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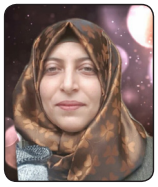
Abstract



Amelioration of neuroadverse effect of doxorubicin with vitamin E and coenzyme Q10 in rats: role of apoptosis

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Abstract:

Objective: This work was designed to investigate the effect of Vitamin E and the coenzyme Q10(CoQ10) supplementation on neuroadverse effect by doxorubicin (Dox) in rats. Methods: Forty-nine adult Albino rats of both sexes were utilized in this study; animals were randomly enrolled into seven groups of seven animals each. Group I: Control (rats administered corn oil); Group II: Vitamin E at a dose of 100 mg/kg/day for 3 weeks; Group III: CoQ10 at a dose of 50 mg/kg/day for 3 weeks; Group IV: DOX (2.5 mg/kg) intraperitoneally (IP) injected every other day for 2 weeks; Group V: Vitamin E (100 mg/kg/day) orally administered for 3 weeks prior to a DOX 2.5 mg/kg IP injected every other day for 2 weeks; Group VI: Co Q10 (50mg/kg/day) for 3 weeks orally-administered prior to a IP dose of Dox 2.5 mg/kg every other day for 2 weeks. Group VII: Co Q10 (50mg/kg/day), Vitamin E (100mg/kg) for 3 weeks orally-administered prior to a IP dose of Dox 2.5 mg/kg every other day for 2 weeks. Twenty-four hour after the end of the treatment duration, brain of each animal was excised and part of it to be utilized to prepare homogenate for the estimation of caspase-3 (CASP-3), and the remaining part is used for immunohistochemistry examination and to estimate the percent of apoptotic index by terminal deoxynucleotidyl transferase-mediated deoxyuridine triphosphate nick end labeling (TUNEL) assay.

Results: Vitamin E and CoQ10 significantly ($p<0.05$) reduced CASP-3, reduced the percent apoptotic index of TUNEL-assay, and there was an improvement in the immunohistochemistry of rats' brain in Groups V, Group VI, and group VII by reducing number of apoptotic cells compared to Group IV.

Conclusion: Both Vitamin E and CoQ10 may have a protective effect against Dox-induced neuroadverse effect in rats.

Biography:

Manal has completed his PhD at the age of 35 years from Baghdad University, College of pharmacy. She is the sub-Director of department of pharmacology and toxicology, college of pharmacy, basra university. She academic member in department of pharmacology and toxicology, college of pharmacy, basra university She has published more than 5 papers in reputed journals and has been serving as a reviewer for article and participate in several conferences.

Recent Publications:

1. Manal abdulkhaliq ibrahim; Amelioration of neuroadverse effect of doxorubicin with vitamin E and coenzyme Q10 in rats: role of apoptosis; Pharmacology 2020; July 17, 2020; Paris, France

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