Introduction: Polycystic ovary syndrome (PCOS) is the most common endocrine disease related with infertility. Obesity is frequently present in women with PCOS and related with hyperinsulinemia, hypertension, and other hormonal lipid profile. All of them are considered as cardiovascular risk factors. The adipose tissue produces adipokines like adiponectin, leptin and resistin. Adiponectin is an insulin sensitizer. Leptin is a product of the obesity and a marker of somatic energy storage and participates in a range of physiological actions being essential in the control of normal body weight. It crosses the haematoencephalic barrier acting in the hypothalamus receptors depressing appetite and increasing thermogenesis. Resistin is related with insulin resistance. It is also known that an inflammatory ambient promotes the atherosclerosis. TNF-α is an inflammatory marker that increases the insulin resistance and promotes high blood pressure. The aim of this study was to evaluate if cardiovascular risk factors are increased in non-obese women with PCOS.

Material and Methods: Patients: Forty women diagnosed of PCOS according to the Rotterdam criteria were distributed as follow: Group 1 (n = 23) showing a body mass index (BMI) < 30 kg/m², group 2 (n = 21) showing a BMI >30 kg/m². These two groups were compared with 20 normal women (Group 3): BMI < 30 kg/m², normal ovulatory cycle and no hyperandrogenaemia.

Setting: Reference Assisted Reproduction Unit. University Hospital.

Interventions: Blood samples were collected between the days 2 and 5 of a spontaneous menstrual cycle. Serum levels of FSH, LH, prolactin, TSH, free testosterone, insulin, glucose, high sensitivity C reactive protein (hs-CRP), cholesterol, HDL-Cholesterol (HDL-C), LDL-Cholesterol (LDL-C), VLDL-Cholesterol (VLDL-C), triglycerides, adiponectin, leptin, resistin and tumour necrosis factor-α (TNF-α) were quantified. Blood pressure, height and weight, were also measured. Anova Test was used to find differences of parameters among groups. The significance level was established at p < 0.05.

Results: Group 2 presented significant higher systolic and diastolic blood pressure than Group 1 and Group 3 (p < 0.01). Basal insulin, LDL-C and triglycerides circulating levels, as well as HOMA index were significantly higher in Group 2 when compared with the other groups (p < 0.001). HDL-C levels were significantly reduced in group 2 compared with groups 1 and 3 (p < 0.001). High sensitive CRP levels were significantly higher in group 2 compared to the remainder groups (p < 0.001). The levels of adiponectin were significantly higher in the group 3 (0.71 ± 0.20 ng/mL, 0.16 ± 0.46 ng/mL, and 0.80 ± 0.27 ng/mL respectively in groups 1, 2 and 3, p = 0.023). The levels of leptin (1.51 ± 0.48 ng/mL, 1.96 ± 0.37 ng/mL, and 1.24 ± 0.30 ng/mL respectively in groups 1, 2 and 3, p < 0.001) and TNF-α (0.14 ± 0.03 ng/mL, 0.16 ± 0.05 ng/mL, and 0.14 ± 0.03 ng/mL respectively in groups 1, 2 and 3, p = 0.042) were higher in group 2 when compared with the other groups. Circulating levels of resistin showed no differences between groups.

Conclusions: Serum leptin level was higher in obese women with PCOS according with expected. Adiponectin is down regulated in women with PCOS. TNFα levels were higher in obese PCOS women. These results support the idea that alterations of adipose tissue metabolism and endocrine activities could play a role in the pathophysiology of PCOS. Women with PCOS present increased cardiovascular risk factors even if they do not have obesity. These patients have not only a fertility problem but also a cardiovascular problem.
Material and Methods: 38 women participated to this protocol, 13 were fertile control women and 25 had repeated and unexplained implantation failures (IF) during in vitro fertilization (IVF) attempts. Three-dimensional ultrasound with power angiography was performed to record the sub-endothelial vascular flow index (Sub-VFI) before an endometrial biopsy at day 21-23 of a monitored natural cycle. Endometrial dataation, semi-quantitative evaluation of spiral arteries section, immunostaining of VEGF-A and the membrane receptors VEGFR-1 and 2, and quantitative Real Time PCR for mRNA expression of VEGF-A, VEGFR-1, VEGFR-2 and the soluble receptor sVEGFR-1 were performed.

