

Summary

In the experiment, (90) male mice were used and divided into three groups, each group consisting (of 30) mice, the first group (control) administration of normal saline, the second group administration Amitriptyline, and the third group administration Escitalopram. The dose for each group was (0.42µl/day) for six weeks twice a day. During the study period, the weights were measured at the end of the week (second, fourth, sixth), euthanasia and blood collection for CBC test, and hormones examination (luteinizing hormone (LH), follicle-stimulating hormone (FSH), testosterone), organ weight (testis, epididymis, seminal vesicles), semen collection from the epididymis for sperm examination (concentration, motility, dead), determined the tissue changes of the organs (testis, epididymis, seminal vesicles) due to the drug by using two types of staining, hematoxylin-eosin, periodic acid-Schiff's reagent (PAS) and histomorphometric study (the diameter of the seminiferous tubes, the diameter of the epididymis duct, numbers of cells: spermatogonia, primary spermatocyte, secondary spermatocyte, spermatid).

The results of the study showed that in the Amitriptyline group, a significant decrease ($p < 0.05$) in body weight, while in the Escitalopram group there was an increase in weight ($p < 0.05$) compared to the control group, and there was a significant decrease ($p < 0.05$) in the weight of testis, epididymis and seminal vesicles for each Amitriptyline and Escitalopram groups in fourth week. Significant changes were observed in blood parameters, a significant decrease ($p < 0.05$) in the level of FSH hormones in the Amitriptyline group in second, fourth and six weeks and no significant changes in the level of FSH in the Escitalopram group, significant decrease in the level of LH hormone and the decrease in the Amitriptyline group was more than the decrease in the Escitalopram group in the second and fourth weeks, while in the sixth week there were no changes in the level of LH in the Escitalopram group, while the decrease continued in the Amitriptyline group, significant decrease in the testosterone level in the Amitriptyline group was more than that in the Escitalopram group over six weeks, Significant decrease in sperm concentration and motility in the Amitriptyline group more than the

decrease in the Escitalopram group and significant increase in the number of dead sperm in both groups.

There is no significant change in the diameter of the seminiferous tubules and the diameter of the epididymis in both groups over six weeks, as well as a significant decrease in the number of cells (spermatogonia, primary spermatocyte, secondary spermatocyte, spermatid) in both group.

The results of the study showed histological changes in the testis of mice in the Amitriptyline group are present space between spermatogonia cells, present space between the layer of the spermatogonia and primary spermatocyte cells, the proliferation of sertoli cells, decrease of primary spermatocyte and lumen of seminiferous tubules is wider and decrease in spermatid.

As for the Escitalopram group, it showed decrease in spermatogonia cells, present space between the layer of the spermatogonia and primary spermatocyte cells, and layers of cells (spermatogonia, primary spermatocyte, secondary spermatocyte, spermatid) irregular in arrangement, absence of spermatid layer, lumen wider, absence of lumen, change in the size of cells, absence lumen and the interaction of the basement membrane with PAS in the second and fourth week was moderate for both Amitriptyline and Escitalopram, but in the sixth week the interaction was strong for both groups compared to the control group, where the interaction of the control group was weak.

There were histological changes in the epididymis in both group, the changes in Amitriptyline group are presence of gap between the epithelium cells, the absence of sperm in the lumen, the lumen became narrow and irregular, hypertrophy of epithelial cells. While the changes in the Escitalopram group are hypertrophy of epithelial cells, decrease sperm in the lumen, presence of circular immature sperm, the epithelial cell layer cells changed from the pseudostratified columnar to simple columnar, the cell shape changed from the columnar to the cuboidal shape and the interaction of the basement membrane with PAS in the second week was moderate for both Amitriptyline and Escitalopram, but in the fourth and sixth week the interaction was strong for both

groups compared to the control group, where the interaction of the control group was moderate.

The results of the study showed histological changes in the seminal vesicles in both groups, the changes in Amitriptyline group were an increase in the number of folds, stratification of epithelial cells, epithelium metaplasia, lumen narrow and a decrease in eosinophil secretion . The changes in the Escitalopram group were an increase in the number of folds, narrowing of the lumen of seminal vesicles , decrease in eosinophil secretion , stratification of epithelial cells and the interaction of the basement membrane with PAS in the second week was moderate for Amitriptyline and strong for Escitalopram , but in the fourth week the interaction was weak for both groups compared to the control group, and in the sixth week was strong for both groups compared to the control group, where the interaction of the control group was strong.