



DYSLIPIDEMIA; HELICOBACTER PYLORI INFECTED PATIENTS

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INTRODUCTION

Helicobacter pylorus, a common pathogen responsible for chronic gastritis and malignancies and the serological tests detect the presence of antibody (IgG) to H. pylori with 98.8% sensitivity¹⁻⁶.

The dyslipidemia causes disturbance in lipids or lipoproteins in the blood and is a main risk factor for coronary heart disease (CHD)^{7,8}. Recently, there have been role of H. pylori infection in the pathogenesis of various extragastric diseases⁹. It may cause dyslipidemia,¹⁰ the prevalence of dyslipidemia in Helicobacter pylori infection by Satoh, et al was 40%¹¹. The pattern and individual proportion for each lipid abnormality includes raised levels of total cholesterol 27%¹¹, low-density lipoprotein cholesterol (LDL-c) 32.3%,¹¹ triglyceride concentrations 21%¹¹ and decreased high-density lipoprotein cholesterol (HDL-c)

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ABSTRACT... Objective: To determine the frequency of dyslipidemia in Helicobacter pylori infected patients. **Patients and methods:** This cross sectional descriptive study of six months study was conducted at Liaquat University Hospital Hyderabad from 01-03-2012 to 31-08-2012. All the patients between 19 to 60 years of age present with symptoms of dyspepsia, bloating or epigastric discomfort for more than 01 week duration were admitted and evaluated for Helicobacter pylori infection. Thereafter the positive cases (Helicobacter pylori infected patients) were further evaluated for dyslipidemia. **Results:** During six month study period, total 144 patients (95 males and 49 females) with Helicobacter pylori infection were evaluated for dyslipidemia (lipid profile). Majority of patients were from urban areas 110/144 (76%). The mean \pm SD for age of patients with Helicobacter pylori infection was 35.94 ± 10.77 . The mean age \pm SD of dyslipidemic patient was 32.62 ± 6.52 . The dyslipidemia was identified in 87 (60.4%) patients, of which 51 (58.6%) were males and 36 (41.4%) were females. Regarding the pattern of dyslipidemia, ten (11.4%) patients had raised serum triglycerides level, twenty eight (32%) had raised LDL-C level, twenty six (28.9%) had raised serum cholesterol level, seven (8.7%) had low HDL-C level and sixteen (18.3%) had mixed dyslipidemia. The mean \pm SD of hypertriglyceridemia, \uparrow HDL-C, \uparrow LDL-C and hypercholesterolemia in dyslipidemic Helicobacter pylori infected was 280.72 ± 22.85 , 24.21 ± 2.63 , 180.63 ± 12.98 and 285.21 ± 23.63 respectively. **Conclusions:** The H. pylori infected patients are prone to acquire dyslipidemia, therefore the present study observed 60.4% prevalence of dyslipidemia with male predominance (58.6%)

Key words: Dyslipidemia, Lipid profile, Triglycerides, High Density Lipoprotein, Low Density lipoprotein, Cholesterol, Hypertriglyceridemia, Hypercholesterolemia, Lipoproteins, Helicobacter pylori infection.

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8.8%¹¹. In a study by Majka, et al the serum cholesterol and LDL-c were raised in H .pylori positive patients with ischemic stroke than to Helicobacter pylori negative patients¹².

Therefore the present study was conducted in medical ward at Liaquat University Hospital Hyderabad. The present study designed to investigate the changes in lipid profile (dyslipidemia) in H. pylori infected patients. The study creates awareness to H. pylori infected patients for its atherogenic activity and it also provides knowledge to physicians as far as the dyslipidemic management strategy is concerned in context to H. pylori.

PATIENTS AND METHODS

This study was conducted in the department of Medicine and department of anesthesia, intensive

care and pain management from 01-03-2012 to 31-08-2012 at Liaquat University Hospital, Jamshoro / Hyderabad All the patients between 19 to 60 years of age present with symptoms of dyspepsia, bloating or epigastric discomfort for more than 01 week duration, known (diagnosed) cases of *Helicobacter pylori* infection of either Gender and the patients who agreed and ready to give consent for participation in the study were included in the study while the patients already on lipid lowering therapy and known (diagnosed) cases of chronic liver disease (CLD) and cirrhosis, hypothyroidism, recent myocardial infarction (of less than 1 month duration), recent stroke (of less than 1 month duration), chronic renal failure (CRF), diabetes mellitus (DM), familial hypercholesterolemia and hypertriglyceridemia, patient with history of alcoholism, already on beta antagonists, thiazide diuretics, oral contraceptives, immunosuppressive drugs and steroids or on *Helicobacter pylori* eradication therapy and pregnant ladies were excluded from the study.

All patients presented with symptoms of dyspepsia, bloating and epigastric discomfort in medical ward of Liaquat University Hospital Hyderabad were admitted and evaluated for *Helicobacter pylori* infection by taken 2cc venous blood sample in a disposable syringe and sent to laboratory for analysis. Thereafter the positive cases (*Helicobacter pylori* infected patients) were included in the study and further evaluated for dyslipidemia by taking the blood sample in a fasting state. A written consent was taken from every relevant patient for participation in the study. The data was collected on pre-designed proforma and all such maneuvers were performed by me and were under medical ethics. All expenses of the study were beared by collaboration of whole researcher. The data was analyzed in SPSS. The frequency and percentage (%) was calculated for dyslipidemia as well as for cholesterol, LDL-C, HDL-C, TG and gender in *Helicobacter pylori* infected patients. The mean \pm SD was calculated for numerical variables. The stratification was done for age, gender, duration and various component of dyslipidemia in patients with *Helicobacter pylori*

infection.

