RISK FACTORS OF ACID PEPTIC DISEASE AMONG ADULTS ATTENDING THE GENERAL MEDICINE OUTPATIENT DEPARTMENT OF A TERTIARY CARE INSTITUTION IN SOUTH INDIA- A CROSS SECTIONAL STUDY

Jayasree C. S¹, Soumya Rasheed², Sree Lakshmi Menon³, Shibla Shajahan⁴, Shireen Majeed⁵, Sona Fazil⁶, Sofi S⁷, Sruthi L⁸, Surya M. S⁹

¹Professor, Department of Community Medicine, Travancore Medical College, Kollam, Kerala, India.

²Final Year MBBS Student, Travancore Medical College, Kollam, Kerala, India.

³Final Year MBBS Student, Travancore Medical College, Kollam, Kerala, India.

⁴Final Year MBBS Student, Travancore Medical College, Kollam, Kerala, India.

⁵Final Year MBBS Student, Travancore Medical College, Kollam, Kerala, India.

⁶Final Year MBBS Student, Travancore Medical College, Kollam, Kerala, India.

⁷Final Year MBBS Student, Travancore Medical College, Kollam, Kerala, India.

⁸Final Year MBBS Student, Travancore Medical College, Kollam, Kerala, India.

⁹Final Year MBBS Student, Travancore Medical College, Kollam, Kerala, India.

ABSTRACT

BACKGROUND

Acid Peptic Disease is a condition which is widely prevalent among adults. Several individuals especially belonging to the age groups of senior citizens are found to be suffering from this condition. It may manifest as heart burn, nausea, a feeling of gaseous distension of abdomen, decreased appetite, irritability etc. Frequent suffering from these problems will affect the quality of life of the person considerably. Abstaining from certain foods regularly for avoiding the symptoms of this condition may affect the nutritional status of the elderly. On the other hand, young adults may find their work capacity and concentration in work and studies affected by this. Thus, Acid Peptic Disease is an ailment, even though not causing much mortality, can result in considerable morbidity. With an understanding regarding the risk factors of Acid Peptic Disease, life style modifications can be brought about, which can reduce the distress associated with this condition.

Aim of the Study- To evaluate the risk factors for developing acid peptic disease among adults visiting the different departments of Travancore Medical College during the study period.

MATERIALS & METHODS

This was a cross sectional study done in Travancore Medical College, which is a tertiary level hospital and teaching institution in Kollam, Kerala. Adults attending the general medicine outpatient department of this medical college were included in the study. A total of 237 subjects were studied.

RESULTS

Statistically significant association was found for consumption of spicy foods (p value<0.001), Non-Steroidal Anti-inflammatory Drugs (p value<0.01), intake of hot food and beverages (p value<0.01), smoking (p value<0.001), alcohol (p value<0.001) and emotional stress (p value<0.005) in this study. Regularity of food intake, BMI, regular physical exercise, frequent intake of coffee/tea or vegetarian/non-vegetarian food habits did not show statistically significant association in this study.

CONCLUSION

Among the various risk factors considered to be associated with acid peptic disease, hot & highly spicy food, emotional stress, smoking, alcoholism and intake of NSAIDs were significantly related to acid peptic disease in this study group. It follows that a control of these factors by awareness creation supplemented with drugs could bring about considerable improvement in the quality of life of the patients.

KEY WORDS

Acid Peptic Disease, Adults, Risk Factors.

HOW TO CITE THIS ARTICLE: Jayasree CS, Rasheed S, Menon SL, et al Risk factors of acid peptic disease among adults attending the general medicine outpatient department of a tertiary care institution in South India- a cross sectional study. J. Evolution Med. Dent. Sci. 2018;7(45):4834-4838, DOI: 10.14260/jemds/2018/1077

'Financial or Other Competing Interest': None.
Submission 26-09-2018, Peer Review 20-10-2018,
Acceptance 26-10-2018, Published 05-11-2018.

