Gastroprotective effect of fluvoxamine and ondansetron on stress-induced gastric ulcers in mice

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INTRODUCTION

Ulcers are described as open sores cut through the thickness of the gastrointestinal mucosal [1]. Peptic ulcer is a disorder in the digestive tract characterized by mucosal damage that extends to the submucosa of muscularis propria due to the secretion of pepsin and stomach acid. PUD occurs most often in the stomach (gastric ulcers) and proximal duodenum (duodenal ulcers) and rarely occurs in the lower esophagus, distal duodenum, and jejunum [2,3]. Approximately 4 million gastric ulcers cases are recorded in the world per year [4]. The pathophysiology of gastric ulcers is characterized as an imbalance between aggressive factors (e.g. stomach acid, leukotriene, pepsin and Reactive Oxygen Species (ROS) with defensive factors (e.g. prostaglandins (PG), mucosal perfusion, and bicarbonates) [5,6]. Helicobacter pylori and prolonged use of NSAID are commonly known associated with gastric ulcers [7]. Apart from Helicobacter pylori infection and the use of NSAIDs, gastric ulcers also occur due to stress [8].

METHODS

Water Immersion Restraint Stress (WIRS) was used to induce stress. Fluvoxamine 50 mg/kg and 100 mg/kg given by intraperitoneal injection, fluvoxamine 9.3 µg, and 18.6 µg given by intracerebroventricular injection 30 minutes before the induction of stress. Meanwhile, single drug and in combination administered to the mice, ondansetron 3 mg/kg was given intraperitoneally at 60 minutes and fluvoxamine 50 mg/kg, 100 mg/kg orally at 30 minutes before stress induction.

RESULTS

This research aims to investigate the effect of fluvoxamine administration by intracerebroventricular and intraperitoneal injections on stress induced gastric ulcers and the effect of adding ondansetron in influencing the protection of the gastric mucous by giving fluvoxamine to the mice before being induced with stress.

REFERENCES


CONCLUSIONS

Fluvoxamine with different routes of administration and ondansetron monotherapy before stress can reduce the occurrence of gastric ulcers while the combination drugs didn’t increase the protective effect of the gastric mucosa.