Original Article

RELATIONSHIP BETWEEN THE SEROLOGIC STATUS OF HELICOBACTER PYLORI WITH THE PRESENCE OF UNSTABLE ANGINA

Seyed Mohammad Alavi[1], Seyed Mohammad Hasan Adel[2],
Alireza Rajabzadeh[3]

ABSTRACT

Objective: To determine whether unstable angina is co-related to seropositivity to chronic Helicobacter pylori (HP) infection.

Methodology: It is a *c*ase control, descriptive study conducted at CCU in Razi Hospital in Ahwaz a city southwest Iran, from 2004 to 2005. We measured serum HP- IgG levels of participants in CCU in a hospital. Blood samples were drawn during study period from 96 patients (mean age 56 years) with Unstable Angina (UA) according to American Heart Association criteria and from 96 participants free of cardiovascular disease (mean age 58 years) and stored at "20°C. Serology results were studied in relation to UA. Using chi squared test, odds ratios (OR) and 95% confidence intervals (CI) were calculated, adjusting for age, gender, and established risk factors.

Results: Seventy nine (82.3%) of patients with unstable angina and 55(61.1%) in the control group presented a positive anti HP-IgG. Odds ratio was 3 with 95% CI: 1.9 to 4.3. There was significant relation between HP-IgG positivity and unstable angina (P<0.001). There was no sex and age significant difference in HP-IgG positivity in patients and controls (P>0.05).

Conclusion: Our study revealed relationship between seropositivity of HP-IgG and unstable angina.

KEY WORDS: Unstable angina, Relationship, H.pylori.

1.   Seyed Mohammad Alavi, MD
2.   Seyed Mohammad Hasan Adel, MD
     Department of Cardiology,
3.   Alireza Rajabzadeh, MD
1-3: Joundishapoor Infectious and
     Tropical Diseases Research Center,
     Joundishapour University of Medical Sciences,
     Ahwaz - Iran.

     Correspondence

     Dr. Seyed Mohammad Alavi, (MD)
     Razi Hospital,
     Infectious Diseases Ward,
     Ahwaz, Iran.
     Email: alavi1329dr@yahoo.com

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INTRODUCTION

Over the past several decades, coronary artery disease (CAD) has become the major health problem in the world with more than 50% of deaths attributed to its complications.[1] The exact causes of atherosclerosis are not clearly known, although multiple risk factors (e.g. hypertension, hyperlipidemia, diabetes mellitus, family history, and smoking) have been well described. However, these risk factors account for only about 50% of the total risk of CAD.[1,2] More than a century ago, inflammation and infection were considered to have atherogenic effects. During last century, however, this hypothesis was completely abandoned, and the old idea that coronary heart disease possibly

has an infectious etiology has only re-emerged in recent years.[3] Both viral and bacterial pathogens have been proposed to be associated with the inflammatory changes found in atherosclerosis.[4,5] Studies done over the past several years have shown an association between markers of inflammation and coronary atherosclerosis with an exacerbation of the inflammatory process during acute myocardial ischemia. Overall, these data have greatly renewed interest in the infectious theory of atherosclerosis and coronary heart disease.[6] Although the evidence is not yet definitive, recent studies have shown that chronic infection by such bacterial organisms as Chlamydia pneumoniae, Helicobacter pylori, and a variety of dental pathogens may play a causative role in atherosclerosis. If this is true, then antimicrobial therapy may be helpful in the secondary prevention of CAD. Indeed, several small studies have already been completed testing this hypothesis.[2]

Several epidemiological studies have shown a positive correlation between chronic gastric infection with Helicobacter pylori (HP) and coronary artery disease. A number of reports also claimed that there are strong relationships between HP infection and coronary risk factors. However, clinical studies concerning the changes of coronary risk factors after eradication of HP infection are few and contradictory[7]. Our aim was to investigate the relationship between the serologic status concerning Helicobacter pylori with the presence of unstable angina (UA), which remain a controversial issue in literature.

PATIENTS AND METHODS

In this case control study in Ahwaz, a city South West Iran from 2004 to 2005, hospitalized patients with unstable angina in CCU ward of Razi hospital affiliated to Joundishapour University of Medical Sciences were evaluated for presence of anti HP–IgG. Ninety six patients enrolled in this study. Sample size was calculated by using $N=Z^2P(1-P)/d^2$ formula in which N= sample size, Z= confidence coefficient 95%=1.96, P

(prevalence) =0.5 and d (distance) =0.1. Inclusion criteria were: 1-Age above 35 years. 2-Clinical criteria (CC) according to American Heart Association Criteria[1]: 1-retrosternal pain, 2-duration of pain 2-20 minutes and, 3-pain resolving with sublingual trinitroglycerin (TNG).

