

Acrylamide Induced Chronic Nephrotoxicity in Rats

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Abstract : Acrylamide (AA) has been shown to cause neurotoxic effects in humans and neurotoxic, genotoxic, reproductive, and carcinogenic effects in laboratory animals. To investigate the nephrotoxic effect of acrylamide (ACR) 50 adult male rats (Wistar, approximately 250 g) were randomly assigned in 4 groups; including 3 treatment groups and 1 control group named as A, B, C, and D respectively. Rats in treatment groups were exposed to 0.1, 1, and 10 mg/kg ACR per day×90 days p.o (gavage) respectively. The remaining 10 rats in control group received daily p.o (gavage) of 0.9% saline (3ml/kg). On day 91, two rats were randomly selected, perfused, dissected and proper samples were collected from their kidneys. Results of histopathological studies based on H&E technique did not show morphologic changes in kidneys of rats belong to groups A, B and D, while moderate to severe morphologic changes including glomerular hypercellularity, global pattern of proliferative glomerulonephritis, occupation of capsular space, and tubular cell swelling and hyaline cast formation, were observed in different stained sections obtained from the kidneys of rats belong to group, C. This finding, beside neurotoxic, reproductive and carcinogenic effects, indicates for the first time another important aspect of toxic effect of ACR, ie, chronic nephrotoxicity.

Keywords : acrylamide, nephrotoxicity, glomerulonephritis, rats

Conference Title : ICVBS 2014 : International Conference on Veterinary and Biomedical Sciences

Conference Location : Istanbul, Türkiye

Conference Dates : June 19-20, 2014