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Helicobacter Pylori Serology in Patients with Chronic Nonspecific Pharyngitis

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Abstract: Sore throat is the most common complaint in ENT OPD with most of the patients suffering from pharyngitis. Chronic nonspecific pharyngitis is a very common presentation among these patients with majority experiencing only temporary relief with medications. Such patients commonly complain of burning in throat and retrosternal burning. In practice, this leads to recurrent visit of patient to the physician and otorhinolaryngologist with only temporary relief. Many of these patients have *H. pylori* colonization. Although *H. pylori* usually colonizes in gastric mucosa but there are some reports of extra gastric colonization including pharyngeal and laryngeal mucosa. To detect the presence of Helicobacter pylori there are a number of different investigations. These investigations include *H. pylori* serology, swab culture, stool culture and urease breath test. *H. pylori* serology is a very cost effective method for quick diagnosis of such patients. Eradication of *H. pylori* is essential for long lasting relief in these cases of chronic nonspecific pharyngitis. We have conducted a prospective clinical study of 173 patients with chronic nonspecific pharyngitis to show the relationship of pharyngitis with *H. pylori* infection. Patients were selected on the basis of inclusion criteria. The data showed a large number of patients with chronic nonspecific pharyngitis were positive for *H. pylori* serology and had relief with eradication therapy.

Keywords: *H. pylori* Serology, Chronic Nonspecific Pharyngitis, Sore Throat, PPIs, Eradication Therapy

1. Introduction

Chronic nonspecific pharyngitis is the chronic inflammation of the pharyngeal wall [1]. It can be precipitated by multiple factors including recurrent sinus infections, laryngopharyngeal reflex, chronic upper respiratory tract infections, nasal obstruction and mouth opening [3, 14]. These are considered contributory factors while true etiology is still controversial [2]. In general, any insult to the pharyngeal mucosa will lead to chronic nonspecific pharyngitis and patient will continue having the symptoms until the insult is removed. Such patients present with the main symptoms of sore throat, odynophagia, repeated need for throat clearing, burning in throat; and chest, and globus pharyngeus [1].

The main aim of treatment is to reduce symptoms and treat underlying cause, however, most of the time the cause is not easy to diagnose. It is general practice to give such patients PPIs along with other pharmaceutical agents to reduce inflammation but the effect is not long lasting. This leads to long term abuse of PPIs and anti-inflammatory agents. Investigation and treatment of underlying cause will help patient achieve long term symptomatic control and reduces the burden on health care system.

Helicobactor pylori is a gram negative pathogenic rod responsible for inflammation of gastric and duodenal mucosa

ultimately causing duodenal and gastric ulcerations, atrophic gastritis, mucosa associated lymphoid tissue lymphoma, and gastric carcinoma. It may also colonize at extragastric sites including oral cavity, salivary glands, middle ear and paranasal sinuses [2, 6, 14, 15]. Appearance of *H. pylori* at gastric and at pharyngeal mucosa can both lead to chronic nonspecific pharyngitis [1]. *H. pylori* serology is very cost effective method to determine the presence of *H. pylori* infection however it cannot help pinpoint the exact place of colonization of *H. pylori* [4]. We have conducted this study to determine the relationship of *H. pylori* serology with chronic nonspecific pharyngitis.

2. Materials and Method

2.1. Inclusion and Exclusion Criteria

The study was conducted conducted the study on 173 patients from 1st February 2020 to 1st November 2021 who met the inclusion criteria.

Inclusion critera:

1) All patients between the age of 10 to 60 years.

2) Patients with symptoms of chronic nonspecific pharyngitis, such as sore throat, chronic throat irritation, chronic cough, globus pharyngeus, nausea, angina in the pharynx, and intermittent hoarseness.

3) Duration of symptoms for more than 3 months.

4) Both genders.

Exclusion criteria.

1) Patients with head and neck malignancy.

2) Patients taking radiations for any reason.

3) Patients below the age of 10 and above the age of 60.

4) Patients with autoimmune disorders.

5) Patients with neuropsychiatry disorders.

2.2. Sampling Technique

Non probability selective sampling.

2.3. Data Analysis

All the subjects meeting the inclusion criteria were included in study. Data was analyzed using SPSS version 20. Frequency and percentage was calculated for gender.

3. Results

3.1. Positivity Rate

Among 173 patients 139 patients had positive *H. pylori* serology. Among these 94 patients had positive IgM/IgA, 12 had both IgG and IgM/IgA positivity, and 33 had IgG positivity.

Table 1. *Positivity rate.*

	Positive				Negative
	IgA/IgM	IgG	IgG and IgM/IgA	Total	
Patients	94	33	12	139	34
Percentage	54.34	19.07	6.94	80.35	19.65

On calculation, 54.34% have positive IgA/IgM serology while 19.7% have positive IgG. About 12% of the patients had both serology positive. So a total of 80.35% of the patients were positive.

