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Relation between IgG AND IgM Antibody Titres against *Helicobacter pylori* in Serum and Severity of Gastritis

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Abstract: *Helicobacter pylori* has been established as an important etiological factor for chronic gastritis and duodenal ulcer. It is also associated with gastric ulcer and gastric cancer. An easier and cheaper way to diagnose Helicobacter pylori is to test for antibodies to the infection. Aim: Using IgG to diagnose Helicobacter pylori infection Method. A blood sample of all patients selected for endoscopy was taken and serum was stored at normal temperature for 30 minutes. After this, the blood sample was treated with peroxydasis and has been conjugated with IgG, antibodies for 30 minutes. After rinsing, every sample was treated with tetramethyl benzidine for 30 minutes. The wavelength of measurement absorbance was 450nm.Antibody index of each sample was calculated by dividing the optical density (OD) value of each sample by for cut off value, IgG and IgM was: negative result ≤ 1,7: positive result ≥2,3: falls result 1.8-2.2. Conclusion: Sera IgG can be form of diagnostic if Helicobacter pylori infection (p=0.04). Sera positive IgG is related with gastritis (P<0.001). Sera positive IgG is not related with the age of sample of this study

Key words*: Helicobacter pylori infection, IgG, Elisa, mucosal gastritis*

Introduction

Helicobacter pylori is found worldwide. *Helicobacter pylori* is the main cause of peptic ulcer, including gastric and duodenal ulcers, and one promoter of gastric cancer and low malignancy MALT lymphoma. Infection by *Helicobacter pylori* stimulates cell proliferation of gastric epithelium and induces apoptosis. As a result there is an imbalance between cell proliferation and apoptosis, being reason to cell mutation (Kerr, 1994; Hofman, 2004). An easier and cheaper way to diagnose H. pylori infection noninvasively is to test for antibodies to the infection. Enzyme-linked ammuno absorbent assay (ELISA) has been the most commonly used serological test, because it is suited for screening large population (Newell, 1989; Ofman, 1997). Clinically, some patient is very concerned about contracting Helicobacter pylori infection when they are told they have high antibody levels. The correlation between anti *H. pylori* antibody levels and the severity of histological gastritis or H. pylori density has been studied with conflicting results (Sheu, 1997; Sim, 1995; Talley, 1998; Yamamoto, 1995).

Material and Methods

The study is retrospective. By period of time 2010-2013, are taken to study 200 individuals, who submitted at a private hospital center, with gastro-intestinal symptoms, vomiting, pain or upper abdominal discomfort, bloody vomiting and black coloured stool. To diagnose the inflamatory changes of gastric mucosa and the presence of *Helicobacter pylori*, it is used the invasive method of endoscopy. The zones where biopsies are taken are cardia, antrum, corpus, fundus and pylorus. The taken biopsy is stained by Giemsa stain method, modified (Brown, 1993; Sheehan, 1990).

Age and gender are taken for each patient. According to the degree of changes found in submucosal glands, the sample is divided in 3 individual groups: without gastritis, non-specific gastritis and chronic gastritis. In the examined group there is positive and negative status of *Helicobacter pylori* infection. Endoscopic examinations are made in the gastro-hepato-enterologic unit, endoscopic service. The used gastroscoupe is type 'Olympus GIFQ 30'. Histopathologic examinations are done by anatomo-pathologic lab.

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Results

It was found that IgG positivity rate was very high in cases with inflammation as well as in cases without inflammation without a significant difference between them (Figure 1).

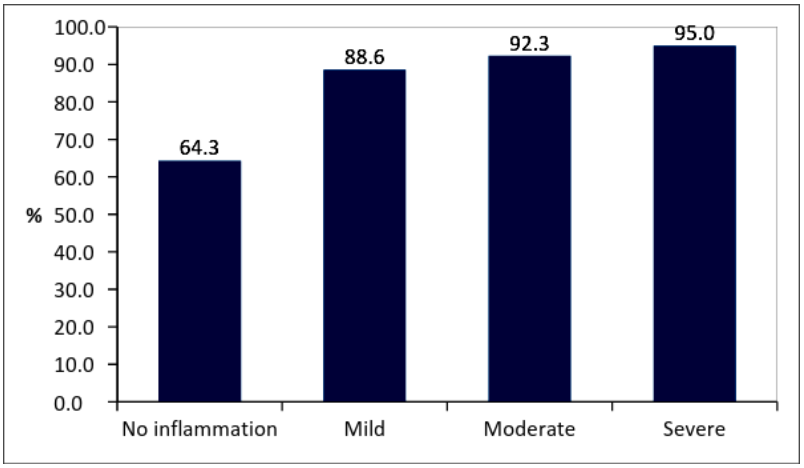

Figure 1. IgG positivity according to degree of inflammation

The percentage of sero positive for IgG was very high in cases with gastritis. A significant trend of percentage of IgG positive sero was found with increasing degree of severity of gastritis (p<0.001).

