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9. Potential role of vitamin C as an antioxidant on Bisphenol(BPA) induced oxidative stress in wistar rats

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Introduction:

Bisphenol A (BPA) is considered one of the most common industrial manufactured chemicals. Vitamin C is an important dietary antioxidant which significantly decreases the adverse effects of reactive oxygen species

Objective of the study:

To evaluate the damaging effect of Bisphenol on testes and the role of vitamin C on Bisphenol induced testicular damage

MATERIALS AND METHODS:

Institutional ethics committee clearance was obtained before beginning the experiments. Animals were divided into the following groups with 6 rats in each group; Group 1: Control Group (Olive oil treated) Group 2:(Vitamin C treated), Group 3: (Bisphenol treated), Group 4: (Vitamin C + Bisphenol treated). Testicular tissue was processed to measure MDA and GSH level, sperm count & sperm morphology, histology. Serum level of testosterone was estimated.

Results:

Results of the present study showed a significant decrease in the level of GSH & sperm count and testosterone level and increase in MDA in Group 3 compared to GR.1 and GR.2. Pre-treatment with Vitamin C showed an increase in the level of GSH and testosterone as well as sperm count compared to Bisphenol treated rats. Histological results were supported the biochemical results. Vitamin C also showed decrease in sperm shape abnormality which was induced by Bisphenol intoxication

Conclusion: Thus we have hypothesized that vitamin C could act as an antioxidant against BPA induced oxidative stress.

Discussion: Vitamin C is an endogenous water soluble antioxidant. Results of the present study showed there was significant increase in the tissue level of GSH in the rats co-administered with BPA and vitamin C.

Key words: Bisphenol, oxidative stress, testosterone, Vitamin C