

Cadmium acts as a silent killer of liver by inducing oxidative stress and hepatocellular injury and a possible amelioration by vitamin B₁₂ and folic acid in rat model

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A- Conception and study design; **B** - Collection of data; **C** - Data analysis; **D** - Writing the paper; **E**- Review article; **F** - Approval of the final version of the article; **G** - Other (please specify)

ABSTRACT

Purpose: To investigate the involvement of oxidative stress in Cadmium (Cd) induced alteration in the functional status of the liver. And to assess the efficacy of folic acid and vitamin B₁₂ in preventing Cd-induced damage in the same.

Materials and methods: The experiment was carried out for four weeks. For the experiment, 25 healthy male adult Wistar albino rats were randomly selected and were divided into five equal groups and treated as control, treated with Cd, supplemented with vitamin B₁₂ and folic acid and in the combination of these two. After 28 days the liver function enzymes and oxidative stress parameters were measured.

Results: Cd is the silent killer of the hepatic system through the induction of oxidative stress in male rats. From this investigation, it is evident that the folic acid+vitamin B₁₂ possess significant hepatoprotective and antioxidant activity against Cd-induced hepatoto-

xicity in the rat model. In addition, results revealed that the folic acid alone and or in combination with vitamin B₁₂ blunted the hepatotoxic effect significantly.

Conclusions: Based on results obtained, it can be concluded that folic acid and vitamin B₁₂ offer a protective effect in Cd-induced oxidative stress associated with hepatocellular injury. Folic acid and vitamin B₁₂ can be considered as a potent natural antioxidant which has the capacity to provide protection against Cd-induced oxidative stress in the liver in rats. However, to elucidate the exact mechanism of this modulatory effect and to examine its potential therapeutic effects further studies are essential.

Keywords: Cadmium, liver, hepatocellular injury, oxidative stress.