Corresponding Author:

Dr. Jayasree C. S,
Sreeramgam, A4, Sreeramgam Lane,
Sasthamangalam, P. O.,
Thiruvananthapuram-695010,
Kerala, India.

E-mail: jayasree_cs@yahoo.com
DOI: 10.14260/jemds/2018/1077

BACKGROUND

An ulcer is a break in the stomach lining, the first part of the small intestine, or sometimes in the lower oesophagus. Around 4% of the population suffers from peptic ulcers.⁽¹⁾ There is approximately a 10% lifetime risk of developing a peptic ulcer. Acid peptic disorders (APD) include gastro oesophageal reflux disease (GERD) and peptic ulcer disease (PUD). These are common conditions reported in daily clinical practice. It has been observed that conditions like Irritable Bowel Syndrome (IBS) and functional dyspepsia may mimic these.⁽¹⁾

Many of the individuals who suffer from acid peptic disease at any given point of time are affected by the morbidity caused by these. The quality of life is substantially affected by the condition. Prolonged course of disease may result in considerable malnourishment.

The pathogenesis of these disorders involves an imbalance between acid secretion and gastric mucosal defences. Pharmacologic treatment of acid peptic disorders has focused on correcting this imbalance by either improving mucosal defences with drugs such as sucralfate, bismuth, and prostaglandin analogs, neutralizing acid with antacids, or decreasing acid secretion with histamine-2 (H₂)-receptor antagonists, or, more recently, proton pump inhibitors.⁽²⁾

The exact frequency of dyspepsia in the general population is difficult to find out because many individuals who have the symptoms do not seek medical care. Of all adults 30–40% experience symptoms of upper abdominal pain or discomfort but an organic cause is found in only a minority who seek medical care. The rest are grouped as functional dyspepsia. Epigastric pain, burning, postprandial fullness and early satiety are experienced in various degrees by patients.⁽³⁾ The common risk factors include H. Pylori, non-steroidal anti-inflammatory drugs, tobacco smoking, alcohol, stresses etc. Various journals have been presented showing the relation between acid peptic disease and its risk factors. Type A personality has also been found to be related.⁽⁴⁾

Even though helicobacter pylori is put forward as a factor in the aetiology of dyspepsia, (1, 5) this was not included in the study because of the impracticality of doing an endoscopy in the individual patient and establishing the presence of H pylori.

Objective of the Study

To find out the risk factors for developing acid peptic disease among adults attending the general medicine outpatient department of Travancore Medical College during the study period.

MATERIALS AND METHODS

Study Area

The study was conducted in adults coming to the general medicine outpatient department of Travancore medical college in Kollam district of Kerala. This is a teaching hospital located in the urban area with specialty departments.

Study Period

September 1st to October 31st 2017.

Study Design

Cross sectional study.

Sample Size

The prevalence of dyspepsia in hospital patients was found to be 30.4% in a pilot study conducted by the investigators in the same setting-

$$\text{So } 4pq = 4 \times 30 \times 70 = 237 \\ d \times d \times 6 \times 6$$

The sample size came to 237

Sampling Method

Patients above 18 years coming to the general medicine outpatient department were included in the study consecutively, till the required sample size was attained.

A convenient sampling technique was adopted.

Inclusion Criteria

Adults visiting the general medicine outpatient department of Travancore Medical College during the study period.

Exclusion criteria

1. Not giving consent for study
2. Seriously ill patients
3. Individuals who are mentally challenged

Data collection

The subjects were interviewed by the investigators using a pre-tested structured questionnaire. It was translated into Malayalam and then back translated into English.

Individuals who reported as suffering from any one or more of the following symptoms more than 3 times in the preceding one month were considered as affected by Acid Peptic Disease – Epigastric pain, burning, postprandial fullness, early satiety.

