Assessment of CRP, Ca and Abs in Patient Infected with H. Pylori in Samarra City

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Abstract

The aim of this study was to determination of CRP, Ca and H.pylori Abs in patients that effected with H.Pylori, the size of samples according to the area of residence (Attended=33, countryside=7) and according to gender (male=36 ,female=11), also Sample size divided by variable) H. pylori. AB (according to the result of the examination) ve -, ve +) and according to gender (Male, female), where the number of males was (8), according to the examination result (-ve), while those for whom the examination result was (ve +) was (22). The sample size divided according to the variable (CRP) and according to the examination result (ve - ,ve +) and by gender (male, female), where the number of males in relation to the examination result (-ve) equals (22) and those for whom the result of the examination was (ve +) (It was) 8.As for the number of females, their number reached (10) only, the results showed a significant decrease($p \geq 0.05$) in Ca concentrations in patients when compared with control group while a significant increase($p \geq 0.05$) in CRP levels when compared with H.pylori Abs .

Keywords: h.pylori,Ca levels,CRP

1. Introduction

Helicobacter pylori, which has affected half of the worldwide people, is a severe health risk. It is also a tremendous economic and healthcare burden on the country due to the high infection frequency and healthcare costs connected with GI and extra-GI disorders, H. pylori infection is linked to extra-GI problems include anemia, idiopathic thrombocytopenic purpura, autoimmune diseases, cardiovascular and cerebrovascular diseases, and stomach carcinoma. To lower rates of infection and the formation of associated disorders, H. pylori eradication is indicated [1, 2].

Regardless of the fact that H. pylori infection is predominantly a family-based disease, the negative effects of H. pylori infection in the family have become more generally recognized as a result of developments in clinical practice and public knowledge [3, 4] requiring physicians and public health officials' attention. For a long time, the 'test-and-treat' and'screen-and-treat' techniques have been employed to lead worldwide H. pylori eradication efforts and have shown to be effective. Hydrochloric acid is produced by gastric parietal cells, which serves to maintain the stomach acidic. This helps to protect against ingested bacteria, speed up protein digestion, and improve iron, calcium, vitamin B12, and medication absorption. Gastric acid production is stimulated by acetylcholine, histamine, and gastrin, while it is inhibited by prostaglandin E2 and somatostatin.

Chronic H. pylori infection might explain the greater frequency of osteoporosis found after H. pylori eradication treatment. A long-term H. pylori infection, for example, might decrease calcium absorption. H. pylori can cause duodenal ulceration, pangastritis, or gastric ulcers by increasing or decreasing stomach acid production [5, 6].

The liver produces C-reactive protein (CRP), which is an acute-phase reactant.

CRP has a variety of clinical and biological impacts, and it may be used to diagnose and track a variety of inflammatory and traumatic conditions [7].LDL cholesterol levels, Risk prediction scores at all levels, and metabolic disease are all unaffected. According to findings from [8, 9], CRP is a strong predictor of incident cardiovascular events. CRP is a major predictor of incident cardiovascular events, according to the data.

CRP levels in those who haven't experienced an acute illness are usually about 20. Age and smoking are thought to be factors [10], with family aggregation studies indicating a high heritability (35–40%). To better understand the relationship between H. pylori infection and coronary heart disease, researchers needed to look into the link between H. pylori infection and serum CRP levels [8].

Its determinants are said to include age and smoking, with familial aggregation studies reporting considerable heritability (35–40%) [8, 10].

2. Materials and Methods

Design of study

This research includes Patients in this study were selected with stomach discomfort for at least 3 months, with the initial pathological examination (H. pylori: antibodies), and the number of patients was 35, with 15 healthy persons serving as the control group.

Samples collection

In a macro centrifuge, a 5 mL blood sample was spun at

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3000 rpm for 5–15 minutes after clotting for 20–30 minutes in a plane tube. Fresh non-hemolysis serum was then obtained and kept in the deep freezer (- 20o C). Biochemical tests were conducted on serum, which was divided into two tubes: one for biochemical assays and the other for other purposes. Which included:

Determination of Human serum CRP

Serum CRP has been determined by using kit assayed according to the manufactured procedure (SunLong Biotech Co.,LTD, Cat. No. SL2458Hu, SL276Hu and SL274Hu, China).

