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Studies on the antisecretory, gastric anti-ulcer and cytoprotective properties of glycine

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Abstract

Glycine, a neutral amino acid has been studied for its ability to inhibit gastric secretion and to protect the gastric mucosa against chemically and stress-induced ulcers. Acid secretion studies were undertaken in pylorus-ligated rats with and without glycine treatment. Experimental gastric lesions were induced by hypothermic-restraint stress, indomethacin and necrotizing agents including 80% ethanol, 0.2 M sodium hydroxide and 0.6 M hydrochloric acid in rats. The level of nonprotein sulfhydryl compounds and gastric wall mucus were also measured in the glandular stomach of the rats following ethanol-induced gastric lesions. The results of this study demonstrate that glycine dose dependently reduced the gastric secretions in rats. Pretreatment with glycine significantly protected animals against stress-, indomethacin- and necrotizing agents induced gastric lesions. The antiulcer activity of glycine was associated with significant inhibition of ethanol-induced depletion of nonprotein sulfhydryls and gastric wall mucus. In conclusion, this study demonstrates that glycine possesses significant antiulcer and cytoprotective activity. However, further detailed studies are warranted to establish the mechanism(s) of action, and to determine its role in the prophylaxis and treatment of gastric ulcer disease.

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