Statistical Analysis

Data entry was done in Microsoft Excel. The analysis was done using SPSS. Percentages & frequencies were calculated. Significance testing was done by using Chi square test. A p value <0.05 was considered significant.

Due clearance from the Institutional Ethical Committee was obtained and after taking informed written consent from the study subjects, the study was conducted.

RESULTS

Our study population came to a total of 237. Of them, 111(46.8%) were males and 121(53.2%) were females.

The median age of the group was 43. The number of people above the age of 43 was 116 (48.9%) and those aged 43 or below came to 121(51.1%)

The distribution with respect to religion was as follows- 110(6.4%) Hindus 98 (41.1%) Muslims and 29(12.3%) Christians.

150(63.3%) individuals had an education of 10th standard or more. The median income came to Rs. 10,000/-.111 people (46.8%) had an income of Rs. 10,000/- or more per month.

Study variable	Frequency	Total	Percentage
Age			
<=43 yrs.	121	237	51.1
>43 yrs.	116		48.9
Gender		237	
Male	111		46.8
Female	126		53.2
Religion		237	
Hindu	110		46.4
Muslim	98		41.3
Christian	29		12.3
Education		237	
>=10 yrs. of schooling	150		63.3
<10 yrs. of schooling	87		36.7
Monthly income		237	
<=Rs. 10, 000/-	126		53.2
>Rs. 10, 000/-	111		46.8

Table 1. Distribution of Sociodemographic Variables in the Study Population (N=237)

Individuals who reported as suffering from any one or more of the following symptoms more than 3 times in the preceding one month were considered as affected by Acid Peptic Disease – Epigastric pain, burning, postprandial fullness and early satiety. According to these criteria, it was found that, out of the 237 subjects 135 suffers from acid peptic disease.

The distribution of factors related to Acid Peptic Disease was analysed. The factors looked for were the food habits (Vegetarian/Non-vegetarian), pain epigastrium, abdominal distension, fullness of stomach, regularity of food intake, preferring very hot food, preferring highly spicy food, nausea following food intake, intake of tea/coffee, alcohol consumption, smoking, Non-Steroidal Anti-Inflammatory Drugs (NSAIDs), BMI, emotional stress, stress at work place, regular physical exercise etc.

Risk Factor	Frequency	Total	Percentage
Gastric Pain			
Yes	135	237	57
No	102		43
Abdominal Distension			
Yes	105	237	44.3
No	132		55.7
Fullness of Stomach			
Yes	108	237	45.6
No	129		54.4
Veg/Non – veg			
Veg	56	237	23.6
Non-veg	181		76.4
Food Intake			
Regular	121	237	51.1
Irregular	116		48.9
Skipping Meals			
Yes	141	237	59.5
No	96		40.5
Spicy Food			
Yes	103	237	43.5
No	134		56.5
Intake of Tea/Coffee			
<=2 cups/day	125	237	52.7
>2 cups/day	112		47.3
Alcohol Consumption			
Yes	103	237	43.45
No	134		56.55
Smoking			
Yes	108	237	45.5
No	129		54.5
NSAIDs			
Yes	154	237	65
No	83		35
Job Stress			
Sometimes	135	237	57
Always	102		43
Emotional Stress			
Yes	141	237	59.5
No	96		40.5
BMI			
Under weight	4	237	1.7
Normal	133		56.1
Over weight	100		42.2
Regular Exercise			
Yes	182	237	76.8
No	55		23.2

Table 2. Distribution of Factors Related to Acid Peptic Disease in the Study Population (N=237)