RESULTS

Total 144 patients with *Helicobacter pylori* infection were studied for dyslipidemia. Majority of patients were from urban areas 110/144 (76%). The mean age \pm SD of patients with *Helicobacter pylori* infection was 35.94 ± 10.77 . The dyslipidemia was identified in 87 (60.4%) patients while regarding the pattern of dyslipidemia, ten (11.4%) patients had raised serum triglycerides level, twenty eight (32%) had raised LDL-C level, twenty six (28.9%) had raised serum cholesterol level, seven (8.7%) had low HDL-C level and sixteen (18.3%) had mixed dyslipidemia.

The mean age \pm SD of dyslipidemic patient was 32.62 ± 6.52 . The distribution of age in context to sex is shown in Table-I. The gender distribution in relation to dyslipidemia is shown in Table-II whereas the dyslipidemia in context to gender is mentioned in Table-III.

The mean age \pm SD of the patients was 35.98 ± 7.85 while the mean \pm SD of hypercholesterolemia in dyslipidemic *Helicobacter pylori* infected patients was 285.21 ± 23.63 . The mean \pm SD of raised LDL-C in dyslipidemic *Helicobacter pylori* infected patients was 180.63 ± 12.98 while the mean \pm SD of hypertriglyceridemia in dyslipidemic *Helicobacter pylori* infected patients was 280.72 ± 22.85 . The mean \pm SD of low HDL-C in dyslipidemic *Helicobacter pylori* infected patients was 24.21 ± 2.63 whereas regarding the mixed dyslipidemia in *Helicobacter pylori* infected patients 16(18.3%), the mean age \pm SD of the patients was 38.92 ± 8.94 while the mean gestational age \pm SD was 32.72 ± 3.86 .

Age (yrs)	Gender		Total
	Male	Female	
19-29	29 (30.5%)	10 (20.4%)	39 (27.1%)
30-39	42 (44.2%)	21 (42.9%)	63 (43.8%)
40-49	13 (13.7%)	3 (6.1%)	16 (11.1%)
50-60	11 (11.6%)	15 (30.6%)	26 (18.1%)
Total	95 (100.0%)	49 (100.0%)	144(100.0%)

Table-I. Distribution of gender in relation to age

Age (yrs)	Gender		Total
	Male	Female	
19-29	22 (25.3%)	17 (29.8%)	39 (27.1%)
30-39	42 (48.3%)	21 (36.8%)	63 (43.8%)
40-49	10 (11.5%)	6 (10.5%)	16 (11.1%)
50-60	13 (14.9%)	13 (22.8%)	26 (18.1%)
Total	87 (100.0%)	57 (100.0%)	144(100.0%)

Table-II. Dyslipidemia in relation to age

Age (yrs)	Gender		Total
	Yes	NO	
Male	51 (58.6%)	44 (77.2%)	95 (66.0%)
Female	36 (41.4%)	13 (22.8%)	49 (34.0%)
Total	87 (100.0%)	57 (100.0%)	144(100.0%)

Table-III. Dyslipidemia in relation gender

DISCUSSION

Helicobacter pylori a gram-negative organism has been linked to atherosclerosis and CVD. The former literature identified the association between *Helicobacter pylori* and IHD by observing that chronic infections is responsible for pathogenesis of atheromatous plaque and its eradication can reduce the risk for atherosclerotic diseases^{14,15}.

In present study we observed that *Helicobacter pylori* positive patients had raised LDL cholesterol, total cholesterol and triglyceride level. Former literature observed this association may be due to the impact of the infection on fat metabolism^{15,16}. A previous study detected its indirect relation to social status,¹⁷ while in current series the social background is found to be homogenous; Alcoholics were also excluded from our study because it seems to disturb the fat metabolism^{18,19}.

The present series found a decrease in the HDL cholesterol level and significant increase in LDL cholesterol level. The study by Pilotto, et al²⁰ and Yudkin²¹ on subjects with peptic ulcer and ischemic heart disease shown a significantly low high density lipoprotein cholesterol level.

Our study observed had male gender predominance as far as *Helicobacter pylori* and dyslipidemia is concerned while former studies had also suggested male population

predominance in context to disturbance in lipid metabolism and *Helicobacter pylori* infection¹³⁻¹⁵. The cytokines (tumour necrosis factor), which inhibits lipoprotein lipase and mobilization of fat from tissues to blood are responsible for these pathogenic alterations²².

Former studies observed the changed in cholesterol and lipoproteins level during acute bacterial infection^{23,24}. Volanen et al, found that the administration of endotoxin (LPS) leads to the formation of cytokines (TNF- α) that rises the lipoprotein level in an animal model²³.

Therefore, it has been observed that there is an association between *H. pylori* infection and atherosclerosis due to abnormally rising of cholesterol and lipoproteins level by the pathogen can leads to cardiovascular atherosclerotic diseases.

CONCLUSIONS

The current study confirmed the association between *H. pylori* infection and disturbance in lipid profile and reported 60.4% prevalence with male predominance (58.6%) as far as dyslipidemia is concerned. Therefore, the findings might open new perspectives for atherosclerosis prevention and management.

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