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INTERACTION OF METOCLOPRAMIDE WITH INDUCTION OF POLYCYSTIC OVARY DUE TO MORPHINE IN RAT

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Background and Aim : Polycystic ovary syndrome (PCOS) is one of the most common endocrine and metabolic disorders in premenopausal women. Drugs including morphine have been known to play effective role in the incidence of this complication. According to previous studies, Morphine increases prolactin secretion. Dopamine (DA) holds a predominant role in the regulation of prolactin (PRL) secretion. The presence of dopamine receptors in ovarian tissues suggests a complex role of DA in the regulation of ovarian processes tissues. Metoclopramide is known as dopamine receptor antagonist (D2) and has clinical uses, especially as Anti-nausea. In this study, it was used to inhibit D2 receptor to interaction with morphine.

Methods : In this study, 48 female virgin Wistar rats (diestrus phase) with a weight range of 220-250Grm were studied. In the first group, morphine (5mg/kg) was injected intraperitoneally (i.p.). Control group only received saline (1 ml/kg). The second group, received Metoclopramide (0.4, 0.2, 0.1 mg/kg). In the third group, Metoclopramide was injected 20-min prior to morphine. 48 rats after work, were killed and under surgery, the ovaries and uterus were collected and investigated. Statistical analysis was performed using Analysis of Variance.

Results : The group of receiving morphine showed polycystic view. The metoclopramide treated group showed no polycystic structures. In the group receiving metoclopramide before morphine the numbers of cysts in the ovaries of rats are increased. None of the groups showed significant changes in ovarian size compared with the control group, But, in the groups of receiving metoclopramide before morphine and only morphine were shown relative decrease of Diameter of Uterus.

Conclusion : According to the results, metoclopramide through its antagonistic effect on dopamine receptors presumably with the elimination of the inhibitory effect of dopamine on prolactin secretion increased the polycystic structures induced by morphine. The creation of polycystic structures in PCOS can be related to the prolactin pathway.

Keywords : Morphine, Metoclopramide, polycystic ovarian syndrome, Rat