

The effect of psychological stress on mucosal IL-6 and helicobacter pylori activity in functional dyspepsia

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Abstrak

Background: pathophysiology of functional dyspepsia remains poorly understood. Many factors such as gastric motility disorder, visceral hypersensitivity, *Helicobacter pylori* (Hp) infection, psychological stress and excessive gastric acid secretion play roles in this symptom. Psychological stress may promote peptic ulcer and has an effect on ulcers-associated Hp. This study aimed to determine *Helicobacter pylori* activity and expression of mucosal IL 6 and their association with psychological stress.

Methods: a cross-sectional study was done among 40 outpatients with dyspeptic syndromes in M. Djamil General Hospital and two community health centers in Padang. The subjects were divided into two groups, with and without psychological stress, which were identified using DASS 42. Gastric biopsy specimens and peripheral blood samples were taken while performing esophagogastroduodenoscopy.

Immunohistochemistry methods was used to determine the expression of IL 6 and Hp in gastric mucosa. The correlation of each variable in the group experiencing psychological stress and non stress was analyzed using Chi square test.

Results: there were 40 patients with functional dyspepsia with average age of 37.58(SD 11.82) years old. The cortisol levels were significantly different between both groups (non stress vs. stress groups); moreover, morning cortisol level in psychological stress group was higher beyond normal limit. Interleukin 6 expression, as the evidence of inflammatory activity, seemed higher in non stress group than the group with psychological stress (8.25% vs. 7.25%). *Helicobacter pylori* activity was seemed to be increased in the stress group as characterized by higher numbers of invasion to the sub mucosa epithelium compared to the non stress group (11 vs. 7 subjects).

Conclusion: psychological stress seems to have no correlation with IL-6 in gastric mucous of patients with functional dyspepsia; however, there is an evidence of increasing activity of *Helicobacter pylori*.

.....Latar belakang: patofisiologi dispepsia fungsional masih belum bisa dipahami sepenuhnya. Terdapat banyak faktor yang mempengaruhi, diantaranya gangguan motilitas gaster, hipersensitifitas viseral, infeksi *Helicobacter pylori* (Hp), stres psikologis, dan sekresi asam lambung yang berlebihan. Penelitian ini bertujuan menentukan aktifitas *Helicobacter pylori*, ekspresi mukosa IL-6, dan hubungannya dengan stres psikologis.

Metode: studi potong lintang dilakukan pada 40 pasien rawat jalan di Rumah Sakit Umum M. Djamil dan 2 Puskesmas di Padang. Mereka dibagi dalam dua kelompok, dengan atau tanpa stres psikologi, yang diidentifikasi dengan menggunakan DASS 42. Sampel biopsi gaster dan darah perifer diambil saat esofagoduodenoskopi. Metode imunohistokimia digunakan untuk menentukan ekspresi IL-6 dan Hp di mukosa gaster. Hubungan masing-masing variabel dalam kelompok yang mengalami tekanan psikologis dan non-stres dianalisis dengan uji Chi-kuadrat. Hasil: penelitian ini dilakukan pada 40 penderita dispepsia fungsional dengan rerata umur 37,58±11,82 tahun. Didapatkan nilai kortisol plasma berbeda bermakna di antara kedua kelompok (non-stress vs stress), bahkan kortisol pagi pada kelompok stress melebihi nilai

normal. Ekspresi IL-6 sebagai bukti terdapat aktifitas inflamasi terlihat lebih banyak pada kelompok non stress dibandingkan dengan kelompok stress (8,25% vs 7,25%). Aktifitas *Helicobacter pylori* terlihat meningkat pada kelompok stress, ditandai dengan terlihatnya jumlah yang menginvasi ke submukosa lebih banyak dibandingkan kelompok non-stress (11 vs. 7).

Kesimpulan: stres psikologis terlihat tidak berhubungan dengan IL-6 pada dispepsia fungsional mukosa gaster namun terdapat bukti adanya peningkatan aktifitas *Helicobacter pylori*