

Effect of glutathione on gastric mucosal lesion induced by restraint Water-immersion in rats

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Abstract

AIM: To determine the effect of glutathione (GSH) on stress gastric mucosal lesion.

METHODS: The stress gastric mucosal lesion as produced by restraint water-immersion in rats and gastric mucosal lesion, gastric mucosal GSH content, gastric acid secretion and gastric barrier mucus secretion were examined. We also observed the effect of GSH on gastric mucosal lesion and the effect of N-ethylmaleimide (NEM) and indomethacin on GSH protection. Comparisons between two

groups were made using the Student's *t* test.

RESULTS: GSH (100 and 200 mg/kg) intraperitoneally protected against stress gastric mucosal lesion ($P < 0.001$ and $P < 0.001$). Restraint water immersion stress significantly reduced gastric mucosal GSH content ($P < 0.001$), but pretreatment with GSH (100 mg/kg) had no effect on gastric mucosal GSH content ($P > 0.05$). The preinjection of NEM (10 mg/kg. sc.), a sulfhydryl blocking reagent, or indomethacin (5 mg/kg, im.), a cyclooxygenase inhibitor, had no effect on protection of GSH ($P > 0.05$). GSH (100 mg/kg) significantly increased secretion of gastric barrier mucus ($P < 0.05$), but had no effect on secretion of gastric acid in restraint water immersed rats ($P > 0.05$).

CONCLUSION: GSH can inhibit the formation of gastric mucosal lesions induced by restraint water-immersion. The protective effect of GSH was due, in part, to promoting the secretion of gastric barrier mucus, but not to suppress the gastric acid secretion. The protection effect of GSH has no relation with gastric mucosal GSH and PGs.

Key words: Gastric mucosal lesion; Glutathione; Stress; Gastric acid; Gastric mucus; Rats

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