

## **617: Effect of intrauterine and lactation exposure to nicotine on oocyte quality of adult rats**

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### **Objective**

This work aimed to verify the quality of the female gametes of rat offspring exposed to nicotine during intrauterine and lactation phases.

### **Design**

The gonadal development begins in the intrauterine phase and women are born with an established oocyte reserve. Exposure to drugs during gestation can compromise the offspring health, which includes loss of quality of the gametes. Nicotine (main component of cigarettes) is a potent pro-oxidant, able to alter fertility of men and women. As oocytes are susceptible to oxidative stress, this drug can cause damage to cellular membrane, changes in oocyte maturation and may induce errors during chromosome segregation. Besides, it can cause increase of oocyte DNA fragmentation. The oocyte mitochondria are susceptible to injuries, which may affect oocyte quality and future embryo development. Thus, considering the high number of women who smoke during pregnancy and the importance of the events that take place in the embryonic development for future offspring fertility, our group has been studying the gametes quality of rats progenies from dams exposed to nicotine.

### **Materials and Methods**

For this purpose, 10 pregnant and lactating rats received nicotine through an osmotic minipump (2mg/kg/day), mimicking human moderate cigarette consumption (nicotine group). Other 10 rats received the minipump implant without nicotine (control group). The oocytes were analyzed for viability (propidium iodide), level of lipid peroxidation (BODIPY), mitochondrial function (MitoTracker) and generation of reactive oxygen species (Cellular Reactive Oxygen Species Detection Assay Kit) when the female offspring were 90 days-old. The results were submitted to statistical analyses using SigmaPlot Software. Test t were applied for parametrical and Man Whitney for non-parametrical parameters ( $p \leq 0,05$ ).

### **Results**

Although oocyte mitochondria from nicotine group showed reduced activity (5667.65) when compared to control group (8249.32), no statistical differences between groups for all fluorescent labeling parameters performed were found.

### **Conclusions**

Nicotine seems not to have a negative effect on oocyte after exposure during pregnancy and breastfeeding. However, other analyzes are being conducted to evaluate the DNA quality of these oocytes.

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### **Disclosure**

None