[P-22]

PROINFLAMMATORY DAMAGE INDUCED IN RAT STOMACH BY INTRAGASTRIC ETHANOL ADMINISTRATION.

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Several lines of epidemiological and experimental evidence support that chronic ethanol consumption is implicated in pathophysiology of a variety of human disorders, including cancer. However, the association between chronic ethanol consumption and an increased risk of gastric cancer is not clearly defined. In the present study, we found that ethanol could result in an enhancement of inflammatory tissue damage in rat stomach. Thus, intragastric administration of 1 ml absolute ethanol to male Sprague-Dawley rats caused the inflammatory response as revealed by enhanced expression of proinflammatory cyclooxygenase-2 (COX-2). Expression of the constitutive isozyme COX-1 was also elevated after ethanol administration. The activation of upstream mitogen-activate protein kinases (MAP kinases), such as ERK and p38, through phosphorylation was also evident in ethanol-treated rat stomach. In another experiment, the DNA-binding activity of redox-sensitive transcription factors NF-κB and AP-1 was assessed by the electrophoretic mobility shift assay (EMSA). The NF-κB was activated in a time-dependent manner by ethanol treatment which was associated with phosphorylation of the inhibitory protein IκB and p65, the functionally active subunit of NF-κB. The AP-1 DNA binding ativity was also increased by ethanol administration. Taken together, these results suggest that the proinflammatory response caused by ethanol consumpt on is mediated by COX-2 whose expression is regulated via the intracellular signaling cascade that involves MAP kinase and redox-sensitive transcription factors.

Keyword : ethanol consumption, cyclooxygenase, MAP kinases, NF-κB, AP-1