ORIGINAL ARTICLE

Analysis of Gastric Juice in Acid Peptic Diseases

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Abstract:

Background: Peptic ulcer disease is an imbalance between offensive and defensive gastric factors. A bacterium called Helicobacter pylori has been considered a major causative agent for gastric and duodenal ulcers. This is a major cause of mortality in developing countries. Aims and Objectives: The aim of this study was to assess the biochemical parameters in gastric juice of acid peptic disease patients (Study Group) and normal healthy individuals (Control Group) in humans. Material and Methods: A total of 70 patients suffering peptic ulcer disease with H. pylori infection and 15 non-infected individuals were chosen as control group. Results: We observed an increased significant level (p<0.05) in pH, β-glucuronidase activity, malondialdehyde (MDA) and superoxide dismutase (SOD) as well as catalase(CAT) levels in gastric juice and decrease significant level (p<0.05) in pepsin activity, urea, mucin and nitric oxide level. Conclusion: The present study showed variations in levels of MDA, β-glucuronidase, SOD, CAT activities, pepsin, mucin urea and nitric oxide. Therefore these parameters can be used as additional parameters for diagnosis and prognosis of acid peptic diseases. These can be used by clinicians to adopt treatment strategies in betterment of acid peptic disease patients.

Keywords: Catalase, β-glucuronidase, Helicobacter pylori, Pepsin, Mucin, Urea, Nitric oxide, Malondialdehyde, Superoxide dismutase.

Introduction:

Peptic ulcer disease is a group of disorders characterized by the presence of ulcers in any portion of gastrointestinal tract (GIT) exposed to acid in sufficient concentration and duration. An ulcer is a crater like lesion in a membrane; ulcers that develop in areas of the GIT exposed to acidic gastric juice are called peptic ulcers [1]. It is one of the most common gastrointestinal disorders, which causes a high rate of morbidity. It comprises both gastric and duodenal ulcers [2]. Peptic disease is a worldwide problem among all age groups and both gender [3]. Peptic ulcer diseases are still an important cause of morbidity and mortality in developing countries though its prevalence has shown decrease in developed countries. Almost 5-15% of adult population of world is suffering from peptic ulcer disease [4]. According to the latest WHO data published in April 2011 peptic ulcer disease, deaths in India reached 1.08,392 or 1.20% of total deaths. The age adjusted death rate is 12.37 per 100,000 of population and ranks India 5th in the world [5]. Helicobacter pylori (H. pylori) and Non Steroidal Anti-Inflammatory Drugs (NSAID) disrupt the normal mucosal defense and repair, making the mucosa more susceptible to acid. H. pylori infection is present in 80% to 90% of patients with duodenal ulcers and 70% to 90% of patients with gastric ulcers. If H. pylori are eradicated, only 10% to 20% of patients have recurrence of peptic ulcer disease, compared with that of 70% recurrence in patients treated with acid suppression alone [6]. Peptic ulcer disease is an imbalance of aggressive