Risk Factor		APD	No APD	Total	Chi square	P value
Extremely hot food & drinks	Yes No	90 45 (63.8%) (46.9%)	51 51 (36.2%) (36.2%)	141 96	6.697	P<0.01
Spicy food	Yes No	73 62 (70.9%) (46.3%)	30 72 (29.1%) (53.7%)	103 134	14.382	P<0.001
Emotional Stress	Yes No	92 43 (65.24%) (44.8%)	49 53 (34.76%) (55.2%)	141 96	9.74	P<0.005
Alcohol intake	Yes No	72 63 (69.91%) (47.01%)	31 91 (30.09%) (67.91%)	103 134	21.1	P<0.001
Smoking	Yes No	76 59 (73.7%) (38.3%)	27 95 (26.3%) (61.7%)	103 154	34.3	P<0.001
NSAIDs	Yes No	97 (63%) 38 (45.8%)	57 (37%) 45 (54.2%)	154 83	6.511	0.01

Table 3. Risk Factors with Significant Association with Acid Peptic Disease (N=237)

Statistically significant association was found between Acid Peptic Disease and risk factors like intake of extremely hot food and drinks, highly spicy food, emotional stress, alcohol intake, smoking and taking NSAIDs.

DISCUSSION

This study is a cross sectional one conducted in a tertiary care center. Various risk factors for Acid Peptic Disease were studied. A few of them were found to have significant association with this disease.

Many symptoms are reported by individuals affected by acid peptic disease. Even in our study, we have taken pain epigastrium, fullness of stomach and abdominal distension as criteria for the presence of acid peptic disease. In our study, 57% of the subjects complained of pain epigastrium. 44% complained that they had abdominal distension and 45%, fullness of stomach. A study conducted by Noorallah Jaber, Marwah Ouda et al show similar prevalence of symptoms – pain epigastrium (57%), abdominal distension (48%) and 41% had fullness of stomach. Another study conducted by Sobieraj D M, Coleman SM et al in the US showed the prevalence of symptoms to be 35.2% (Pain Epigastrium), 24.2% (Abdominal Distension) and 33.4% (Fullness of Stomach).⁽⁵⁾

In our study, we found a relevant association between intake of very hot food and development of acid peptic disease. ($\chi^2=6.6$, $p<0.01$). In a study done by Hazra B & Hazra J in North Bengal, there was an association between acid peptic disease and preference for hot foods and beverages. In the same study, highly spicy food was also found to be associated with acid peptic disease.⁽⁶⁾ In our study also we found a statistically significant association between intake of highly spicy food and acid peptic disease ($\chi^2=14.3$, $p<0.001$). More studies like that by Pilichiewicz A N et al have also established a significant relationship between functional dyspepsia and spicy foods.⁽⁷⁾

Our study found out that 59.5% of the study subjects suffered from stress. A statistically significant association was established between self-reported emotional stress and acid peptic disease ($\chi^2=9.73$, $p<0.005$). Similarly, in a register based cohort study done by Urik Deding, Linda Ejlskov et al using Danish registers and North Denmark Health Profile it was found that people with highest level of perceived stress are at least twice at risk of developing acid peptic disease.⁽⁸⁾ Another study done by Eun Misong, Hye-Kyung et al found out that high stress was significantly associated with reflux oesophagitis and dyspepsia.⁽⁹⁾

In our study we found that 43.45% of the subjects consumed alcohol at least occasionally. A significant association was also found between alcohol consumption and acid peptic disease in our study ($\chi^2=21.1$, $p<0.001$). A study done by Rosenstock, Jorgensen et al a statistically significant relationship was found.⁽¹⁰⁾ An association which is statistically significant was noted in a study done in Puducherry, South India by V Vijay Ramanan and Suresh Kumar Singh.⁽¹¹⁾ On the other hand, a National Survey done in the U.S by Chou S P found little support for the association of alcohol intake with acid peptic disease.⁽¹²⁾

45.5% of the individuals in our study were identified as smokers. Smoking is significantly associated with acid peptic disease in our study ($\chi^2=34.3$, $p<0.001$). Rosenstock et al in their study of risk factors in acid peptic disease found that in people with diagnosed H Pylori infection, tobacco smoking increased the risk of acid peptic disease and development of peptic ulcer.⁽¹⁰⁾ Fu Wei Wang, Ming Shium et al conducted a similar study in Taiwan to find out that smoking is an independent risk factor in the development of dyspepsia.⁽¹³⁾ It has been concluded in a study by Loni Berkowitz, Barbara M Schultz et al that the effect of smoking on gastric mucosa causing inflammatory changes is significant.⁽¹⁴⁾