Results: The Sub-VFI was significantly lower in IF patients (p = 0.0012). Histological quantification of spiral arteries significantly correlated to Sub-VFI (r = 0.75, p = 0.01). At protein level, IF patients showed a stronger immunostaining for VEGF-A and VEGFR-1 than the control group, and a slightly lower VEGFR-2 immunostaining. While, at mRNA level, VEGF-A, VEGFR-1 and VEGFR-2 were significantly lower in the IF group (respectively p = 0.05, 0.001 and 0.005). The absence of parallelism between protein and mRNA expressions suggests further dysregulations in cytoplasmic storage or protein transport. The IF group also showed a significantly higher ratio of sVEGFR-1/VEGFR-1 (p = 0.006). The relative excess of the soluble receptor messenger found in case of IF is in accordance with its antagonist role described in the VEGF system.

Conclusions: Before conception, in middle luteal phase, patients with implantation failure show a lower endometrial vascularisation and a local VEGF system dysregulation, both at protein and mRNA levels.

O-217  The impact of chronic endometritis prior to starting in vitro fertilization

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Introduction: Chronic endometritis has been related to recurrent abortion and female infertility. It usually is asymptomatic and therefore rarely clinically suspected. Despite the use of adequate diagnostic tests, such as hysteroscopy and endometrial biopsy, chronic endometritis remains difficult to detect. In infertile patients the observed prevalence of chronic endometritis varies greatly, between 0.2-45%. Furthermore, whereas retrospective studies have described that antibiotic treatment significantly increased the success rates of subsequent in vitro fertilization (IVF) treatment, other studies failed to detect a clear association between chronic endometritis and reproductive outcome. The aim of the current study was to assess the significance of diagnosis and treatment of chronic endometritis in asymptomatic patients indicated for a first IVF treatment cycle.

Material and Methods: In the period from June 2007 until September 2008 asymptomatic patients, aged <43 year and indicated for a first IVF treatment cycle at one of the two university hospitals were included in this study. All 678 patients with a normal transvaginal ultrasonography were scheduled for office hysteroscopy and endometrial biopsy in the follicular phase of the cycle, 1-3 months before starting IVF treatment. The endometrial biopsies were obtained with the use of either a grasping forceps or a Pipelle de Cornier under local anesthesia. At each research hospital one experienced pathologist examined all endometrial samples. Examination consisted of classification based on the Kurman criteria, the presence or absence inflammatory cells (i.e. plasmacells, lymphocytes etc.) and report of the corresponding diagnosis; chronic endometritis or not.

The slides of the patients diagnosed with chronic endometritis, replenished with a random sample of the remaining slides up to a total of 102, were exchanged between the two pathologists. They reassessed the endometrial samples on the presence or absence of chronic endometritis. The interobserver agreement between both pathologists was calculated.

Patients diagnosed with chronic endometritis were randomly treated with antibiotics. The reproductive outcome after the subsequent IVF treatment was compared between the group of patients with and without antibiotic treatment.

Results: In total 678 patients underwent hysteroscopy. An endometrial biopsy was performed in 657 patients and sufficient tissue for histological examination was obtained in 606 patients. Of those, 17 were diagnosed with chronic endometritis (2.8%). According to the endometrial samples of the 102 patients which were exchanged, perfect agreement between both pathologists was found in 86%. The interobserver agreement could be expressed in a kappa-value of 0.66, which represents substantial agreement.

Out of the patients with chronic endometritis, 65% conceived after an average 2.2 fresh IVF cycles. The pregnancy rates between the group of patients with and without antibiotic treatment did not significantly differ.

