Protective effect of N-acetylcysteine against ethanol-induced gastric ulcer: A pharmacological assessment in mice

Abstract

Aim: Since there is an increasing need for gastric ulcer therapies with optimum benefit-risk profile. This study was conducted to investigate gastro-protective effects of N-acetylcysteine (NAC) against ethanol-induced gastric ulcer models in mice. Materials and methods: A total of 41 mice were allocated into six groups consisted of 7 mice each. Groups 1 (normal control) and 2 (ulcer control) received distilled water at a dose of 10 ml/kg, groups 3, 4 and 5 were given NAC at doses 100, 300 and 500 mg/kg, respectively, and the 6(th) group received ranitidine (50 mg/kg). All drugs administered orally once daily for 7 days, on the 8(th) day absolute ethanol (7 ml/kg) was administrated orally to all mice to induce the acute ulcer except normal control group. Then 3 h after, all animals were sacrificed then consequently the stomachs were excised for examination. Results: NAC administration at the tested doses showed a dose-related potent gastro-protective effect with significant increase in curative ratio, PH of gastric juice and mucus content viscosity seen with the highest dose of NAC and it is comparable with that observed in ranitidine group. Conclusion: The present findings demonstrate that, oral NAC shows significant gastro-protective effects comparable to ranitidine confirmed by anti-secretory, cytoprotective, histological and biochemical data, but the molecular mechanisms behind such protection are complex.