

Summary

This study included 3 stages. In the first stage, *Toxoplasma gondii* was isolated from aborted women placenta who visited Bent Al-Huda hospital and Al-Shatra hospital after confirmation of the presence of parasite by impression smear method. Then parasite suspension injected 0.3 ml which contain 100 cyst intraperitoneally (174 rat) to 87 male and 87 female rats, in addition to control group 30 rat (15 male and 15 female). After 10 days of injection, diagnosed the acute infection by Real- Time Polymerase Chain Reaction (Real-Time PCR) and showed 97.70% (170 infected rat and 4 noninfected rat) , in male 96.55% (84 infected rat and 3 noninfected) , in female 98.85% (86 infected rat and 1 noninfected) . After 2 months of infection 84 animals (42 males and 42 females) were sacrificed, dissected (brain, testis and ovary) were isolated to confirm the occurrence of chronic infection with the using Real- Time PCR. The incidence of infection was 100% in brain males and ovary females and recorded 71.43% in testis and 90.48% in brain females. So diagnosed infection by impression smear method, identified the amount of DNA of the parasite *T. gondii* by using Real-Time PCR. The use of the remaining number of animals within the following experiments.

The second stage included effect of experimental Toxoplasmosis infection and some drugs on fertility 168 rat (84 male and 84 female). Animals were subdivided into 6 groups for each group included 14 rat: (First group) non infected treated by DMSO, (Second group) non infected treated by Sulfadiazine, (Third group) non infected treated by Pyrimethamine, (Fourth group) infected treated by DMSO, (Fifth group) infected treated by Sulfadiazine and (Sixth group) infected treated by Pyrimethamine.

The current study results revealed prominent effect of *T. gondii* infection on the hormonal level in both males and females. *T. gondii* infection induced significant decline in Luteinizing Hormone (LH), Follicle Stimulating Hormone

(FSH) and Testosterone levels in infected male compared with non infected males treated by DMSO. Sulf. and Pyr. treatment significantly elevated the level of these hormones ($P < 0.01$) in infected males compared with fourth group similar to levels its in first group. Toxoplasmosis in female rats significantly decrease FSH, LH, Estrogen and Progesterone levels in compared with first group, while treating of infected females with Sulf. and Pyr. didn't improve the declined levels of these hormones in infected and noninfected females compared with fourth and first group, respectively.

The study showed that Toxoplasmosis in male rats induced significant decline in the sperm count in the epididymal cauda, sperm viability and relative weights of male sexual organs with an increase in sperm malformation ratio in infected male compared with first group. Treatment with Sulf. and Pyr. in infected male significantly elevated the sperm count and viability ($P < 0.05$), compared with fourth group. Sulf. didn't induced further significant changes, but Pyr. induced further significant increase in sperm malformation ratio in infected ($P < 0.01$) and non infected ($P < 0.05$) rats.

The study also revealed that Toxoplasmosis significantly decrease the relative weight of ovary and uterus compared with first group, while treatment with Sulf. and Pyr. increased the declined relative weight of the ovary and uterus in the infected females.

Testicular histological section of Toxoplasmosis infected male rats treatment with DMSO showed vacular degeneration of spermatogonia and spermatocytes. The seminiferous tubules revealed sever degeneration, shrinkal, necrosis, hemorrhage. Seminiferous tubules lumen contained little amount of sperm with appearance of gaint cell, polymorphonuclear leukocytes and exfoliated cellular debris. Metamorphosis and disintegration of the tissue between the seminiferous tubules was also observed compared to the first group that showed complex histologically intact while testes sections of infected rats

treatment Pyr. and Sulf. showed improvement by removing histocompatibility damage caused by the parasite infection.

The epididymal sections of *T. gondii* infected rats treatment with DMSO showed infiltration of mononuclear and multinucleated gaint cell. Sections also showed hyperplasia of duct lining and contained tissue cyst of *T. gondii*. All these changes were improved in infected males treated by Sulf. and Pyr.

Ovary sections of the infected females treatment with DMSO compared with first group revealed decreased primary and secondary follicle increased follicle atresia. Histological sections of ovary females showed in the fifth and sixth group to increase the number of primary and secondary follicles and decreased number of follicle atresia compared overian sections for the fourth group. Uterine sections of the infected females treatment with DMSO showed hypertrophy, increase endometrial thickness and myometerium, increase polymorphonuclear cell infiltration, fewer glands and congestion of blood vessels compared with first group. Histological sections for ovary females of the fifth and sixth group showed changes but less severe than is present in the fourth group.

In third stage from studying Toxoplasmosis on fertility parameters of male and female rats, 84 rat(42 male and 42 female) which showed the results of the current study, when paired fertilized healthy females by males is infected and infected of *T.gondii* treatment with Sulf. , Pyr. and DMSO, and inversion, there is the effect of the parasite and used drugs the percentage of getting pregnant and pregnancy size and rate of embryos weight and placental weight and increase the proportion of fetal resorption and the proportion of early loss of embryos in fertilized healthy females by males five groups compared to the first group.Based on that conclude from the study that the infection of parasite *T. gondii* had negative effects on the fertility of male and female, and that all of the Pyr. and Sulf. were not honest is the other of the impact on reproductive functions.