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Investigations on gastroprotective effect of citalopram, an antidepressant drug against stress and pyloric ligation induced ulcers

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Abstract:
The present study investigates the gastroprotective effect of citalopram, an antidepressant drug. Gastroprotective activity of citalopram (5, 10 and 20 mg/kg, *bid, po*) was evaluated both by single and 14 days repeated pretreatment in the cold restraint stress (CRS) model and 14 days repeated pretreatment in pyloric ligation (PL) model. In addition to ulcer scoring and its histological assessment, levels of corticosterone, hexosamine, nitrite, PGE_2, lipid peroxide and microvascular permeability were also estimated. Mechanism underlying gastroprotective activity was further explored by investigating the involvement of nitric oxide (NO), sulfhydryl (SH) compunds, ATP-sensitive K^+ channels (K_{ATP} channels) and prostaglandins (PGs). Results show that against CRS model, repeated pretreatment with citalopram exhibit a significant gastroprotective effect while single pretreatment was ineffective. In CRS model, citalopram repeated pretreatment, in contrast to its single pretreatment, attenuates the corticosterone level and also mitigates the stress-induced increase in nitrite level, lipid peroxidation and microvascular permeability. Additionally, the repeated pretreatment increases the hexosamine and PGE_2 level in CRS model. This gastroprotective effect of citalopram was found to be decreased with L-NAME, NEM, glibenclamide and indomethacin pretreatment. Thus, gastroprotective activity of citalopram appears to be mediated by endogenous NO, SH, PGs and K_{ATP} channel opening. In contrast to CRS model, repeated pretreatment with citalopram was ineffective in reducing ulcer formation in PL model.

Key words:
citalopram, antidepressant, gastroprotective, prostaglandin, K_{ATP} channel, nitric oxide