ASSOCIATION OF GENDER AND AGE WITH COMPLIANCE OF H PYLORI ERADICATION THERAPY

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ABSTRACT

Objective: To find out association of gender and age with compliance of *H Pylori* eradication therapy.
Study Design: Cross sectional comparative study.
Place and Duration of Study: Combined Military Hospital, Multan and Pak Emirates Military Hospital, Rawalpindi, from Sep 2017 to Feb 2020.
Methodology: Two hundred and fifty patients with dyspepsia were included through convenient sampling after getting informed consent. The patients already under *H Pylori* eradication therapy were excluded from the study. Diagnosis of *H Pylori* infection was done by histopathology report of gastric mucosal biopsy on upper GI endoscopy in some individuals and *H Pylori* antigen on stool examination in others. They were placed in eight different groups keeping in mind their previous history of use of antibiotics and known side effects with the particular antibiotic.
Results: There were 154 (61.60%) males and 96 (38.40) females with mean age of 36.71 ± 13.23 years. The frequency of male patients who complied to treatment (130/84.4%) was significantly higher as compared to the frequency of female patients (71/74.0%) at *p*-value of 0.04 and odds ratio of 1.9 (1.01-3.58). The study also showed that the difference of mean age between the patients who completed and those who did not complete the treatment was statistically not significant (36.33 ± 12.78 vs 38.24 ± 14.94 years).
Conclusion: Compliance to *H Pylori* eradication therapy is associated with gender but not with age.

Keywords: Compliance, Dyspepsia, H pylori.

INTRODUCTION

Helicobacter pylori, a Gram-negative spiral-shaped microaerobic microorganism is prevalent in developing Asian countries[1]. It is associated with gastritis, peptic ulcer, gastric carcinoma and lymphoma[2-4]. More than half of the world population is suffering from Hpylori. There is wide variation of prevalence in different parts of the world[5-7]. Its detection in 1983 revolutionized the treatment of peptic ulcer[8]. Eradication therapy is recommended in patients positive for *H Pylori* test[9].

H Pylori infection is resistant to treatment, therefore, at least two antibiotics along with Proton Pump Inhibitors (PPIs) are recommended[10]. The use of antibiotics causes side effects which are a basis of poor compliance to treatment. Most common side effects are related to gastrointestinal system like abdominalpain, diarrhea, constipation and metallic taste[11]. Other side effects are headache and vomiting. A number of studies have been done on effective medicines, treatment outcomes and their possible side effects but very few studies are there that actually quantify the compliance and its association with age and gender[12]. This study was aimed to highlight this important issue of compliance in terms of its association with age and gender.

Compliance with therapy is the single most important factor in *Helicobacter pylori (H. pylori)* eradication. Compliance with therapy has a considerable influence on treatment failures in antibiotic-sensitive patients and in the subsequent development of antibiotic resistance. *Helicobacter pyloriis* prevalent in developing Asian

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METHODOLOGY

It was a cross sectional analytical study, conducted at CMH Multan and PEMH Rawalpindi from Sept 2017 to Feb 2020. The study was approved by the ethics review committee of the Hospitals. Patients were included through convenience sampling. All patients with dyspepsia after informed consent were included in the study. The patients already under *H Pylori* eradication therapy were excluded from the study. Diagnosis of *H Pylori* infection was done by histopathology report of gastric mucosal biopsy on upper GI endoscopy in some individuals and *H Pylori* antigen on stool examination in others. They were placed in eight different groups keeping in mind their previous history of use of antibiotics and known side effects with the particular antibiotic. They were assigned one of nine groups for two weeks.

