

Genomics 2018: Chronic exposure to lead induces decreased sex hormones and spermatogenesis disturbance in male Wistar rats: A Review Article-

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Many authors have reported adverse effects of environmental pollutants on sexual function, such as tobacco pesticides and heavy metals. Exposure of heavy metals has been associated with adverse effects on development of gonads. In animals, exposure to lead could damage. Several experimental studies have reported impairment of the spermatogenesis but the mechanisms implied in the pathogenesis are not yet completely understood. Therefore, the present study was undertaken in albino rats to investigate the effects of lead on spermatogenesis on the one hand and testicular and serum gonadotropins and testosterone levels on the other.

Methods: For this study, ten male pubescent rats were randomly divided in two groups (n=5 in each group). The control group received distilled water and the experimental groups received the lead acetate solution (0.3%) while 90 consecutive days. After 90 days, the rats were euthanized. The blood and the testes were sampled for carrying out of the different tests.

Testicular cyto architecture of the benchmark groups were in typical clusters. Groups given 0.5% and 1.0% Lead showed extreme deteriorated sperm cell film, serious declined stretched seminiferous epithelium, not very many spermatozoa and spermatogenic cells, augmented lumen and nonattendance of Sertoli cells while the group regulated 1.5% Lead acetate solution for 9 and 12 weeks showed deteriorated sperm cell layer, seminiferous epithelium and tubule, sloughed off germ cells, decay, serious vacuolation, presence of apoptotic cells, enlarged lumen, nonappearance of spermatogenic cells and spermatocytes, serious development capture, nonattendance of Leydig cells, putrefaction and declined interstitial space.

Discussion: Pb has been identified with a wide scope of dysfunctions physiologically and biochemically that prompts the acceptance of oxidative pressure and arrival of reactive oxygen species, in this way assuming negative parts in testicular harm.

In the current investigation oral administration of lead acetate solution on male rodents influenced the testicles and caused histological and seminiferous-hormonal changes and it's anything but

a more drawn out timeframe effectively affected generation and sperm boundaries.

Critical decrease ($P<0.05$) in body loads seen in the groups managed 1.0% and 1.5% of lead acetate solution for a time of 6, 9 and 12 weeks were demonstrative of atrophic changes that had occurred in the testicles. This was in concurrence with (14) who announced testicular decay of rodents treated with lead acetate solution. This was likewise in concurrence with (13-18) who revealed that testicular loads essentially declined in lead-treated mice and Wistar rodents contrasted with control groups separately, accordingly featuring expanded catabolism and metabolic irregularity as one of the significant reasons for it. Lead gathering in the male extra organs like the prostate and epididymis weakened sperm motility. For fruitlessness in guys to be resolved, legitimate assessment of the hormonal levels is extremely helpful determinant. Lead likewise causes hormonal lopsidedness by influencing the neuroendocrine framework and upsetting the discharge of androgens from Leydig cells. The critical decrease in serum FSH, Testosterone and LH levels were evident on a portion span subordinate way. It confirmed with (16,20) who detailed that Lead acetate solution effect also affected testis steroidogenic work, serum gonadotropin levels and testosterone levels contrasted with control. These decreases changed hormonal equilibrium and caused neuroendocrine framework disturbance.

Results: The results indicate hypertrophy of the testes in the exposed rats. In addition, we have observed a significant reduction in sex hormones and a highly disturbed spermatogenic process.

Conclusion: The present study demonstrates that lead accumulation in the blood affects male fertility by disrupting the biosynthesis of gonadotropins and testosterone as well as the process of spermatogenesis.