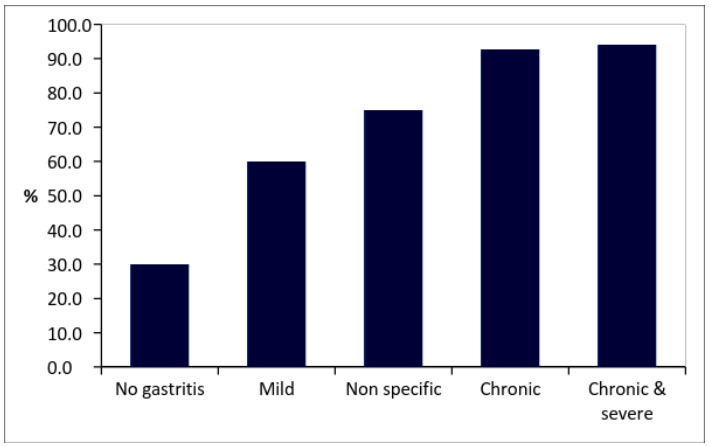

Figure 2. IgG positivity according to degree of gastritis

A significant trend of IgG positive sera was found with increasing presence of helicobacter (p=0.04). IgM positivity is increasing with the increase of quantity of Helicobacter pylori. There is no significant difference between IgM and IgG positivity rate according to presence of Helicobacter (p=0.5).

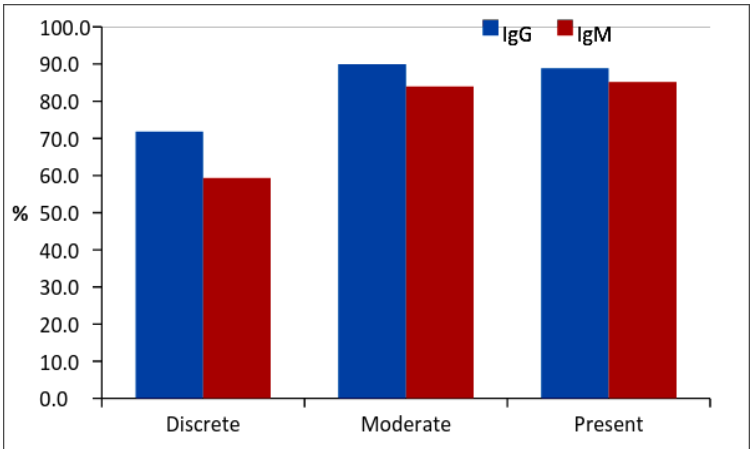

Figure 3. IgG positivity according to presence of Helicobacter and comparison with IgM

There is no statistically significant difference of IgG positivity be age group (p=0.7).

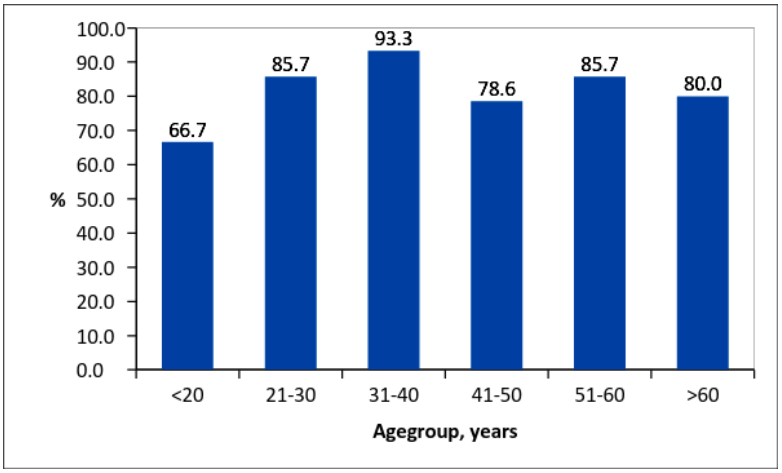

Figure 4. Percentage of IgG positive sera by age group

Discussion

In our study, there was no difference in antibody levels and inflammation but there is a significant relation between Helicobacter pylori infection, gastritis and IgG level on serum. The correlation between anti H.pylori antibody levels and the severity of gastritis or H,pylori density has been studied with confliting results (Hsu, 1997; Kreuning, 1994). These reasons took to conclusion that levels of Igg anti *H. pylori* antibody do not predict the presence of macroscopic gastroduodenal desease or the density of Helicobactyer pylori colonization. Our study shows that age and sera IgG doesn't have any tight relation. In other studies serological diagnosis of *H. pylori* was higher in the older group (EUROGAST Study Group, 1993).

Conclusion

1. IgG antibody can be form of diagnostic if Helicobacter pylori infection (p=0.04).
2. Sera positive IgG is related with gastritis (P<0,001)
3. Sera positive IgG is not related with the age of sample of this study

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