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BIOCHEMICAL PARAMETERS OF ORAL FLUID IN PATIENTS WITH INFLAMMATORY PERIODONTAL DISEASES IN THE CONTEXT OF HELICOBACTER-ASSOCIATED GASTROINTESTINAL PATHOLOGY

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Abstract. Oral fluid reflects a range of processes associated with inflammation, antioxidant defence, and microbial activity in the oral cavity. In chronic gastritis and gastroduodenitis associated with Helicobacter pylori, assessment of these parameters is of interest for the comprehensive study of inflammatory periodontal diseases and the identification of additional diagnostic criteria.

Keywords: oral fluid, Helicobacter pylori, chronic gastritis, chronic gastroduodenitis, inflammatory periodontal diseases, elastase, malondialdehyde, catalase, lysozyme, antioxidant–prooxidant index.

Objective. To characterise changes in the biochemical parameters of oral fluid in patients with inflammatory periodontal diseases and Helicobacter-associated gastrointestinal pathology.

Materials and methods. The biochemical comparison included 30 patients with inflammatory periodontal diseases and Helicobacter-associated gastrointestinal pathology: 13 patients with chronic gastritis and 17 with chronic gastroduodenitis. The comparison group consisted of 30 individuals without known systemic disease. Unstimulated oral fluid was examined. Salivary flow rate, protein and malondialdehyde (MDA) levels, and the activities of elastase, catalase, urease, and lysozyme were measured. The antioxidant–prooxidant index (API) was calculated from the ratio of catalase activity to MDA concentration. The presence of Helicobacter pylori in the oral cavity was additionally assessed using a rapid urease test.

Results. In patients with chronic gastritis, the salivary flow rate was 0.68 ± 0.06 mL/min, whereas in those with chronic gastroduodenitis it was 0.56 ± 0.05 mL/min, compared with 0.49 ± 0.04 mL/min in individuals without known systemic disease. Oral-fluid protein levels were 0.74 ± 0.08 g/L and 0.84 ± 0.16 g/L, respectively, compared with 0.64 ± 0.05 g/L in the control group. MDA concentrations were 0.22 ± 0.01 mmol/L in chronic gastritis and 0.25 ± 0.03 mmol/L in chronic gastroduodenitis, compared with 0.19 ± 0.03 mmol/L in the control group. Elastase activity was elevated to 0.48 ± 0.04 and 0.56 ± 0.06 μkat/L, respectively, compared with 0.31 ± 0.05 μkat/L in controls. Catalase activity was 0.28 ± 0.03 mkat/L in chronic gastritis and 0.14 ± 0.03 mkat/L in chronic gastroduodenitis. API values were lower than the control value (8.1 ± 0.3 and 9.3 ± 0.3, respectively, versus 13.1 ± 0.3). A positive rapid oral urease test was recorded in 68% of patients with chronic gastritis and 95.2% of patients with chronic gastroduodenitis.

Conclusion. In the examined patients with inflammatory periodontal diseases and Helicobacter-associated gastrointestinal pathology, changes were identified in several biochemical characteristics of oral fluid, including increased protein and MDA levels and increased elastase activity, as well as changes in catalase activity and API. The frequent detection of a positive urease test indicates that oral health should be considered during the comprehensive assessment of these patients. The findings describe observed associations and, in themselves, do not establish a causal relationship between gastrointestinal pathology and changes in oral fluid.

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REFERENCES

1. Trivedi S., Lal N., Mahdi A.A., Singh B., Pandey S. Association of salivary lipid peroxidation levels, antioxidant enzymes, and chronic periodontitis. The International Journal of Periodontics & Restorative Dentistry. 2015;35(2):e14–e19. https://doi.org/10.11607/prd.2079

2. Liu Y., Li R., Xue X., Xu T., Luo Y., Dong Q., Liu J., Liu J., Pan Y., Zhang D. Periodontal disease and Helicobacter pylori infection in oral cavity: a meta-analysis of 2727 participants mainly based on Asian studies. Clinical Oral Investigations. 2020;24(7):2175–2188. https://doi.org/10.1007/s00784-020-03330-4

3. López-Valverde N., Macedo de Sousa B., López-Valverde A., Suárez A., Rodríguez C., Aragoneses J.M. Possible association of periodontal diseases with Helicobacter pylori gastric infection: A systematic review and meta-analysis. Frontiers in Medicine. 2022;9:822194. https://doi.org/10.3389/fmed.2022.822194

4. Moradi Y., Majidi L., Khateri S., Azh N., Ghanei Gheshlagh R., Saniee N., Zarei M., Moradpour F. The association between periodontal diseases and Helicobacter pylori: An updated meta-analysis of observational studies. BMC Oral Health. 2023;23:523. https://doi.org/10.1186/s12903-023-03232-3

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