Conclusions: According to the interobserver agreement, histological examination was found to be an accurate method for diagnosing chronic endometritis. Still, it is rarely diagnosed; the observed prevalence of chronic endometritis in patients indicated for a first IVF treatment cycle was 2.8%. Moreover, the reproductive outcome after IVF did not seem to be negatively affected by chronic endometritis whether treated with antibiotics or not. High quality evidence on the impact of chronic endometritis on infertility and its management in IVF is desirable.

O-218  The timing of gonadotropin initiation after prolonged GnRH analogue (GnRH-a) treatment prior to in vitro fertilization

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Introduction: Prolonged pretreatment with GnRH-agonist (GnRHa) in women with endometriosis clinically has been recommended prior to IVF. However, the profound suppression of the pituitary gland could lead to a suboptimal response to gonadotropins. This study was designed to evaluate the appropriate timing of delayed gonadotropin initiation for improving the outcome of ovarian stimulation.

Material and Methods: 150 women recruited with stage III-IV endometriosis, who received two to three doses of 3.75-mg GnRH-a, 28 days apart. The serum E2 level 28-30 days after the last injection was less than 73.4 pmol/L. In Group 1 (100 cycles), controlled ovarian stimulation (COS) was initiated within 30 days of the last GnRH agonist injection; In Group 2 (75 cycles), COS was initiated until serum E2 level had gone up to more than 110pmol/L. Subsequently, the cycles were re-grouped according to the LH level at the time of initiation. There were 143 cycles in which the serum LH level was less than 0. 5 IU/L (Group A), and 27 cycles with LH level ≥ 0. 5 IU/L (Group B).

Results: In Group 2, 14 women were initiated beyond 40 days of the last GnRH agonist (the longest one was 59 days). In group 1, the patients of 97 cycles underwent egg retrieval while 73 cycles in group 2. The mean gonadotropin dose and duration of stimulation in Group 1 (4869 IU, 12.8 days) were significantly (p < 0.01) than those in Group 2 (4082 IU, 11.9 days). There were no significant differences between Group 1 and Group 2 with regard to the number of oocyte collected, the number of embryos produced and clinical pregnancy rate. Although there were no significant differences between Group A and B with regard to gonadotropin dose and duration of stimulation, the mean number of oocyte retrieved and embryo produced in Group B (11.2 & 5.9 respectively) were significantly (p < 0.05) higher than those in Group A (8.3 & 4.1 respectively).

Conclusions: In women with endometriosis who received prolonged GnRHa down-regulation prior to IVF treatment, there appeared to be clinical benefits in delaying the initiation of gonadotropin injection. The LH level (≥ 0.5 IU/L) could be a better criteria than E2 level for the timing of gonadotropin initiation, however, further studies are required to confirm the finding.

O-219  The use of GnRH antagonist in endometrial priming improves oocyte donation outcome. Results of a prospective-controlled trial

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1 Downloaded from https://academic.oup.com/humrep/article-abstract/25/suppl_1/i85/590831 by guest on 29 December 2018
Introduction: The synchronization between oocyte recipients and egg donors is essential in the oocyte donation programme in case of recipients with active ovarian function. To prevent spontaneous ovulation during the endometrial priming in recipients, GnRH agonists have been widely used. Previous studies comparing agonists and antagonists on endometrial development showed that the similarity of the endometrium to the natural cycle was closer in antagonist than in agonist cycles.

Objective: To compare a new approach for endometrial priming with the 7 day dosage of GnRH antagonist (Cetrorelix 0.25 mg) in an oocyte donation programme with the conventional single dose GnRH agonist (Triptorelin, 3.75 IM) on day 21 of the menstrual cycle.