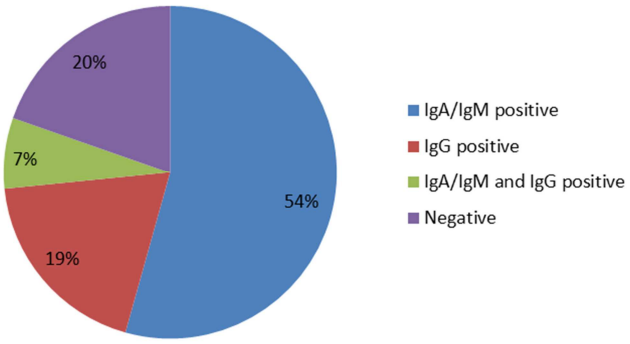

Figure 1. *Positivity percentage.*

Based n the above mentioned data we calculated positivity rates as number of patients positive divided by total patient tested multiplied by 100. A positvity rate of 80.35% was noticed. This showed that we might be under diagnosing the patients of *H. pylori* infection.

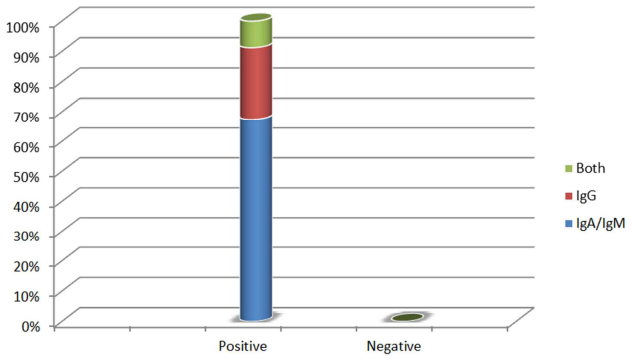

Figure 2. *Seropositivity.*

3.2. Gender Distribution

Predominantly male patients had chronic pharyngitis with positive *H. pylori* serology.

Male to female ratio was 1.88:1.

A total of 113 patients were males making up about 65.32% of the patients while 60 patients were female making 34.68% of the patients. Among 113 male patients 92 were positive with 81.4% and 21 were negative. Females on the other hand 78.3% of the females were positive and 22.7% were negative.

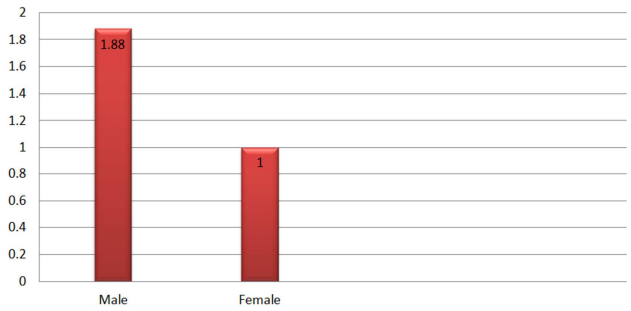

Figure 3. *Gender Ratio.*

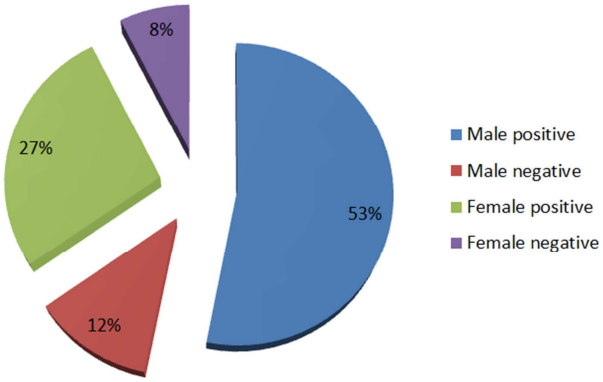

Figure 4. *Gender distribution with seropositvity and seronegativity.*

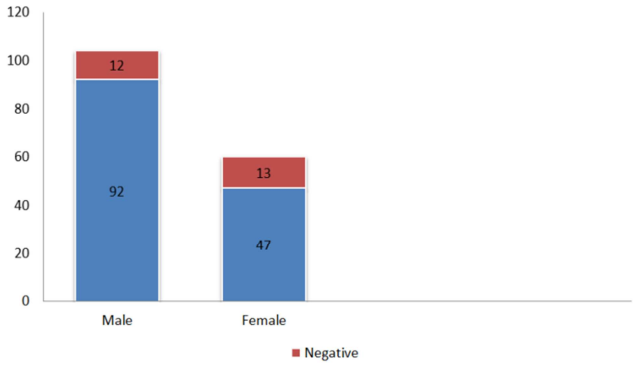

Figure 5. *Gender Distribution with serology division.*

This increase in male positivity rates may be due to multiple reasons including increased exposure to infected food, visiting doctor early and compliance to investigations. This positivity may show just the tip of the iceberg with many patients still undiagnosed.

