



## P9- The Disorder Polycystic Ovary in Rat in Continual Presence of Morphine

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### Abstract

**Objective and Aim:** Morphine is an opioid receptor agonist that is abused abundantly throughout the world. The metabolic pathways due to opioids may induce the inflammatory returns. In this study, the effect of morphine chronic injection on rat's ovary was examined.

**Materials & Methods:** Twenty-four female Wistar rats obtained from Pasteur Institute of Iran weighing 200-250 g were used as the subjects. They were housed as virgin at the animal care center of Shahed University. The animals in groups four per polyethylene cage were fed on standard pellet diet (provided from Pars animal food Co., Iran) under  $21 \pm 3$  °C with 12 h light. They were divided into three groups based on the drug dose (1, 5, and 10 mg/kg) given intra-peritoneally (*i.p.*) through a 9- day period time. The fourth group of rats was solely injected saline solution (1 mL/kg, *i.p.*) during the period. After the experiment, all animals were surgically studied to collect the ovaries samples in 10% Formalin. The samples were stained with Hematoxylin and Eosin method. Also, they were observed by a biochemical marker for the nitric oxide synthase enzyme. **Result:** The rats' ovaries showed polycystic characteristics in comparison with the control. They had the thick - wall follicular cysts (at least 6 per ovary) like the polycystic ovaries disorder. The cysts' walls significantly showed the pro-inflammatory agent, the nitric oxide, producing enzyme activation. **Discussion & Conclusion:** The enhanced irregularity in the opioid system activity has been reported in polycystic ovary syndrome (PCOS). Based on these results, the chronic usage of the opioid drug, morphine, may impact on the inflammatory NO to induce infertility due to disorder the polycystic ovary.

**Keywords:** Follicular Cysts, Opioid Drug, Morphine, Nitric Oxide, Rat