Objective: To identify potential blood serum metabolites as biomarkers of the response to controlled ovarian stimulation (COS), in patients undergoing intracytoplasmic sperm injection (ICSI) cycles.
Methods: For this case-control study, serum samples from 30 patients <36 years old, undergoing COS for ICSI cycles, from January 2017 to August 2017, in a university-affiliated assisted reproduction center were analyzed. Samples were split into three groups depending on the ovarian response to COS: Poor Response Group: <4 retrieved oocytes (PR group, n=10), Normo Response Group: ≥8 and ≤12 retrieved oocytes (NR group, n=10), and Hyper Response Group: >25 retrieved oocytes (HR, n=10). The metabolic profiles of the serum samples were compared between the groups using the Principal Component Analysis (PCA). Receiver Operating Characteristic (ROC) curves were constructed to evaluate model's potential to predict response to COS.
Results: The PCA was able to clearly distinguish the PR, NR and HR groups, and 10 ions were chosen as potential biomarkers of response to COS. Those ions are more specific for PR group when compared to NR group. The ROC curve considering PR and NR groups presented an area under the curve of 99.6% (CI 95%: 88.9 - 100%).
Conclusion: This preliminary evidence suggests that blood serum metabolites may be molecular predictive markers of ovarian response to controlled stimulation. The integration of clinical and "omics" findings would allow migration towards the era of personalized treatment in the field of reproductive medicine.

O-04. The effects of overweight and obesity on Assisted Reproduction Technology outcomes

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Objective: To evaluate the impact of professional nutrition assistance on assisted reproduction treatments, in terms of fertilization rates, embryo quality and gestations, for overweight-obese PCOS women.
Methods: The study is a retrospective analysis of seven cases of SOP patients, of which five were obese and two were overweight presenting a borderline BMI. Patients' records were obtained from the Clinic database and from the nutrition Professional records. Patients were diagnosed with PCOS according to the criteria established by the European Society for Human Reproduction and Embryology and American Society for Reproductive Medicine ESHRE-ASRM 2003 PCOS criteria. Patients underwent controlled ovarian stimulation for ICSI. Classical ART protocols for superovulation, oocyte colection, fertilization and embryo culture and transfer were employed for ICSI cycles. The parameters analyzed were total number of oocytes, day-2 and day-3 embryo quality, day 5 or 6 blastocyst rate, biochemical gestations, abortions and live births. All seven patients were seen by the nutrition Professional. The treatment was directed to the patients' weight loss, lifestyle improvement, identification of their dietary pattern and promotion of changes in it to benefit the ART outcomes.
Results: Only three out of the seven women that underwent ART had a pregnancy and live births. The remaining four patients did not have a successful outcome from their ART treatments. The three patients that achieved gestation and live birth were patients that have adhered to the behavioral changes recommended by the nutrition professional.
Conclusion: The present study shows that bad eating habits seem to be related to poor assisted reproduction outcomes, in terms of ongoing and full term gestations. Positive ART outcomes may be achieved by women that adhere to the nutritional and lifestyle changes and maintained the new habits for a period long enough to conceive and sustain a pregnancy.

O-05. Evaluation of the influence of immunological factors and trombofilia factors in the decrease of the ovarian reserve

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Objective: To evaluate the influence of immunological factors (autoimmune and alloimmune) and thrombophilia (acquired and hereditary) in the reduction of ovarian reserve in young patients aged 18-35 years.
Methods: A cross-sectional study was carried with 96 women between 18 and 35 years of age. The ovarian reserve (OR) was evaluated on the third day of the menstrual cycle with the following predictors: antral follicle count (AFC), luteinizing hormone, antimullerian hormone, follicle stimulating hormone and estradiol. The sample was divided into two groups: Low Reserve (AFC≤5) and Normal Reserve (AFC>5). The presence of the following markers were evaluated: Autoimmunity (ANA, antinucleosome, lupus anticoagulant, anticardiolipin IgG, anticardiolipin IgM, antithyroglobulin, anti - DNA, CH50, C3, anti - TPO, TRAb); Hereditary Thrombophilia (Factor II, Factor V, A1298C and C677T alleles of the MTHFR enzyme); Alloimmunity (NK cell activity); Acquired thrombophilia (protein C and S deficiencies, homocysteine, and antithrombin III)
Results: The two groups were compared: Low Reserve (LR) (n=40) versus Normal Reserve (NR) (n=51) None of the autoimmune, alloimmune, and acquired thrombophilic factors were associated with decreased RO. However, the presence of hereditary thrombophilia factors were strongly associated with a decrease of ovarian reserve: Factor II was found in 23.8% LR versus 3.8% NR (OR 7.8, CI 1.2 - 34.4, p=0.04), presence of the MTHR C677T polymorphism allele in 47.8% LR versus 20.8% NR (OR 3.4, CI 1.8-12.5 , p=0.05) and the MTHFR A1298C polymorphism in 29.2% LR versus 6.7% NR (OR 5.7, CI 1.2-31 p=0.04).
Conclusion: The presence of autoimmune, alloimmune and acquired thrombophilia factors does not seem to influence the reduction of ovarian reserve in young patients. The presence of polymorphism in hereditary thrombophilia factors were strongly associated with decreased ovarian reserve, being that the presence of factor II, MTHFR C677T and MTHFR A1298C polymorphisms increasing the risk of ovarian reserve decreased by 7.8, 3.4 and 5.7 times respectively.