



Effect of thiol reducing agents and antioxidants on Methotrexate hepatotoxicity in mice

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Abstract:

Methotrexate is an antineoplastic agent used in cancer therapy and as an immunosuppressive agent in rheumatism and autoimmune diseases. Many hypotheses about hepatic injuries caused by Methotrexate have been discussed. However, oxidative stress is the most popular one.

In this research, the effect of free radicals in hepatic injury of Methotrexate and protective effect of Vitamin E, N- acetyl cysteine and dithiothreitol (DTT) examined. Methotrexate was injected as a single dose of 135 mg/ kg in mouse and the antioxidants (Vitamin E 200ui/ kg, N- acetyl cysteine 100mg/ kg and DTT 50mg/ kg) were injected in 2 groups as pre and post treatment. Sampling of liver was done 3days after Methotrexate injection in pretreatment group and 12 hours after the last injection of antioxidants in post treatment group.

Hepatic and serum samples were examined for pathologic, biochemical and toxicity injuries. The result showed that of Vitamin E, N- acetyl cysteine and DTT had desirable effects in lowering the hepatotoxicity of Methotrexate and post treatment by vitamin E had the best effect in reducing the toxicity

Keyword: Liver• Methotrexate• DTT• Vitamin E• N-acetyl cysteine