

Hepatic Upregulation of Tumor Necrosis Factor Alpha and Activation of Nuclear Factor Kappa B Following Methyl Methacrylate Administration in the Rat

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Abstract: Background and Objective: Tumor necrosis factor alpha (TNF- α) and nuclear factor kappa B (NF- κ B) have been implicated in hepato-toxicity. Methyl methacrylate (MMA) has been shown to cause diverse health effects on the liver. Thus, the aim of this study was to illustrate the impact of MMA administration on the hepatic expression of TNF- α and activation of NF- κ B. Material and Methods: Twenty sprague-dawley female rats were randomly selected and subsequently divided into two equal groups: control group and experimental group. Methyl methacrylate (120 mg kg⁻¹) was orally administered daily 5 days/week for 4 weeks in the experimental group. After that, liver samples were evaluated by immuno histochemistry to examine the expression of TNF- α and activation of NF- κ B in the two groups of animals. Results: Hepatocytes displayed ballooning degeneration following the oral administration of MMA. Concomitantly, the hepatic expression of TNF- α and activation of NF- κ B were significantly increased in the experimental rats compared with those in the control rats ($p < 0.01$). Conclusion: Thus, the present data indicate a correlation of ballooning degeneration of the hepatocytes with the hepatic TNF- α up regulation and NF- κ B activation, potentially promoting the adverse health effects of MMA on the liver.