Materials and Methods: A prospective, blind, randomized controlled trial was carried out in our center (EudraCT: 2007-000212-89) from January, 2007 to September, 2009. Sample size was calculated in order to detect an improvement in 12% ongoing pregnancy rate between both groups. Assuming approximately 15% of losses, the population randomized was 560 patients. The inclusion criteria were as follows: recipients with preserved ovarian function under 45 years old, body mass index (BMI) < 28 Kg/m², 1st or 2nd egg donation cycle, 1-2 good embryos transferred. Exclusion criteria were uterine diseases (polyps, myomas, müllerian defects, adenomyosis), severe male factor (motile sperm < 5mill.), abnormal FISH spermatozoa, thrombophilia and recurrent pregnancy losses. From the total number of patients randomly allocated to each group, 473 underwent embryo transfer, and received 7 days GnRH antagonists (group A, 232 patients) or a single intramuscular injection of 3.75 mg triptorelin (group B, 241 patients) or A total of 87 dropped out of the study due to insufficient endometrial preparation or to transfer cancellation. Ongoing pregnancy rate (OPR) was the primary endpoint. Implantation rate (IR), ectopic, and miscarriage rates were the secondary outcome measures.

Results: No difference was found between groups on patient's age 39.2 years (95%CI 38.8-39.6) vs. 39.1 years (95%CI 38.6-39.5) and BMI 22.7(95%CI 22.3-22.7) vs. 22.6(95%CI 22.3-23.0) in groups A and B, respectively. Also, no difference was found between groups A and B regarding the mean number of embryos transferred 1.5(95%CI 1.6-1.7) vs. 1.7(95%CI 1.6-1.8), endometrial patterns and endometrial thickness. However, significant increased oestradiol levels were found in antagonist (253.2; 95%CI 226.2-280.2) vs. agonist patients (192.6 pmol/l; 95%CI 173.9-211.4) (p = 0.001).

Clinical pregnancy rate in antagonists group was significantly increased (68.1%; 95%CI 62.1-74.1) as compared to the agonist (56.8%; 95%CI 50.1-53.1) (p = 0.012), with odds ratio (OR) 1.62 (95%CI 1.11-2.36) and AFE 16.5%(95%CI 3.9-24.7). Similarly, OPR were higher in the antagonist (57.8%; 95%CI 51.4-61.3) vs. 46.6%(95%CI 40.3-52.9) (p = 0.014), with OR 1.57(95%CI 1.10-2.25) and AFE 19.5%(95%CI 4.2-32.4). IR results higher in antagonist group (47.8%; 95%CI 42.8-52.8) vs. 38.5%(95%CI 33.6-43.4) (p = 0.009). The ongoing IR was increased in antagonist group (41.7%; 95%CI 36.5-46.9) vs. 33.0% (95%CI 28.1-37.8) (p = 0.016).

Clinical pregnancy loss was similar in both groups 12.4%(7.5-17.4) vs 12.0 (95%CI 7.6-18.2) as well biochemical pregnancies 7.1%(95%CI 3.2-11.0%) vs.11%(95%CI 6.0-15.6) and ectopics 1.8%(95%CI 0.3-8.3) vs 4.5%(95%CI 1.3-7.8). Multiple pregnancy rates were also similar in both groups 37.3%(95%CI 30.0 44.6) vs 33.3%(95%CI 25.9-40.7).

Conclusions: GnRH antagonist administration for endometrial priming improves clinical pregnancy and implantation rates in oocyte donation cycles and should be implemented for endometrial priming.

O-220 3D/4D ultrasound-guided embryo transfer targeting maximal implantation potential (MIP) point increases pregnancy rate and reduces ectopic pregnancies

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Introduction: Embryo transfer is one of the most critical phases of the IVF cycle. A large study was conducted to determine whether targeting the maximal implantation potential (MIP) point in the uterus using 3D/4D ultrasound would result in improved pregnancy rates as well as benefit patients in other ways, such as lowering the risk of ectopic pregnancy and reducing the need to implant multiple embryos.

Materials and Methods: The study group included all female fertility patients undergoing 3D/4D ultrasound-guided embryo transfer at a large Southern California IVF center. For each patient, the MIP point within the uterus was identified prior to the transfer using 3D ultrasound, described previously. Following insertion of the transfer catheter, the catheter tip was guided to the MIP point using 4D ultrasound. As the embryo(s) were expelled, a distinct flash on the ultrasound screen served as confirmation that the MIP point had been targeted.

