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Expression of inducible nitric oxide synthase in helicobacter pylori CagA+ infections

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Increased expression of inducible nitric oxide synthase (iNOS) is observed in patients with chronic inflammatory diseases of the gastrointestinal tract leading to sustained production of nitric oxide (NO). Since a causal relationship between H. pylori CagA+ strains infection and gastric cancer has been suggested, therefore, our aim was to evaluate the significance of iNOS expression in gastric H. pylori CagA+ strains induced lesions with correlation to endoscopic and pathological diagnoses. From 84 dyspeptic patients, endoscopic 4 antral gastric biopsies were obtained for detection of H. pylori by histopathological assessment (Giemsa staining), urease test and gene expression of H. pylori using PCR assay. Immunohistochemical staining for iNOS expression and quantitative detection of anti-CagA antibodies were performed. Anti-CagA antibodies seropositivity and iNOS immunoexpression were significantly related to H. pylori infection. The positive rates of iNOS immunostaining increased with the lesion progression from chronic superficial gastritis to chronic atrophic gastritis to intestinal metaplasia (45.2%, 87.5% and 92.8% respectively). Positive immunostaining rates of iNOS correlated significantly with H. pylori CagA seropositivity with respect to both endoscopic and pathologic diagnoses. In conclusion, CagA+ H. pylori strains are associated with enhanced immunoexpression of iNOS in H. pylori-related gastric diseases, therefore they might contribute as risk cofactors that conduces to gastric carcinogenesis. Given the high prevalence of H. pylori gastric diseases among Egyptian patients, prompt identification of gastric infections caused by H. pylori harboring CagA virulence factor is necessary for the early eradication of infection before the development of pre-neoplastic lesions.

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