Detecting the helicobacter pylori 16s rna gene in dyspepsia patients using real-time pcr

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Abstrak

Background: early detection of H. pylori is essential to prevent the development of infections into gastric malignancies. The coccoid form of H. pylori is difficult to detect either by culture or histopathology; however, it can be detected using molecular methods, such as real-time PCR. The study was expected to provide new information on the development of H. pylori detection.
Methods: a cross-sectional study was conducted at the Gastrointestinal Endoscopy Center of Cipto Mangunkusumo Hospital between October 2016 and August 2017. The sampling method used was consecutive sampling. Biopsy from gastric antrum and corpus were performed in 64 patients. We collected 2 specimens from each site to be examined using real-time PCR and histopathology. Initially, we conducted real-time PCR optimization followed by application of clinical samples from gastric biopsy. Data analysis using McNemars 2 and Kappa tests.
Results: the real-time PCR showed 25% positivity, while the positive proportion of histopathological examination was 14%. Real-time PCR has a sensitivity and specificity 88.9% dan 85.5%, respectively. The McNemars x2 test showed that there is significantly different (p=0.039) between the two tests; kappa value (p=0.561).
Conclusion: the real-time PCR examination is more sensitive than histopathology. This technique can improve diagnosis by 11% compared to histopathological examination.
.....Latar belakang: deteksi dini H. pylori sangat diperlukan untuk mencegah berkembangnya infeksi menjadi keganasan lambung. Bentuk kokoid dari H. pylori sulit dideteksi dengan biakan dan histopatologi, namun dapat terdeteksi dengan metode molekuler misalnya real-time PCR. Penelitian ini diharapkan dapat memberikan informasi baru tentang pengembangan deteksi H. pylori.
Metode: studi potong lintang dilakukan di Pusat Endoskopi Saluran Cerna, Rumah Sakit Cipto Mangunkusumo (RSCM) sejak Oktober 2016 hingga Agustus 2017. Metode pengambilan sampel yang digunakan yaitu consecutive sampling. Biopsi dari antrum dan korpus lambung dilakukan terhadap 64 pasien. Dua spesimen masing-masing dari antrum dan korpus dikumpulkan untuk pemeriksaan real-time PCR dan histopatologi. Mula-mula dilakukan optimasi kondisi real-time PCR, kemudian aplikasi pada sampel klinis. Analisis data menggunakan uji McNemar’s 2 dan Kappa.
Hasil: proporsi positif hasil pemeriksaan real-time PCR sebesar 25%; sedangkan proporsi positif pemeriksaan histopatologi sebesar 14%. Real-time PCR memiliki sensitivitas dan spesifisitas sebesar 88,9% dan 85,5%. Hasil uji Mc Nemar 2 menunjukkan terdapat perbedaan yang signifikan (p=0,039) antara kedua uji dengan nilai kappa (p=0,561).
Kesimpulan: pemeriksaan real-time PCR lebih sensitif dibandingkan dengan histopatologi. Teknik ini mampu meningkatkan diagnosis sebesar 11% dibandingkan pemeriksaan histopatologi.