

## **P132. A non-randomized controlled trial of oral melatonin supplementation on ATPase 6 gene expression and IVF outcomes in Iranian infertile couples**

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**Objective:** To evaluate the effect of the oral melatonin supplementation on the outcomes of In Vitro Fertilization (IVF) and mitochondrial adenosine triphosphate production (MT-ATP6) gene expression in Iranian infertile couples.

**Study design, setting and patients:** A double-blind non-randomized clinical trial was conducted, recruiting 90 infertile couples who underwent IVF between May 2015 and February 2016 at the Infertility Center of Tehran Yas Hospital in Iran.

**Intervention:** Patients who were assigned to the intervention group received oral melatonin as a supplementation to the standard controlled ovarian stimulation (COS) with the GnRH-a long protocol. Infertile patients who were assigned to the control group only received a COS protocol.

**Main outcome measures:** Primary outcomes were the mean number of mature oocytes retrieved and the embryo quality. Secondary outcomes were mRNA level of MT-ATP6 gene in cumulus cells, and biochemical and clinical pregnancy rate.

**Results:** The mean number of poor quality embryos was significantly lower in the intervention group than control group (0.27 vs. 0.80;  $P = 0.028$ ). The biochemical pregnancy rate and clinical pregnancy rate by fetal heart were higher in the intervention group (24% vs. 14%;  $P = 0.089$  and 14% vs. 7%;  $P = 0.302$ , respectively), but the difference was not significant. The mRNA level of MT-ATP6 gene in cumulus cells between intervention and control groups was not statistically significant (0.931 vs. 1;  $P = 0.05$ ).

**Conclusion:** Melatonin supplementation during COS in women undergoing IVF significantly reduce the number of poor quality embryos and it is useful in infertile couples who have poor clinical outcomes.

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