

Evaluation of gastric juice nitric oxide in diabetic patients

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Background and Aims: Recently the diabetes mellitus has been known as one of the main cause of upper gastrointestinal symptoms. It has also been suggested that delayed gastric emptying may lead to bacterial overgrowth in the upper gastrointestinal tract. The aim of this study was to evaluate the relationship between dyspepsia, the level of gastric juice nitric oxide, oxidative stress in diabetic patients.

Methods: Sixty H. Pylori infected diabetic patients with mean age of 39.5±12 years, 60 diabetic patients without H. Pylori infection with mean age of 34±15 years and 60 healthy individuals with mean age of 41±8 referred to Endoscopy Department were selected as case control-2 and control-1 groups respectively. All subjects underwent Endoscopy. The presence of chronic active gastritis was studied in gastric mucosa and gastric biopsies were also checked with rapid urease test for presence of H. Pylori. The level of nitric oxide in gastric juice was measured calorimetrically and the activities of superoxide dismutase and glutathione peroxidase in gastric biopsy were determined using standard methods.

Results: The mean level of NO in gastric juice was meaningfully higher than those in the control 1 and 2 groups ($p < 0.0001$ in the both cases). The mean activities of SOD and GPX in the gastric mucosa were markedly higher than those of the both control groups ($p < 0.0001$ in all cases).

Conclusions: In patients with metabolically uncontrolled diabetes mellitus, the prevalence of H. Pylori infection is high and the bacteria colonization occurs at the antrum of stomach. The treatment of the H. Pylori infection improves the level of NO in the gastric juice and reduces cellular damage resulting from acute oxidative and nitrosative stress produced by reaction between superoxide radicals of H. Pylori and NO of the gastric juice.

Keywords: Diabetes mellitus; Nitric oxide; Oxidative stress; Nitrosative stress