OMICS Group Conferences
Accelerating Scientific Discovery

2nd International Summit on
Toxicology

October 07-09, 2013 Hampton Inn Tropicana, Las Vegas, NV, USA

Adverse effects of exposure to analgesic/antipyretic drug "paracetamol" and an organophosphorus insecticides "diazinon" on the liver of male rats

Tarek M. Heikal, Abdel-Tawab H. Mossa and Enayat Abdel Aziz Omara
National Research Centre, Egypt

The interaction of chemicals (e.g. drugs and pesticides) with the biological system is a complex phenomenon and is ultimately an expression of the interplay between the environment, the host and chemical substance. It is evident from the literature, which is very limited, that drug/insecticide interactions can result in altered response/toxicity, which is of clinical relevance. The present study was conducted to evaluate the adverse effect of exposure to diazinon (DIA) and paracetamol (PARA) and their combination on liver of male rats. Rats were orally administered PARA at a dose of 66.66 mg a.i. kg^{-1} body weight (maximum administration dose) and DIA at a dose 12.50 mg a.i. kg^{-1} b.wt. (1/100 LD50) for 28 consecutive days. Significantly, decreased body weights were observed in all treated groups, while significant increase in relative liver weight were recorded in DIA and DIA+PARA-treated groups compared to control rats. Liver dysfunction enzymes (e.g., aspartate aminotransferase, AST; alanine aminotransferase, ALT; alkaline phosphatase, ALP and lactate dehydrogenase, LDH) and lipid peroxidation level (LPO) were increased in DIA, PARA and DIA+PARA-treated groups. Treatment of DIA and DIA+PARA caused significant decrease in the activity of serum cholinesterase (ChE). PARA, DIA and PARA+DIA treatments caused histopathological changes and decrease in DNA content in liver cells of rats. The severities of such observations were more pronounced in their combined exposure. We can conclude that both paracetamol at maximum administration dose and diazinon caused biochemical and histopathological alteration in the liver of male rats. The severities of such observations were more pronounced in their combined exposure. The data throw light on the problem of simultaneous exposure to OPIs and commonly used drugs especially among agriculture sector workers in developing countries, where the handling of drugs (e.g., PARA) is mainly without medical prescription. Further studies, applied to pregnant women, newborns and childhood may be of great significance.

Biography

Tarek M. Heikal has completed his Ph.D. from Cairo University and postdoctoral studies from National Research Centre. Currently, he is associate Professor of narcotics and poisons, Environmental Toxicology Research Unit. He published more than 20 papers in reputed journals and serving as an editorial board member of many journals.

tarekhl@yahoo.com