1. PPI+ clarithromycin+ Amoxicillin (standered triple treatment)
2. PPI+ Amoxicillin+ Metronidazole (standered triple treatment)
3. PPI+ bismuth+ vibramycin+ Amoxicillin+ Nitromidazole (Bismuth based quadruple treatment)
4. PPI+ Clarithromycin+ Amoxicillin+ Nitromidazole (concomitant treatment)
5. PPI+ Amoxicillin 7 days followed by PPI+ clarithromycin+ Nitromidazole 7 days (sequential treatment)
6. Amoxicillin 7 days followed by PPI+ Amoxicillin+ Nitromidazole 7 days (sequential treatment)
7. PPI+ Levofloxacin+ Amoxicillin 14 days (Levofloxacin based triple treatment)
8. PPI+ Amoxicillin 7 followed by fluoroquinolones+ Nitromidazole (Levofloxacin based sequential treatment)
9. PPI+ clarithromycin+ Amoxicillin+ Probiotic (probiotic supplemented triple treatment)

At the end the end of two weeks they were inquired about completion of treatment (compliance). If not completed, then reason for not completing the treatment by elaborating the possible side effects. Their ages and gender were noted to be associated with compliance.

RESULTS

There were 154 (61.60%) males and 96 (38.40) females with mean age of 36.71 ± 13.23 years.

Table-I shows association of gender with compliance of *H Pylori* eradication therapy. The frequency of male patients who complied to treatment is significantly higher as compared to the frequency of female patients. The table also shows that the odds of compliance to treatment in males are 1.9 times higher than females.

Table-I: Association of gender with treatment compliance.

Gender	Treatment Completed (Compliance)		*p*-value	Odds Ratio With 95% Confidence Interval
	Yes	No		
Male	130 (84.40%)	24 (15.60%)	0.04	1.90 (1.01-3.58)
Female	71 (74.00%)	25 (26.00%)		

Table-II: Association of age with treatment compliance.

Treatment Completed (Compliance)	Mean Age ± SD (years)	*p*-value
Yes	36.33 ± 12.78	0.36
No	38.24 ± 14.94	

Table-II shows association of age with treatment compliance. The table shows that the difference of mean age between the patients who completed and those who did not complete the treatment is statistically not significant.

DISCUSSION

Results of the current study showed that compliance to *H Pylori* treatment was significantly higher in males as compared to females and the odds of compliance in males were 1.9 times greater than females. However, there was no statistically significant association between age of the patients and compliance to the treatment.

Helicobacter pylori infection is prevalent in developing Asian countries[1].

Helicobacter pylori infection increases the risk of peptic ulcer disease and gastric cancer, and has been estimated to affect half or more of the world's population[13].

Most of the time physicians cannot recognise poor compliance. Most treatments require a high level of compliance for successful outcomes. It has been proved by many studies that poor compliance is a major factor of treatment failure in *Helicobacter pylori* eradication. Therefore, understanding the reasons of poor compliance is a major research focus. Our analysis shows the association of gender and age with treatment compliance for *H pylori* eradication.

Our results indicated that association of gender with treatment compliance was significant (*p*-value 0.04) but age was not significantly associated with treatment compliance (*p*-value 0.36).

Contrary to our study Megan Lefebvre *et al* observed that good compliance was substantially more frequent in older participants. They also proved that compliance was more frequent in men and participants with higher education levels[14].

We found following reasons for poor complianc: nausea, pain abdomen, difficulty in swallowing tablets and bad taste of medicine.

The World Health Organization defines compliance as ''the extent to which a person's behaviour taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a healthcare provider''[15].

Recognised determinants of compliance correspond to these categories: treatment characteristics (e.g. regimen complexity, pill burden, side effects), condition characteristics (e.g. rate of progression of disease, disease severity), patient characteristics (e.g. substance or alcohol abuse, depression, age), healthcare team and system-related factors (e.g.characteristics of the medical system) and social and economic factors (e.g. social support, attitude and beliefs towards treatment, and income)[16]. In our study, nausea, stomach pain and bitter taste were most commonly reported barriers to compliance. Non-compliance may substantially lower the eradication success[17]. Antibiotic associated gastrointestinal side-effects, even in mild cases, have been considered to be a serious drawback of *H. pylori* eradication therapies[18].

In our study, non-compliance with *H. pylori* eradication treatment was noted in 15.60% males as compared to 26.00% females. Association of gender with treatment compliance was significant (*p*-value 0.04). Association of age with treatment compliance was not significant (*p*-value 0.36).

CONCLUSION

Compliance to *H Pylori* eradication therapy is associated with gender but not with age.

CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

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