Determination of serum Calcium (Ca)

Test principle

The metallochromogen Arsenazo III is used in the process. Arsenazo III (2, 2'-[1, 8-Dihydroxy-3, 6-disulphonaphthylene-2, 7-bisazo]-bisbenzenearsonic acid) reacts with calcium ions (Ca2+) at pH 6.75 to generate a strong purple chromophore. The Ca-Arsenazo III complex's absorbance is measured bichromatically at 660/700 nm. The reaction's subsequent increase in absorbance is proportional to the calcium content in the sample. Arsenazo III has a high affinity for calcium ions (K° = 1 x 10-7) and does not interact with other cations present in serum, plasma, or urine.Ca++ + Arsenazo III pH 6.50 ↔ Ca-Arsenazo III complex (purple)

Reagents

ABX Pentra Calcium AS CP is ready-to-use.

Reagent:

MES pH6.50 100 mmol/L

Arsenazo III 200 µmol/L

Procedure

The cap of the cassette were removed.

The foam was removed by using a plastic pipette, if present.

The cassette was placed into the refrigerated Petra C200 reagent compartment

Reference Range

The reference ranges for each laboratory should be established independently. The figures listed here should only be used as a guideline.

2.57 - 2.15mmol/L (8.6 - 10.3 mg/dL) in serum and plasma

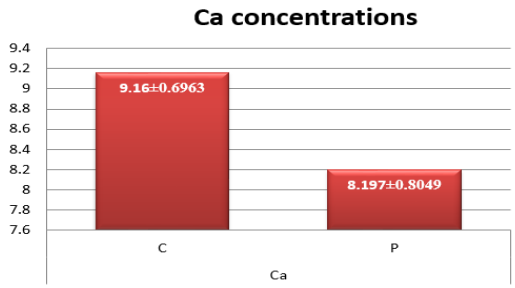
The allometric line generated using the Passing-Bablock regression approach (15) has the following equation: Y = 1.01 X - 0.08 (mg/dL) with a correlation coefficient of r2 = 0.994.

Statistical analysis

The statistical analysis was performed using the statistical software (SPSS), and one-way analysis of variance (ANOVA) was used to compare groups, and arithmetic means for parameters were checked using the Duncan multiple ranges test to delimit significant differences, especially across groups. The criterion for statistical significance was established at (P 0.05).

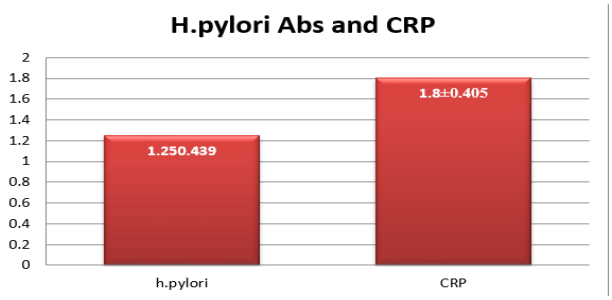
3. Results and Discussion

Levels of Ca in patients with H.pylori and control group



The higher incidence of osteoporosis seen following H. pylori eradication therapy might be due to chronic H. pylori infection. For starters, a long-term H. pylori infection might affect calcium absorption. H. pylori can either increase or reduce stomach acid production, which can lead to duodenal ulceration or pangastritis or gastric ulcers [11, 12] Calcium homeostasis is disrupted and bone mass is altered in hypochlorhydric stomachs [13, 14] Atrophic gastritis is caused by H. pylori chronic gastritis, which raises the risk of osteoporosis [15] Second, a recent Taiwanese population-based cohort research found that chronic H. pylori infection increased the risk of end-stage renal disease (ESRD), Vitamin D deficiency is frequent in individuals with chronic renal disease and ESRD [16, 17], as it is necessary for calcium absorption in the gastrointestinal tract. Ayesh et al. have discovered that persons with H. pylori infection have reduced vitamin B12 levels [18]. Low vitamin B12 levels in the blood have also been linked to decreased bone mineral density [19].

The relationship between H.pylori Abs and CRP



The typical measure for systemic inflammation is C-reactive protein (CRP), which is generated in the liver and released into the blood. This protein is elevated in both acute and chronic disorders, and its low-grade subclinical alteration in chronic diseases has pathophysiological significance [20, 21]. A low-grade chronic rise in circulating inflammatory markers, particularly CRP, is reported in H. pylori infection. Chronic inflammation has also been linked to the onset and exacerbation of a variety of systemic diseases [22]. Other gastric and even extragastric diseases, such as gastric mucosa-associated lymphoid tissue lymphoma, functional dyspepsia, idiopathic thrombocytopenic purpura, iron deficiency anemia, chronic urticaria, metabolic disorder, ischemic heart disease, cognitive impairment, and neurodegeneration, are all linked to H. pylori infection [23, 24].

