World Academy of Science, Engineering and Technology
International Journal of Biomedical and Biological Engineering
Vol:11, No:03, 2017

Effect of Psychological Stress to the Mucosal IL-6 and Helicobacter pylori Activity in Functional Dyspepsia and Myocytes

Authors : Eryati Darwin, Arina Widya Murni, Adnil Edwin Nurdin

Abstract : Background: Functional dyspepsia (FD) is a highly prevalent and heterogeneous disorder. Most patients with FD complain of symptoms related to the intake of meals. Psychological stress may promote peptic ulcer and had an effect on ulcers associated Hp, and may also trigger worsen symptoms in inflammatory disorders of the gastrointestinal. Cells in mucosal gastric stimulate the production of several cytokines, which might associated with Helicobacter pylori infection. The cascade of biological events leading to stress-induced FD remains poorly understood. Aim of Study: To determine the prion-flammatory cytokine IL-6, and Helicobacter pylori activity on mucosal gastric of FD and their association with psychological stress. Methods: The subjects of this study were dyspeptic patients who visited M. Djamil General Hospital and in two Community Health Centers in Padang. On the basis of the stress index scale to identify psychological stress by using Depression Anxiety and Stress Scale (DASS 42), subjects were divided into two groups of 20 each, stress groups and non-stress groups. All diagnoses were confirmed by review of cortisol and esophagogastroduodenoscopy reports. Gastric biopsy samples and peripheral blood were taken during diagnostic procedures. Immunohistochemistry methods were used to determine the expression of IL-6 and Hp in gastric mucosal. The data were statistically analyzed by univariate and bivariate analysis. All procedures of this study were approved by Research Ethics Committee of Medical Faculty Andalas University. Results: In this study, we enrolled 40 FD patients (26 woman and 14 men) in range between 35-56 years old. Cortisol level of blood FD patients as parameter of stress hormone which taken in the morning was significantly higher in stress group than non-stress group. The expression of IL-6 in gastric mucosa was significantly higher in stress group in compared to non-stress group ($p<0,05$). Helicobacter pylori activity in gastric mucosal in stress group were significantly higher than non-stress group. Conclusion: The present study showed that psychological stress can induce gastric mucosal inflammation and increase of Helicobacter pylori activity.

Keywords : functional dyspepsia, Helicobacter pylori, interleukin-6, psychological stress
Conference Title : ICABNB 2017 : International Conference on Advanced Biomedicine and Network Biology
Conference Location : Osaka, Japan
Conference Dates : March 30-31, 2017