Attenuation Of Thioacetamide-Induced Liver Fibrosis By Aminoguanidine In Rats

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Objectives: Hepatic fibrosis is a common pathological process of chronic hepatic disease leading to the development of irreversible cirrhosis that is the tenth leading cause of death in developed countries. If treated properly at fibrotic stage, cirrhosis could be prevented. Improved understanding of the cellular and molecular mechanism of liver injury may help to find out novel therapeutic interventions for preventing or reducing liver tissue injury. This investigation was done to study the possible protective effect of antioxidant and inducible nitric oxide inhibitor, aminoguanidine against liver fibrosis and and its possible underlying mechanism of action. **Methods.** Animals were divided into four groups (1) Saline control group; (2) Thioacetamide group in which rats were injected with thioacetamide (200 mg/kg, i.p.) twice a week for eight weeks; (3) Aminoguanidine-treated group in which rats were treated with aminoguanidine (100 mg/kg/day, i.p) for 8 weeks; (4) Thioacetamide and aminoguanidine group, in which aminoguanidine was given to rats (100 mg/kg/day, i.p.) during thioacetamide injections for eight weeks till the end of the treatment. **Results.** Induction of liver fibrosis with thioacetamide treatment resulted in increased serum levels of liver function markers, gamma glutamyl transferase (GGT), and transaminases, alanine aminotransferase (ALT) and aspartate aminotransaminase (AST), increased lipid peroxidation measured as thiobarbituric acid reactive substance (TBARS) concentration and decreased reduced glutathione (GSH) content in hepatic tissues. Moreover, serum level of total nitrite/nitrate level was elevated. Histological examination of thioacetamide-treated rat liver revealed lymphocytes and neutrophils infiltration and severe histopathological changes. Co-administration of thioacetamide and aminoguanidine attenuated liver injury as evaluated by the significant reduction in serum levels of transaminases and GGT. Aminoguanidine significantly reduced serum total nitrite/nitrate and hepatic TBARS and

increased GSH content in the hepatic tissue. Finally, histological evidence supported the ability of aminoguanidine to reduce thioacetamide-induced liver fibrosis. **Conclusion.** The findings of the present study provide evidence that aminoguanidine may serve as a novel target for potential therapeutic treatment of patients at risk of developing liver fibrosis.