BACKGROUND/AIMS: We aimed to investigate the role of a probiotic mixture, including 13 different bacteria, in the prevention of aspirin-induced gastric mucosal injury.

METHODS: Forty rats were allocated into 4 groups: normal control, aspirin, probiotic control, and probiotic plus aspirin. Normal control and aspirin groups received 0.2 ml of skim milk by daily gavage for 14 days. Probiotic control and probiotic plus aspirin groups were administered 0.2 ml/day of probiotic mixture (1.3 x 10^{10} cfu/ml) suspended in skim milk by daily gavage for 14 days. On day 15, gastric lesions were induced by administration of aspirin (200 mg/kg) in the aspirin and probiotic plus aspirin groups. Normal control and probiotic control groups were given saline.

RESULTS: Pretreatment with probiotic mixture reduced aspirin-induced gastric damage scores (4.50 ± 0.43 and 2.60 ± 0.40, p<0.01) and exerted tendency of downregulation of proinflammatory cytokines elicited by aspirin (p>0.05). We also found that the probiotic mixture increased sIgA production approximately 7.5-fold in the stomach, and significantly reduced the malondialdehyde (MDA) increase in the gastric mucosa elicited by aspirin (p<0.001). Additionally, pretreatment with the probiotic mixture alleviated aspirin-induced reduction of mast cell count in the gastric mucosa.

CONCLUSIONS: Probiotic mixture pretreatment attenuates the aspirin-induced gastric lesions by reducing the lipid peroxidation, enhancing mucosal sIgA production, and stabilizing mucosal mast cell degranulation into the gastric mucosa.

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