformin, starting the first day of the ART cycle until hCG administration. On day two the ovulation induction began with 60 mg of tamoxifen per day during four days associated with low doses of urinary gonadotrophin therapy (Group I). Twenty patients were assigned as the control group (Group II). They received leuprolide acetate 1 mg/day from the midluteal phase of the previous cycle in association with recombinant FSH (300 IU/day during the first four days of the treatment cycle) in a step down protocol. The variables analyzed included age, International Units (IU) of gonadotrophins, stimulation length, stimulation cost (U$S), number of oocytes retrieved,number of embryos transferred, implantation rate and ongoing pregnancy rate. Statistical analysis was performed by means of Student-*t* test and Fisher test. $P<0,05$ was considered statistically significant. Results were expressed as means ± SD.

RESULTS: Table

Results			
	Group I	Group II	P value
Age (years)	34.70 ± 4.66	33.80 ± 4.51	NS
Gonadotrophins (IU)	963.75 ± 362.78	3213.75 ± 1766.34	< 0.0001
Stimulation length (days)	9.95 ± 1.90	10.60 ± 1.63	NS
Stimulation cost (U$S)	418.14 ± 126.97	1291.47 ± 618.21	<0.0001
# Oocytes retrieved	3.95 ± 2.20	6.30 ± 4.06	NS
# Embryos transferred	1.95 ± 0.75	2.00 ± 0.64	NS
Implantation rate (%)	26.67	19.17	NS
Pregnancy rate (%)	40	40	NS

CONCLUSION: According to our results, the association of microdose GnRH analog desensitization, tamoxifen, metformin and low doses of gonadotrophins in patients who need IVF or ICSI, resulted in a novel approach to reduce significantly the ART cost without compromising the pregnancy outcome.

Supported by: Department of Science and Research, CER Medical Institute.

P-457

Oral Whey Protein for Preventing Ovarian Hyperstimulation Syndrome. A. S. Cambiaghi, D. S. Castellotti. Instituto Paulista de Ginecologia, Obstetricia e Medicina da Reprodução, São Paulo - SP, Brazil.

OBJECTIVE: Ovarian hyperstimulation syndrome (OHSS) is a serious and potentially life-threatening iatrogenic complication in assisted reproduction. Its pathophysiology is still not well understood but there is clearly an increased capillary permeability with consequent loss of protein for the third space. The aim of this study was to assess the benefits of oral whey protein (rich source of branched chain amino acids) for preventing the symptoms of OHSS after the hCG in IVF cycles in high-risk patients.

DESIGN: Prospective randomized study.

MATERIALS AND METHODS: Between October 2003 and September 2004 we selected 20 women undergoing IVF treatment at Instituto Paulista de Ginecologia e Obstetrícia (São Paulo, Brazil) considered at high risk of developing moderate or severe OHSS. All of them were submitted to the same protocol for controlled ovarian hyperstimulation (COH) with GnRH agonist and FSHr. In group I (10 patients) the patients received conventional treatments for OHSS (IV albumin on the day of oocyte retrieval, rest and orientation for increase water intake). In group II (10 patients), besides conventional treatment all of them received oral whey protein (80g/day - 20g four times a day) beginning on the day of oocyte retrieval.

RESULTS: No difference was found between the two groups in terms of patient's characteristics. We classified OHSS in mild, moderate and severe according Schenker & Weinstein criteria. In group I two patients developed mild OHSS, 7 patients had moderate OHSS and 1 patient developed severe OHSS. In the same group 3 patients required hospitalization. In the whey protein group (group II) 5 patients had mild OHSS, 2 patients developed moderate OHSS and no patients had the severe form. None of them required hospitalization. We also observed that the duration of OHSS was lower in group II than in group I.

CONCLUSION: The use of whey protein for preventing OHSS in high risk patients may be an excellent alternative, especially to avoid the severe forms. It's easy to take (oral), cheap and have no side effects. Although the number of patients in this study is small its use should be encouraged

Supported by: None

P-458

Recombinant Luteinizing Hormone (rLH) Induces Ovarian Angiogenesis *In Vivo* via Modulation of the Expression of Follicular Vascular Endothelial Growth Factor (VEGF)-A_{165} and Its Soluble Receptor sFlt-1/VEGFR-1 but not Placental Growth Factor (PlGF). A Prospective, Randomized, Double-Blind, Placebo-Controlled Study. G. Gutman, V. Barak, S. Maslovitz, A. Amit, J. B. Lessing, E. Geva. Sara Racine IVF Unit, Lis Maternity Hospital, Tel Aviv Sourasky Medical Center, Sackler Faculty of Medicine, Tel Aviv University, Tel-Aviv, Israel; Immunology Laboratory for Tumor Diagnosis, Oncology Department, Hadassah University Hospital, Jerusalem, Israel.

OBJECTIVE: Cyclic ovarian angiogenesis is critical for normal ovarian folliculogenesis, ovulation, and corpus luteum formation and maintenance. This process is regulated by the VEGF family. Several *in vitro* studies have suggested that LH/hCG (human chorionic gonadotropin) modulates the expression of ovarian follicular VEGF expression. The aim of this study is to test the hypothesis that rLH supplementation during the late follicular phase of down-regulation protocol for controlled ovarian hyperstimulation improves follicular angiogenesis.

DESIGN: A prospective, randomized, double-blind, placebo-controlled study.

MATERIALS AND METHODS: Pre-menopausal women aged 27-39 years, with body mass index 17-27, undergoing *in-vitro* fertilization (IVF) treatment (first to third cycle). After down-regulation, patients were treated with recombinant follicle stimulating hormone (rFSH) (225 IU/day). When at least two follicles reached a mean diameter of 14 mm, patients were randomized using a computer-generated randomization list (stratified by Serono Inc.) to rLH (Luveris) (75 IU/day) (n = 10), or placebo (sucrose) (n = 10). Sera and follicular fluid (FF) VEGF-A_{165}, sFlt-1/VEGFR-1 and PlGF protein levels were measured by ELISA.

RESULTS: Recombinant LH significantly increased FF VEGF-A_{165}/sFlt-1 ratio ($P=0.05$), but decreased FF VEGF-A_{165}/PlGF ratio, without statistical significance. Compared to placebo, rLH decreased serum levels of VEGF-A_{165} and sFlt-1/VEGFR-1, although values were not statistically significant. The PlGF plasma levels were undetectable.

CONCLUSION: This is the first *in vivo* study to demonstrate that rLH induces ovarian follicular angiogenesis via modulation of VEGF-A_{165} and its soluble receptor sFlt-1/VEGFR-1 expression. Therefore, rLH supple-