3.3. Improvement of Symptoms After H. pylori Eradication Therapy

All the *H. pylori* positive patients were given first line eradication therapy. Only 3 patients required second line eradication therapy. Following result was seen.

Table 2. *Seropositivity and negativity in both genders.*

	Positive			Negative	Total	Percentage
	IgA/IgM	IgG	IgG and IgM/IgA			
Male	71	17	4	21	113	65.32%
Female	23	16	8	13	60	34.68%
Total	94	33	12	44	173	
Percentage	54.33	19.08	6.93	25.4	100%	

Table 3. *Gender distribution.*

	Total Positive	Total Negative	Total
Male	92	12	113
Female	47	13	60

Table 4. *Symptomatological relief.*

Symptoms	Eradication therapy		
	No. of patients with symptoms before therapy	Improved	
		Total	Percentage
Odynophagia /sorethroat	167	132	79%
Retrosternal burning	84	73	86.9%
Burning in throat	102	98	96%
Fever	17	3	17.6
Dry cough	133	99	74.4%
hoarseness	41	36	87.8%
Post nasal drip	141	17	12.05%

4. Discussion

Chronic simple laryngitis is a very common presentation in our OPD setting with many patients complaining of return of symptoms after the medications have been discontinued [1]. This leads to long term overuse and abuse of medications including PPIs, paracetamol, antibiotics and anti-allergy. In our setting a lot of patients suffer from retrosternal burning and burning sensation in throat [3, 4]. This can be due to dietary lifestyle of general population as many patients prefer eating spicy food from unhygienic places. *H. pylori* infection can lead to consistent gastritis and even laryngopharyngeal reflux with presence of bacteria even in pharynx [2, 15]. This

constant insult to the pharyngeal mucosa will lead to mucosal damage and over time lead to symptomatic chronic nonspecific pharyngitis. Detail history and examination of such patients can guide the physician or otorhinolaryngologist to investigate for *H. pylori* colonization.

Although there are many investigations but *H. pylori* serology is a cost effective way to rule out *H. pylori* infection. It is easily done in any laboratory including small laboratories in peripheral region [2]. Other tests include culture of pharynx for presence of bacteria, stool culture and urease breath test [9, 12]. Culture has very high sensitivity and specificity, however patients are not comfortable with it and it is a costly test requiring many days for the result [14]. Stool culture has the same limitations. Urease breath test requires the patient to be NPO for at least 5 to 6 hours and limited number of laboratories in our setup offers this test. It is also costly as compared to simple serology [2, 14, 9].

The main disadvantage of this test is low sensitivity and specificity. It also doesn't distinguish between *H. pylori* infection of gastric mucosa, pharyngeal mucosa or both. This draw back limits the accuracy of our study. However, serology is a good preliminary test and can be easily performed with further investigations reserved for patients with discrepancy in clinical picture and serology.

Patients usually test positive for either one or both antibodies indicating *H. pylori* infection. First line treatment was given for a period of 10 to 14 days [5, 10, 11]. First line eradication therapy included a course of 2 drugs selected among amoxicillin, clarithromycin and metronidazole with PPIs (proton pump inhibitor) for a period of 7 to 14 days [13, 7, 12]. Patients report improvement of symptoms within 15 days. Many patients discontinued PPIs after the full treatment. One patient said she was able to eat solid food after 2 years because earlier any solid food would cause her to have severe heart burn, sore throat, cramping and diarrhea which settled completely after taking full course of treatment. Only a handful of patients required second line therapy either due to intolerance to first line drugs or positive serology even after treatment. Alternate to the first line therapy is use of quinolones, rifabutin, tetracycline, and furazolidone [7, 8]. Quinolones also had a very good response and was well tolerated by patients.

So the above mentioned data supports the fact that there is a strong relationship between *H. pylori* serology with chronic nonspecific pharyngitis. This should be investigated further with bigger sample size to get true data regarding the prevalence of *H. pylori* colonization in patients with chronic nonspecific pharyngitis.

5. Conclusions

The author has come to the conclusion that ENT specialists should have a low index of suspicion for *H. pylori* infection in patients of chronic simple pharyngitis. Patients with burning in throat and chest should always be investigated. Investigation chosen by the Otorhinolaryngologist should be specific, sensitive, accessible and cost effective. Further research should be done in this regard with a bigger sample size. The author herself will try to re-evaluate after 1 year for more precise results and share this knowledge with fellow colleagues for a better patient care. Author aims to further confirm this relationship by doing a follow-up comparative study of patient with chronic nonspecific pharyngitis and control group with no symptoms and then compare *H. pylori* seropositivity in both the population.

Conflict of Interest

The authors declare that they have no competing interests.

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