In connection to CRP levels, clinical symptoms of various disorders may improve after H. pylorieradication [7, 25] CRP levels are generally low in serum, often less than 1 mg/dl, but they can rise to 35-40 mg/dl in response to

infection or inflammation. The high-sensitivity CRP (hs-CRP) test was designed to quantify CRP with a sensitivity of 0.5 mg/dl10 after researchers realized its importance in the diagnosis of many illnesses. In individuals with HP-associated chronic gastritis [26], hs-CRP has been recommended as a predictor of cardiovascular disease and gastric cancer in addition to being a sign of inflammation. Although the amount of hs-CRP in the blood has been linked to chronic gastritis and HP infection,limited studies have focused on the association of hs-CRP level with inflammatory activity and presence of precancerous lesions in biopsy specimens [27-29].

If hs-CRP levels predict inflammation and precancerous lesions, it can be utilized as a simple and accessible laboratory test in chronic gastritis patients for early diagnosis, treatment response monitoring, and cancer screening.

The graphic results

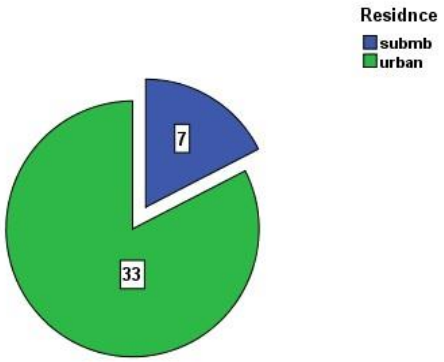


Fig (1) size of samples according to the area of residence (Attended=33, countryside=7)

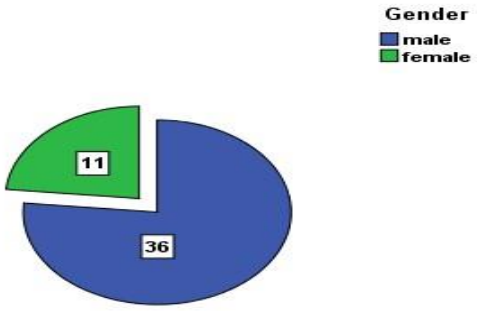
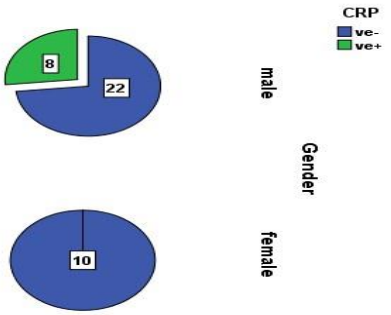
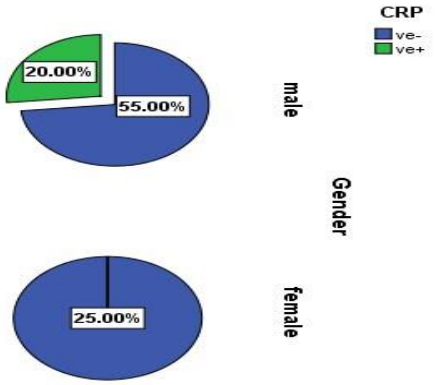


Fig (2): Size of samples according to gender (male=36, female=11)



Fig(3): The sample size divided according to the variable (CRP) and according to the examination result (ve - ,ve +) and by gender (male, female), where the number of males in relation to the examination result (-ve) equals (22) and those for whom the result of the examination was (ve +) (It was) 8.As for the number of females, their number reached (10) only, as the result of the examination for all of them was of the same type



Fig(4): The sample size divided according to the variable (CRP) and according to the examination result (ve -,ve +) and by gender (male, female), where the proportion of males reached (55%) in relation to the examination result (-ve), and the percentage of those whose examination result was (ve) +(it was %) 20).As for the number of females, it was only 25%, where the result of the examination was for all of them of the type (-ve).

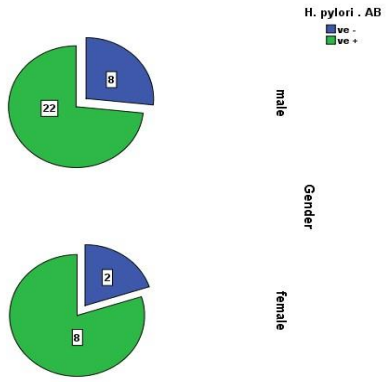


Fig (5): Sample size divided by variable) H. pylori. AB (according to the result of the examination) ve -, ve +) and according to gender(Male, female), where the number of males was (8), according to the examination result (-ve), while those for whom the examination result was (ve +) was (22).As for the number of females, their number was (2) according to the result of the examination of the type (-ve), while the number of females, according to the result of the examination (ve +), was (8).

