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Effect of chronic exposure to diazinon on glucose homeostasis and oxidative stress in pancreas of rats and the potential role of mesna in ameliorating this effect

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Residential and agricultural pesticide use is widespread in the world. Their indiscriminate use with their ability to interact with biological systems, constitute a health hazard. 40 adult male rats were classified into three groups; control received corn oil (10mg/kg/day). Diazinon received diazinon (10mg/kg/day). Mesna group (15 rats) received mesna 180mg/kg once a week 15 min before administration of diazinons. At the end of the experiment (2 months), animals were anesthetized, blood samples were taken for glucose and insulin assays & pancreas were removed and divided into 3 portions; for histopathological, ultrastructural and biochemical studies. A significant increase in the levels of malondialdehyde, TNF- α , myeloperoxidase activity, IL-1 β , serum glucose levels in the toxicated group were observed, while a significant reduction was noticed in GSH and in serum insulin levels. After treatment with mesna a significant reduction was observed in the previously mentioned parameters except that there was a significant rise in GSH & in insulin levels. Histopathological and ultrastructural studies showed destruction in pancreatic tissues and the β cells were the most affected cells. This study shows the role of antioxidant drugs in ameliorating the toxicity that is considered as a complementary treatment of pesticide toxicity.

Biography

Azza El-Medany has completed her PhD at the age of 32 years from Alexandria University and Postdoctoral studies from Alexandria University College of Medicine. She is Prof. of Pharmacology and Vice Head of Department of Pharmacology, College of Medicine, KSU. She published more than 25 papers in the areas of GIT & toxicological researches, in reputed journals and is serving as a member of a number of Professional Bodies; was a speaker in several international conferences, the last ones in Singapore & Japan 2013. She is a recipient of awards for scientific research & teaching.

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