

49: IMPACT OF JUVENILE PERIOD MALATHION INTOXICATION ON ROUND SPERMATIDS POPULATION OF ADULT MOUSE TESTIS

AHMAD, LAIQ¹

¹Department of Zoology, Government College University, Faisalabad, Pakistan

Objective

Studies on risk assessment of environmental toxicants, drug development and animal's fecundity are solely structured on quantifying methodologies in gametogenesis. Besides advancement in 3D computational concept, computerized tools and software, conventional stereological approaches are still robust and reliable to ascertain risk assessment of malathion intoxication on spermatogenesis in rodents.

Design

Current study determined the more susceptible period of malathion intoxication to testicular machinery of mice during postnatal periods.

Material and Methods

For this purpose male mice (n=12) were exposed to two doses of malathion, low (50mg/Kg/day) and high (100mg/Kg/day), during three development periods, infant, juvenile and adult periods, from onset to consecutive 20 days. The testicular structural and functional integrity was determined by stereological analysis including volumetric density approach (VDA) and optical dissector approach (ODA) and statically compared employing two-way repeated measure ANOVA.

Results

The morphometric analysis ascertained the significant ($P<0.05$) decrease in mean testicular volume, weight, length and width of mice treated at juvenile period with both malathion treatments compared to sham and mice treated at adult period. However, the mean seminiferous tubule diameter was appreciably increased in mice treated at juvenile period with malathion doses. The ratio of volume density of seminiferous epithelial thickness to round spermatids ($V_{\text{vepi-t}}:V_{\text{vrnd-sp}}$) was noticeably ($P<0.001$) the highest in testis exposed to malathion doses during juvenile period compared to other treatments. Moreover a tremendous 47% and 6% decline was estimated through VDA, in round spermatid population of testes treated with both malathion doses during juvenile and adult periods respectively.

Conclusions

The juvenile period for malathion intoxication was found more potent than others while volume density ratios were ensued worthwhile to evaluate the reproductive toxicity.

Support

None