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Salivary IgA and nitrite levels in patients with Helicobacter pylori chronic gastritis

M. Yordanova, D. Gerova

Department of Clinical Laboratory, Medical University of Varna "Prof. Dr. Paraskev Stoyanov", Bulgaria

PURPOSE / OBJECTIVES

Helicobacter pylori (HP) infection causes chronic inflammation leading to gastric ulcer or cancer. The secretory IgA (sIgA) and nitrites in saliva represent some specific and nonspecific defense mechanisms against oral pathogens. As a non-invasive diagnostic biological fluid, saliva could be a suitable tool for monitoring HP infection.

The **aim** of the present study was to evaluate the salivary levels of sIgA and nitrites in patients with HP chronic gastritis.

MATERIALS & METHODS

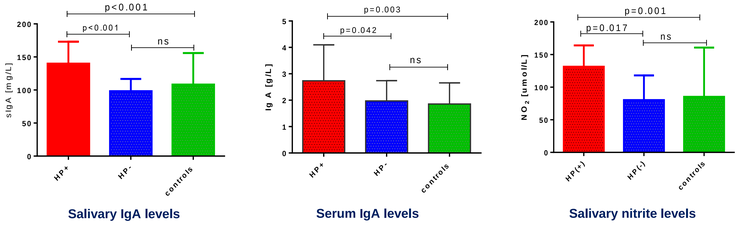
60 patients and 80 age-matched controls were enrolled in the study:

Patients *	Age (mean±SD)	N
HP(+) Gastritis	56.6±12.1	44
HP(–) Gastritis	60.8±10.1	16
Total	58.7±12.1	60

*** Confirmation of gastritis and H. pylori infection:**
- endoscopic and clinical examination
- serum levels of antibodies to HP (ELISA, DiaMetra Italy)
- Nadal®H.pylori Stool Antigen Test (nal von minden GmbH, Germany)

Methods:
- salivary IgA (sIgA) – IgA Saliva ELISA (DiaMetra, Italy)
- serum IgA levels – turbidimetric assay (Beckman Coulter, USA)
- salivary Nitrite – colorimetric Nitrite Nanocolor test kit (Mackerey-Nagel, Germany)

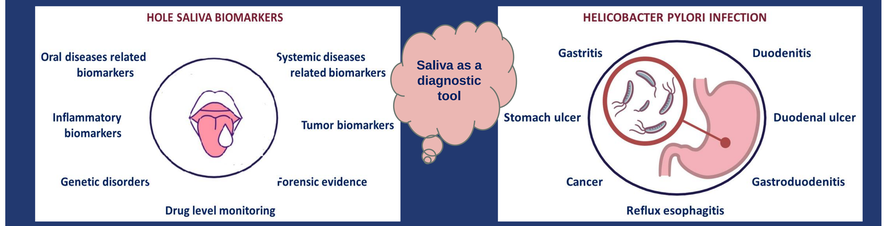
RESULTS



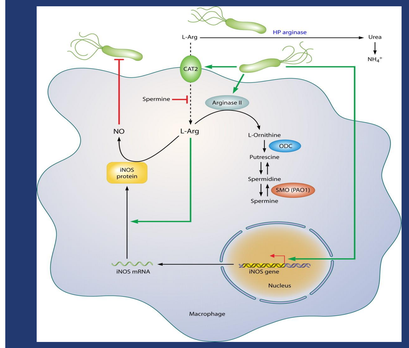
Salivary IgA levels | Serum IgA levels | Salivary nitrite levels

Saliva is a complex dynamic system containing various organic and inorganic compounds of different origins. Its composition changes in both local and systemic diseases. As a biofluid naturally linked with the gastrointestinal tract (GIT) it is a suitable and promising biological material for detecting various biomarkers that could help the diagnostic process of different gastrointestinal diseases and their monitoring.

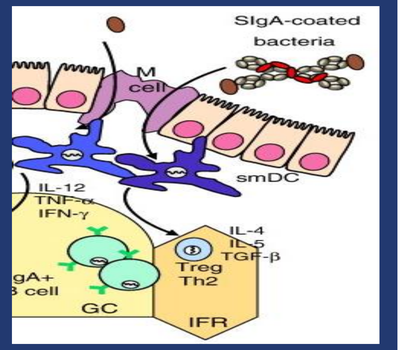
Infection with Helicobacter pylori is the most common cause of gastritis and peptic ulcer disease worldwide. Infection is very common and increases with age. By age 60, about 50% of people are infected. Recent studies show that young people are becoming infected with H. pylori too.



NO production through iNOS in chronic inflammation



Gastric mucosa protection by sIgA



Salivary nitrites and sIgA represent some specific and nonspecific defense mechanisms against oral pathogens.

RESULTS

Significantly higher sIgA levels were detected in HP(+) patients in comparison with HP(-) patients and with controls. There was no difference between HP(-) patient group and controls.

The mean value of serum IgA levels of the whole patient group was significantly higher than this of the controls. Significant difference between HP(+) and HP(-) patient groups was also found, and there is no difference between HP(-) patient group and controls.

Correlation between salivary and serum IgA levels was not established.

Similar results were obtained regarding saliva nitrites levels. The mean value of salivary nitrites levels in HP(+) patients differed significantly from those of HP(-) patients and controls. There was no difference between HP(-) patient group and controls.

SUMMARY/CONCLUSION

Inflammation of gastric mucosa may be reflected by changes in the saliva composition. HP infection involves host oral specific and nonspecific immune mechanisms to counteract the pathogenic microorganism. Immune mechanisms could explain the observed differences in saliva levels of nitrites and sIgA not only between HP(+) patient group and controls, but also between HP(+) and HP(-) patient groups.

Examination of salivary levels of sIgA and nitrites could provide additional options in monitoring patients with HP chronic gastritis. As an easily accessible bio-fluid saliva could be an important tool in the diagnostic and monitoring of gastro-intestinal diseases.