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Histological and biochemical effects of diazinon on liver and kidney of rabbits.

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Summary:

Pesticides are organic materials manufactured forcibly added to the environment to control specific organisms such as mosquito, flies and other insect pests' objects. The exposure to organophosphorus pesticides causes health problems for workers in the field of agriculture. Some of them have high toxicity to mammals. The organophosphorus pesticides widely used globally, so their effects remain in the crop and transmit their toxicity to animals and humans, causing health hazards and severe economic losses. It has been proven beyond changes in blood and histopathological criteria, whether to humans, animals or the environment. The present study was carried out to investigate the effect of diazinon on histological and biochemical aspect of liver and kidney of rabbit. Fifteen males of New Zealand white rabbits weighing ١.٨- ٢ kg were housed in the laboratory at controlled light and temperature. They were provided with rabbit chow and fresh water. Animals were divided equally into ٣ groups, G ١ were considered as controls, G٢ treated with ٢٠ mg diazinon/kg body in drinking water every ٤٨ hrs, while G٣ treated as in G٢ for ٤ weeks. Animals were dissected after two and four weeks, two blood samples were drawn from each animal for CBC and biochemical analysis, while tissues samples from their livers and kidneys were immediately processed for microscopic examination. Diazinon induced blood vessel congestion, leukocytic infiltrations in the liver parenchyma in addition to cytoplasmic vacuolations, fatty degeneration and pyknotic nuclei in the hepatocytes. On the other hand, renal damage was observed in the kidneys of treated rabbits. Renal tissues showed hypertrophied glomeruli, destruction of its lining epithelia. Renal blood vessels were congested and the inter-tubular spaces were filled with red blood cells. Biochemical investigation proved that treatment with diazinon for ٤ weeks induced a significant increase in ALT, AST, creatinine and blood urea. Finally, the investigators concluded that diazinon toxicity induced hepatocellular and renal damage.