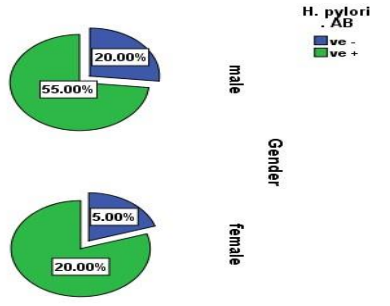
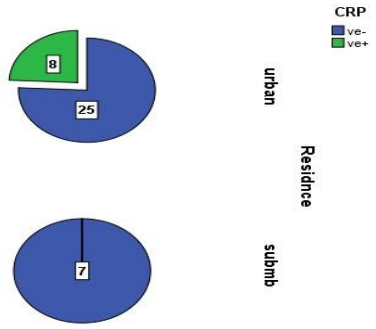


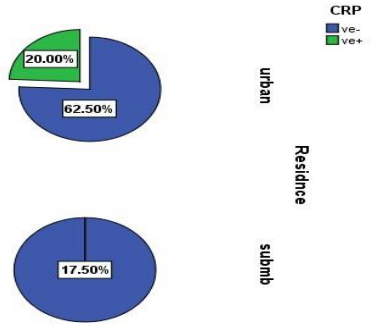
Fig (6): Sample size divided by variable (H. pylori). AB)

and according to the examination result (ve -,ve +) and according to gender (male, female), where the percentage of males in relation to the examination result (-ve) equals (20%), and the percentage of those for whom the examination result was (ve +) was % (55).As for females, their percentage reached (5%) according to the examination result of the type (-ve), while the percentage of females according to the examination result (ve +) reached

. (20%)



Fig(7): The sample size divided according to the variable (CRP) and according to the examination result (ve -, ve +) and according to the area of residence (urban, rural), where the number of urban dwellers according to the examination result (-ve) is equal to (25) as for those who have the examination result) ve +(it was their number(8)As for the number of those who live in the countryside, their number has reached (7), according to the result of the examination of the type (-ve).



Fig(8): The sample size divided according to the variable (CRP) and according to the examination result (ve -,ve +) and according to the area of residence (urban, rural), where the percentage of urban dwellers in relation to the examination result (-ve) equals (62.5%), while the percentage of those who live in the examination was (62.5%). them) ve + (it was %) 20).As for those who live in the countryside, their percentage reached (17.5%), according to the result of the examination of the type (-ve).

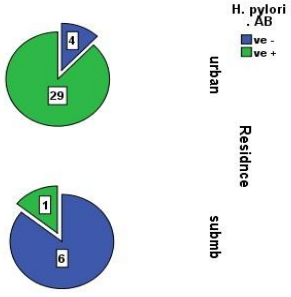


Fig (9): Sample size by variable) H. pylori. AB) and according to the result of the examination (ve -,ve +) and according to the area of residence (urban, rural), where the number of urban dwellers in relation to the result of the examination (-ve) is equal to (4), and the number of those for whom the result of the examination was (ve +) was (29).As for those who live in the countryside, their number was (6), according to the result of the examination of the type (-ve), while according to the type of examination (ve +), their number was (1).

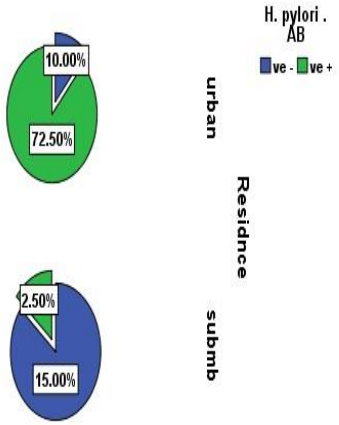


Fig (10): Sample size by variable) H. pylori. AB) and according to the result of the examination (ve -,ve +) and according to the area of residence (urban, rural), where the percentage of those who live in urban areas in relation to the result of the examination (-ve) is equal to (10%) and the percentage of those for whom the result of the examination was (ve)+ (it was 72.5%).As for the percentage of those who live in the countryside, it amounted to (15%) according to the result of the examination of the type (-ve), while according to the type of examination (ve +), it was (2.5%).

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