Results: A total of 5,073 patients with a mean age of 38.3 years received 3D/4D ultrasound-guided embryo transfer utilizing the MIP point as the optimal target for embryo placement. Targeting the MIP point and transferring embryos using 3D/4D ultrasound resulted in a 10.04% increase in the pregnancy rate. In addition, ectopic pregnancies were reduced from 1.82% of embryo transfers to 0.49%, a reduction of 73.1%. This represents a significant decrease in ectopic pregnancies (p = .003).

Transfers were performed by 21 different physicians at the IVF center. Using 3D/4D ultrasonography, the uterine cavity was well visualized, and the MIP point could be identified consistently. In all cases, ultrasonography was performed by the same sonographer. Targeting the MIP point has become standard operating procedure at the IVF facility.

Conclusions: Ectopic pregnancy is a serious risk and can be life threatening. Targeting the MIP point and guiding embryo transfer using 3D/4D ultrasound increases the pregnancy rate and decreases the rate of ectopic pregnancy. Because the precision achieved by targeting the MIP point increases the likelihood of successful embryo implantation, the need to transfer multiple embryos is reduced, which decreases the risk of complications due to multiple births. Focusing on the MIP point frees the IVF physician from trying to guess the optimal point for embryo placement. By increasing the accuracy of embryo placement in the uterine cavity, the 3D/4D approach overcomes the practical limitations of 2D sonography and significantly reduces ectopic pregnancy risk.

O-221 Uterine doppler studies at the time of implantation are not predictive for pregnancy outcome in ART

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Introduction: The success of artificial reproductive techniques not only depends on the quality of oocytes and spermatzoa but also on the implantation conditions and the receptivity of the endometrium. As there is some controversy in the literature about the predictive value of velocity and pulsatility in the uterine arteries, the aim of this study was to assess the role of the uterine artery blood flow in the prediction of implantation in women undergoing In-vitro fertilization (IVF), Intracytoplasmic sperm injection (ICSI) and Intrauterine In- semination (IUI). In early pregnancy (first trimester screening) a high pulsatility index in the uterine arteries may be associated with an impaired trophoblast invasion. As the timing of doppler measurements during the stimulated cycle may be crucial, we undertook this prospective study to assess uterine blood flow during the early luteal phase immediately before embryo transfer to investigate the implantation conditions.

Material and Methods: 222 couples were included in this prospective study. All patients underwent the IVF, ICSI (n = 118) or IUI (n = 104) program for different indications. Women with myomata of the uterus or with uterine abnormalities were excluded. Ovarian hyperstimulation was performed with recombinant follicle stimulating hormone (FSH) or human menopausal gonadotropin (HMG) using GnRH agonists or antagonists for pituitary suppression. Embryo transfer was performed three to five days after oocyte retrieval. Insemination was done 34 – 36 hours after ovulation induction. Ultrasonography measurements were performed immediately before insemination or embryo transfer. The pulsatility index (PI), Resistance index (RI) and the Peak Systolic Velocity (PSV) were measured in both uterine arteries using endovaginal ultrasound.

Results: In IVF/ICSI cycles women achieving pregnancy (n = 33) were younger (mean 31 vs. 33 years, p < 0.05) and had a higher mean embryo score (28 vs. 19, p > 0.05) than those not conceiving (n = 85). However the doppler parameters PI (2.48 vs. 2.15), RI (0.78 vs. 1.30) and PSV (60 vs. 63) did not differ significantly between the pregnant and non-pregnant group. Furthermore, there were no significant differences in doppler parameters for the type of gonadotropin, of pituitary suppression and the day of embryo transfer. The pregnancy rate per transfer was similar in women showing an unilateral (24 %), bilateral (33 %) or no (27 %) notch in the uterine blood flow. Using the ROC model, no critical values for PI, RI or PSV with discriminating statistical power for the implantation rate could be calculated. In IUI cycles no differences in doppler
parameters between pregnant and non-pregnant patients couldn’t be found ei-
ther. **Conclusion:** Previous studies were aiming at the measurement of arterial
doppler parameters during the follicular phase which may not be adequate for the
pridiction of implantation. However, our results show that doppler studies
during the early luteal phase of the stimulated cycle are not indicative for the
likelihood of pregnancy, and that the transfer policy should not be based on
doppler parameters. In contrast to first trimester screening in early pregnancy
terine artery doppler parameters immediately before implantation seem not to
be associated with implantation conditions.

