

Curcumin regulates inflammation and apoptosis through PARP-1 and NF- κ B in ethanol-induced gastric ulcer model

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Curcumin is a natural polyphenol with antioxidant, antiapoptotic and anti-inflammatory properties. In the present study, we explored the roles of PARP-1 and NF- κ B molecules in the inflammation and apoptosis modulation caused by curcumin in the ethanol-induced gastric ulcer model. Male *wistar albino* rats (n=32) were divided into four groups. A single dose of 1 mL corn oil was given orally to the normal control and ethanol groups. After 30 minutes of after corn oil application, 1 mL of absolute alcohol was administered orally to the ethanol group. The curcumin group was given 100 mg/kg curcumin orally. In the ethanol+curcumin group, 1 mL of absolute alcohol was given orally 30 min after 100 mg/kg oral curcumin administration. The study evaluated the macroscopic and microscopic ulcer scores, as well as mucosal barrier integrity, using hematoxylin-eosin and PAS staining. Apoptotic and inflammatory pathways were examined by immunohistochemical staining, and malodialdehyde (MDA), superoxide dismutase (SOD) and myeloperoxidase (MPO) levels were examined in tissue. Compared with the ethanol group, macroscopic and microscopic mucosal lesions, MPO and MDA levels, and IL-1, IL-6, TNF- α , PARP-1, NF κ B and Caspase-3, 8, 9 expressions were seen to decrease in the ethanol+curcumin group, however SOD level was observed to increase. The study demonstrated that curcumin protects the mucosal integrity by exhibiting anti-inflammatory and antiapoptotic effects through the modulation of PARP-1 and NF- κ B key molecules in the ethanol-induced gastric ulcer model.

Keywords: Antiapoptotic, Anti-inflammatory, *Curcuma longa*, Caspases, Inflammatory cytokines, Turmeric