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Ansam J Altelchy et al., Toxicol Open Access 2017, 3:1 (Suppl)
http://dx.doi.org/10.4172/2476-2067.C1.003

The efficacy of Doxocycline, Rousovastatine and Spironolactone on cardiotoxic effect of Doxorubicin in female Albino rats

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Background & Aim: Cardiotoxicity that is caused by chemotherapy is a devastating disorder that impairs the ability of the heart to respond to physiological demands for increased cardiac output that may result in heart failure. This led to the attempt of evaluating the efficacy of Doxycycline, Rosuvastatin and Spironolacton in Doxorubicin induced cardiotoxicity. The aims of this study are to assess the ability of these drugs to attenuate Doxorubicin induced heart failure in rats and to compare among them regarding their ability to cause remarkable structural, biochemical, and histopathological changes that preserve normal cardiac function.

Methods: 46 female Albino rats, 8-12 weeks old, weighing 140-200 grams were used in the study. The animals were housed in groups of 8 and 10 per cage, on sawdust in the animal house facility, under conditions of controlled ambient temperature of 22-25°C with a 12 hour light/ dark cycles. The animals were supplied with rodent chow and free access to tap water. They were divided in to 3 groups. The control group which included 8 rats, Doxorubicin group, included 8 rats and treatment group, each included 10 rats. All groups were treated for a period of 4 weeks. Mean serum (BNP), (CgA), (TC), (HDL), (LDL), (TG) and (UA) levels, in addition to the histopathological studies, are the estimated parameters used in this study.

Results: All drugs used in the treatment group showed a degree of cardioprotection effect against Doxorubicin induced cardiotoxicity, and caused a significant reduction in mean serum BNP, CgA, total cholesterol, TG, LDL, and uric acid levels and increment in HDL as compared with Doxo group. While Spironolactone appeared to be inferior in amelioration the parameters that accompanied with cardiac toxicity was induced by Doxorubicin, than the other drugs in the treatment group. In conclusion, Rosuvastatine appeared to be the most beneficial in amelioration of Doxorubicin induced cardiac toxicity.

Biography

Ansam J Altelchy has finished her BSc Pharmacy in 2010. She has embarked on experiential job as a rotational Clinical Pharmacist at different hospitals. After one year of training and gaining experience, she was offered by Hawler Medical University to be a Demonstrator in pharmaceutical labs. She has obtained MSc degree in 2015 from Hawler Medical University- College of Pharmacy. She is currently holding a post of Assistant Lecturer in the Pharmacology and Toxicology Dept. in the same University and is interested in pursuing PhD in the near future.

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