

عنوان مقاله:

Impact of Pepsin on Transcriptional Alteration of *Helicobacter pylori* Virulence Genes

محل انتشار:

بیست و سومین کنگره بین المللی میکروب شناسی ایران (سال: 1401)

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خلاصه مقاله:

Background and Aim : *Helicobacter pylori* could survive in the stomach and infect the epithelial cells. Its pathogenicity depends on the bacterial virulence factors that upon interaction with the host are associated with histological changes, inflammatory response and carcinogenesis. Although it is known that acidity of the stomach could affect the pathogenicity of *H. pylori*, there is a lack of data to indicate its interaction with gastric proteolytic enzymes. The current study aims to shed light on the function of pepsin as the most important proteolytic enzyme of gastric tissue in the pathogenicity of *H. pylori*. **Methods :** Clinical isolates of *H. pylori* were provided using the culture method from the gastric biopsies of patients subjected to endoscopy. A polymerase chain reaction was done to confirm the isolates and their virulence potential. Well-defined isolates with ureB+/flaA+/cagA+ genotype were selected for in vitro transcriptional analysis. Accordingly, the selected isolates were treated with 0.5 and 1 mg/mL pepsin for 30 and 90 min and relative changes in the transcription of ureB, flaA and cagA genes were measured using real-time PCR compared with the untreated counterparts. **Results :** Out of 46 *H. pylori* isolates from 168 biopsy samples, 17 isolates with optimum growth in broth culture medium were screened for ureB, flaA and cagA genes. All the strains were ureB positive, while 94.1% and 82.3% of them carried flaA and cagA genes, respectively. Transcriptional analysis showed down-regulation of ureB and flaA (Ranges between 0.2 to 0.008 folds) and up-regulation of cagA (Ranges between 3 and 9 folds), while the strains sustained their survival. No significant diversity in transcriptional levels was detected among the three tested strains in response to different concentrations of pepsin. **Conclusion :** Results of our study showed induction of cagA and suppression of flaA and ureB transcription in response to regular pepsin concentrations in the gastric juice. Further studies are needed to show possible outcomes of this interplay on the *H. pylori* pathogenesis.

کلمات کلیدی:

Helicobacter pylori; Pepsin; Gene expression; ureB; flaA; cagA

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