**SELECTED ORAL COMMUNICATION SESSION**
**SESSION 57: CLINICAL ART 1**
**Wednesday 30 June 2010**
**10:00 - 11:45**

**O-223** Progesterone levels prior to the start of rFSH stimulation in a
fixed GnRH antagonist protocol are not associated with the likelihood of
pregnancy
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**Introduction:** Recent publications suggest that elevated serum progesterone
levels at the start of controlled ovarian stimulation (COS) were associated with decreased pregnancy rates following in vitro fertilization (IVF) using
gonadotropin-releasing hormone (GnRH). The reference arm of a recent, ran-
domized, double-blinded, multicenter, international clinical trial (Engage) includ-
ed a large cohort of patients who received recombinant follicle-stimulating hor-
mones (rFSH). The objective of this retrospective analysis was to characterize the
potential relationship between serum progesterone levels measured prior to
the start of stimulation with rFSH and ongoing pregnancy rates using a GnRH antagonist protocol.

**Material and Methods:** A total of 750 subjects (aged 18–36 years) were ran-
domized to the rFSH arm (follitropin beta, Puregon Pen, N.V. Organon) of the
Engage trial. Subjects received 200 IU rFSH once daily starting on day 2 or
3 of menses for the first 7 days of COS. Subjects with endocrine abnormali-
ities (FSH > 12 IU/L or luteinizing hormone [LH] > 12 IU/L) and/or ovarian abnormalities were excluded from the study. From day 8 onward, the dose of
rFSH could be reduced dependent on follicular development. In cases of an
excessive response, the investigator was allowed to reduce the dose of rFSH
day from 6 onward. Beginning on day 5 of COS, all patients received 0.25 mg
of gabexarel (Oglebta, N.V. Organon) to prevent premature LH surges. Human chorionic gonadotropin (hCG, 10,000 IU) was administered to induce final oo-
cyte maturation as soon as 3 follicles ≥ 17 mm were observed by ultrasound or 1
day later. Serum progesterone levels were measured on day 1 of stimulation. Ongoing pregnancy rates (assessed at least 10 weeks after embryo transfer) and
95% confidence intervals (CI) were calculated as a function of progesterone level (i.e., for subjects at/below or above the 50th, 75th, and 95th percentiles for day 1 progesterone levels).

**Results:** Subjects included in this analysis had a mean age of 31.5 ± 3.2 years and had a mean body mass index of 24.8 ± 2.7 kg/m²; the majority of sub-
jects (86.7%) were white. The mean duration of infertility was 3.2 ± 2.2 years.
The mean basal antral follicle count was 12.1 ± 4.1. Mean endocrine levels at stimulation day 1 were FSH: 6.6 ± 1.9 IU/L; LH: 4.7 ± 1.8 IU/L, estradiol: 124.8 ± 37.4 pmol/L, and progesterone: 1.8 ± 1.4 nmol/L. The 50th, 75th, and
95th percentile for serum progesterone levels measured on stimulation day 1 corresponded to progesterone levels of 1.72 nmol/L, 2.18 nmol/L, and 3.08
nmol/L, respectively. The overall ongoing pregnancy rate per patient enrolled for
the analysis population was 38.1% and the mean number of oocytes retrieved per attempt was 12.5 ± 6.7. For subjects at or below the 50th percentile, the
pregnancy rate was 38.0% (133/350; 95% CI, 32.9–43.3) compared with 36.1%
(125/346; 95% CI, 31.1–41.4) for those above the 50th percentile. For subjects at or below the 75th percentile, the pregnancy rate was 37.4% (195/522; 95% CI, 33.2–41.7) versus 36.2% (63/174; 95% CI, 29.1–43.8) for those above the 75th percentile. Pregnancy rates were also similar for subjects at or below the 95th percentile at 37.2% (246/662; 95% CI, 33.5–41.0) compared with subjects above the 95th percentile at 35.3% (12/34; 95% CI, 19.7–53.5).

