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PEPSIN AND PH LEVELS OF HUMAN GASTRIC JUICES IN GASTROESOPHAGEAL REFLUX DISEASE SUBGROUPS AND FUNCTIONAL HEARTBURN

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Introduction

The major noxious agents of gastroesophageal reflux disease (GERD) on the esophageal epithelium are gastric acid and pepsin. Nevertheless, there is no precise information about pepsin concentrations in gastric juice.

Aims & Methods

We aim to address the pepsin values and pH results among subtypes of GERD and functional heartburn.

46 patients with GERD (23 erosive reflux disease LA grade A/B (ERD-A/B), 5 ERD-C/D, 14 nonerosive reflux disease-NERD, 4 esophageal hypersensitivity-EH), 8 functional heartburn (FH) and 17 healthy controls (HC) were included into the study. Upper gastrointestinal endoscopies were performed off PPI. Patients were instructed not to aspirate the local anaesthetic solution and biopsy channel of the endoscope was dried before the suction. The gastric juices from the subjects were aspirated during endoscopy into a special beaker and their pH values were measured immediately. The specimens were analysed using the Peptest lateral flow device (RD Biomed Ltd UK), a colorimetric assay containing two unique human monoclonal antibodies that capture and detect pepsin protein.

Results

There were no significance between pepsin levels in any GERD phenotypes, FH and healthy controls (Table 1). The pH results of patients with ERD (1.8 ± 0.6) were significantly lower versus HC (2.6 ± 1.5). The pH levels of the esophageal hypersensitivity (1.5 ± 0.2) were significantly decreased when compared to HC (2.6 ± 1.6) and also true NERD (4.0 ± 2.0).

	Pepsin (ng/ml)	pH
ERD (total)	514.7±282.1	1.8±0.6"
ERD-A/B	521.0±284.9	1.8±0.6
ERD-C/D	485.5±299.2	2.1±1.0
Total NERD	456.9±322.1	3.5±2.1
True NERD	428.1±293.0	4.0±2.0
EH	536.0±432.1	1.5±0.2* ^a
GERD (total)	494.5±294.1	2.4±1.6
FH	654.2±300.4	2.1±1.1*

HC	596.2±302.8	2.6±1.5
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Conclusion

Pepsin may be considered a damaging factor in pathophysiology of GERD, but we could not find any difference between GERD phenotypes and unaffected controls. NERD group had less gastric acid versus other groups but this finding needs more studies to confirm.