Patients were divided in 3 groups: TAP (typical angina pectoris, having all 3 CC), AAP (atypical angina pectoris, having 2CC) and NAP (non angina pectoris, having only one CC).Exclusion criteria were: 1- Cardiac enzymes rising, 2-EKG changes (q wave in more than 2 pericardial leads, ST elevation in more than 2 pericardial leads) 3-persistant angina pain, 4-doubtful HP- IgG titers. A questionnaire including demographic characteristics and other related variables was fulfilled for each patient. Ninety six gender and age matched controls were enrolled in this study. Five ml clotted blood was obtained from each patient and control for specific anti HP-IgG by ELISA method with sensitivity of 90%-95% and specificity of 95%-98%. Commercially available IgG antibody tests for HP were conducted according to the manufacturer's instructions. Blinded duplicate specimens were included (10%) to assess the reproducibility of the laboratory tests (Serum was frozen in glass vials and stored at "20°C). IgG titer of 1.1u/ml ore more was considered as positive, 0.9-1.1u/ml was doubtful and lower than 0.9u/ml as negative. The data were analyzed by chi squared test and odds ratio and 95% confidence intervals (95% CI) were calculated after adjusting for age and gender.

Ethical Approval: This work has been approved by the ethical committee of research council related to research deputy of Joundishapour University.

RESULTS

There were 96 patients with unstable angina (62 TAP, 30 AAP and 4NAP) in the study group with mean age of 56.48 +/-12.91 years in whom 55% were females.

The control group included 96 persons with mean age of 58.03+/-11.53 years in whom 52% were females. Seventy nine (82.3%) patients with unstable angina and 55(61.1%) in the control group presented a positive anti HP-IgG .Six of control group because of doubtful results were excluded. Odds ratio was 3 with 95% CI: 1.9 to 4.3. There was significant relation between HP–IgG positivity and unstable angina (P<0.001).There was no sex and age significant difference in HP-IgG positivity in patients and controls (P>0.05).There was also no relation between HP-IgG serum level and severity of clinical finding of TAP, AAP and NAP in patients with UA (P>0.05).

DISCUSSION

This study described significant relation between chronic Helicobacter pylori infection (anti HP-IgG positivity) and unstable angina pectoris. Our results support a role of Helicobacter pylori in promoting the risk of UA (P<0.001, OR=3).

Age- and gender-adjusted analyses also revealed no relation of HP seropositivity with incident UA. Several studies have reported associations between chronic Helicobacter pylori infection and UA.[8-11] It is unclear whether infection with H.pylori is really associated with UA because some of these studies were prone to selection biases, limited by small sample sizes, did not adequately account for possible confounders. Our study is consistent with reports of Rekeinesky and et al,[8,9] ;Stone, et al[10] and Fraser, et al[11] that had supported a strong relation of H.pylori with risk of UA. Kowalski, et al detected specific HP-DNA in atheromatous coronary artery in patients with UA but, not in control individuals.[12] These mentioned studies support our findings and administration of antibiotic against HP as a prophylactic effort can be recommended. Stone and his colleague showed that anti HP drugs lowered 36% the risk of UA in studied individuals.[7] Several studies discarded relationship between HP and UA.[13,14] Semija, et al revealed no relation between HP and UA.[13] Radke, et al in their work on patients with UA couldn't detect HP-DNA in atheromatous coronary artery lesion.[14] Because of confounding by socio-economic status relation between HP and UA is difficult to be interpreted. However, our study confirms previous observations of a relation of anti H.pylori antibodies with unstable angina.[8-12] Our study had strengths and limitations. The study sample included both men and women, suitable for examining the association of chronic infections with unstable angina. The mean age of the participants was 56.48 +/-12.91 years that decreased the possibility of missing those most susceptible to Unstable Angina in response to chronic infection with H.pylori. The sample size of our study was small and study design was cross sectional that decrease the validity in contrast to population-based studies. Our study was based on IgG testing and was not designed to examine histological or DNA evidence of infection with H.pylori, accompanying systemic inflammatory responses and rising risk of Unstable Angina. Controls in our study were hospital personnel and or family member of patients, high seropositivity may reflect common environmental situation and high exposure to this infectious agent.

CONCLUSION

Our study described relationship between chronic Helicobacter pylori infection and unstable angina. Helicobacter pylori infections, as evidenced by seropositivity of HP-IgG, were associated with increased risk for Unstable Angina.

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