**Conclusions:** In this study using a GnRH antagonist protocol, ongoing preg-
nancy rates were not affected by progesterone levels prior to the start of COS.
Differences between patient populations may account for the apparent discrep-
ancy between the present findings and previously published data.

**Support:** Financial support for this study was provided by Schering-Plough
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**O-223** Low circulating anti-Müllerian hormone and normal follicle stimulating hormone levels: which prognois in IVF program?
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**Introduction:** The aim of our study is to evaluate the results of controlled ovarian hyperstimulation (COH) for IVF in patients with low anti-Müllerian hormone (AMH) and normal basal follicle stimulating hormone (FSH) levels.

**Material and Methods:** A retrospective cohort study was performed in the IVF center at the Sèvres Hospital (France). A total of 704 women, for whom AMH and FSH levels (measured between days 3 and 5 of the menstrual cycle) were available, were included in an IVF program between January 2006 and December 2009. The median age of the analyzed women was 34.9 ± 4.4 years (range from 20 to 43 years). Three groups were designed: group 1 with AMH ≤ 2 ng/ml and FSH ≤ 10 mIU/ml (study group), Group 2 with AMH > 2 ng/ml and FSH ≤ 10 mIU/ml (control group) and Group 3 with AMH ≤ 2 ng/ml and FSH > 10 mIU/ml (ovarian insufficiency group). Main outcome measures were patients’ demographics, baseline FSH and AMH, ovarian response to stimula-
tion: total dose of FSH, Estradiol (E2) level on the day of hCG administration, number of retrieved oocytes, number of obtained embryos, clinical pregnancy and live birth rates.

**Results:** Out of the 704 women, 231 belonged to the study group, 419 to the second group and 54 to the third group. Patients of the study group were significantly older than those of the second group (36.6 ± 3.9 years vs 33.8 ± 4.3, p < 0.05) but not than those of the third group (36.6 ± 3.9 years vs 36.1 ± 4.2, p = 0.4). They needed significantly more FSH units for stimulation than those of the second group (4094 ± 1297 IU vs 2607 ± 1230 IU, p < 0.05) but less than those of the third group (4094 ± 1297 IU vs 5110 ± 974 IU, p < 0.001) and had a lower E2 level at the day of hCG administration than the second group (2190 ± 1307 pg/ml vs 2988 ± 938 pg/ml, p < 0.05) but not than those of the third group (2190 ± 1307 pg/ml vs 1694 ± 786 pg/ml, p = 0.03). Moreover, there was a significant difference between the study and the control groups for the number of retrieved oocytes (6.7 ± 3.8 vs 10.7 ± 5, p < 0.05), the number of total ob-
tained embryos (3.16 ± 2.2 vs 5.5 ± 3.5, p < 0.05), the clinical pregnancy rate per cycle (18% vs 40%, p < 0.05) and the live birth rate (8.2% vs 23.9%, p < 0.05) whereas the analysis showed no difference between the study group and the third group which was a poor responders group (6.26 ± 2.7 embryos obtained, 15.6% for the clinical pregnancy rate per cycle and 5.6% for the live birth rate, p = ns). There were also more cancelled cycles for low ovarian response in the study group than in the control group (24.7% vs 6%, p < 0.05) and the cancellation rate between the study and the poor responders groups was not statistically different (24.7% vs 37%, p = 0.07). Although usual cut-off AMH level is 2 ng/ml for predicting low ovarian response, our receiver operating characteristic curve calculated a cut-off level of 1.77.

**Conclusions:** This study demonstrates that women with a low baseline AMH but a normal FSH level have a similar response to COH than the poor respond-
ers patients with a premature ovarian failure revealed by FSH level beyond 10 UI/ml. Thus, when a woman undergoing IVF cycle presents a decreased AMH level, she might be considered as a poor responder patient whatever the FSH level is and, although the clinical pregnancy rate is not so low (18%), the couple should be informed of a higher risk of cycle cancellation.