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Protective effect of *Hypericum triquetrifolium* Turra on cyclophosphamide induced cardiotoxicity in rat

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Cardiotoxicity is one of the limiting side effects of this commonly used anticancer agent and cardio toxic effects of cyclophosphamide (CP) were found to be dose-related cardiac damage, morphologically defined as necrosis and bleeding. *Hypericum triquetrifolium* Turra (HT) has a phenolic component with anti-oxidative and anticarcinogenic properties. This study aimed to investigate the possible protective effect of HT on CP-induced cardiotoxicity. Serum aspartate transaminase (AST), alanine transaminase (ALT), lactate dehydrogenase (LDH), malondialdehyde (MDA), creatine kinase-MB (CK-MB), total oxidant state (TOS), total antioxidant state (TAS) and oxidative stress index (OSI) were examined. Furthermore, the cardiac tissues were analyzed histologically. Albino rats (Wistar, 3-4 months old, male, weight 220±20 g healthy) were randomly divided into 9 groups, each including 7 animals: Group 1 (control) treated with 0.5 ml saline; Group 2 treated with 150 mg/kg CP; Groups 3, 4 and 5 treated with 25, 50 and 100 mg/kg HT respectively; Groups 6, 7 and 8 treated with 25, 50 or 100 mg/kg HT+CP respectively; and Group 9 treated with 0.5 ml-0.2% DMSO. The results were analyzed by one way analysis of variance and Kruskal-Wallis one way analysis of variance on ranks test. Levels of AST, ALT, LDH, MDA, CK-MB, TOS and OSI were found high only in the CP groups. GSH and TAS levels were found low in the only CP groups. It was also observed that CP-induced cardiotoxicity was dose dependent. Hemorrhage, inflammatory cell infiltration and the separation of the muscle fibers in the heart tissue supported the biochemical data. With 25, 50, 100 mg/kg HT, there was a significant decrease in the CP toxicity; reduced inflammation and lipid peroxidation in the heart tissue and increase of serum glutathione (GSH) and total antioxidant capacity (TAS) levels were found when HT was applied. Based on these findings, it can be proposed that HT was a strong candidate in preventing the CP-induced cardiotoxicity but further clinical studies need to be done in order to verify its application on humans.

Biography

Songul Cetik is an Assistant Professor at Vocational Higher of Health Services, Mardin Artuklu University in Turkey. She has completed her graduation from Eskişehir Osmangazi University, Faculty of Arts and Sciences, Department of Biology, 2009. She has done her Post-graduation from Eskişehir Osmangazi University, Faculty of Science, 2014.

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