A large volume of literature is available establishing the relationship between the repeated use of NSAIDs and Acid peptic Disease. We found out that a statistically significant association exists between NSAID use and dyspepsia. ($\chi^2=6.51$, $p<0.01$). Similar findings were reported by other workers also. A study by Aafke A Koffe man, Vera E Valkhoff et al established that a significant association exists between NSAID use and acid peptic disease.⁽¹⁵⁾ So also in a study by Tsuyoshi Fujita, Hiromu Kut Sumi et al.⁽¹⁶⁾ Work done by several other investigators have also incriminated the regular use of NSAIDs to be a strong risk factor for acid peptic disease later on leading to peptic ulcer.^(17,18)

No significant association between regularity of food intake and acid peptic disease was identified in our study done by F Tovey in Bangladesh too observed the same occurrence.⁽¹⁹⁾

We found no association between coffee intake of more than 3 cups a day and acid peptic disease. In a study done by Shimamoto, Yamamichi et al. in Japan also failed to find out any such association.⁽²⁰⁾ In a study by Emelia Papakonstantinou, Ionna Kachribari did not find any significant association between coffee consumption and acid peptic disease.⁽²¹⁾

In our study, we could not find out any relationship between non vegetarian diet and acid peptic disease.⁽²¹⁾ But in a comparative study by Jung J G, Kang H W et al among Buddhist priests and general population established a significant association between non vegetarianism and acid

peptic disease.⁽²²⁾ Similarly a study by Syed Faisal Zaidi had established a relationship between a non-vegetarian diet and acid peptic disease.⁽²³⁾

CONCLUSION

Among the various risk factors considered to be associated with Acid Peptic Disease, hot & highly spicy food, emotional stress, smoking, alcoholism and intake of NSAIDs were significantly related to Acid Peptic Disease in this study group. It follows that a control of these factors by awareness creation supplemented with drugs, could bring about considerable improvement in the quality of life of the patients.

REFERENCES

- [1] Corazziari E. Definition and Epidemiology of functional gastrointestinal disorders. *Best Pract Res Clin Gastroenterol* 2004;18(4):613-31.
- [2] Rai RR, Gangadhar A, Mayabhate MM. Clinical profiling of patients with Acid Peptic Disorders (APD) in India: a cross-sectional survey of clinicians. *Int J Basic Clin Pharmacol* 2017;6(1):194-202.
- [3] Piotrowicz G, Stepień B, Rydzewska G. Socio-demographic characteristics of patients with diagnosed functional dyspepsia. *Prz Gastroenterol* 2013;8(6):354-65.
- [4] Jaber N, Oudah M, Kowatli A, et al. Dietary and life – style factors associated with dyspepsia among pre-clinical medical students in Ajman, United Arab Emirates. *Cent Asian J Glob Health* 2016;5(1):192.
- [5] Sobieraj DM, Coleman SM, Coleman CI. Prevalence of upper gastrointestinal symptoms - a systematic literature review. *Am J Manag Care* 2011;17(11):449-58.
- [6] Hazra B, Hazra J. Epidemiology of peptic ulcer in north Bengal, India. *Indian J Public Health* 1998;42(4):100-2.
- [7] Pilichiewicz AN, Horowitz M, Holtmann GJ, et al. Relationship between symptoms and dietary patterns in patients with functional dyspepsia. *Clin Gastroenterol Hepatol* 2009;7(3):317-22.
- [8] Deding U, Linda Ejlskov L, Grabas MPK, et al. Perceived stress as a risk factor for acid peptic disease register-based cohort study. *BMC Gastroenterol* 2016;16:140.
- [9] Song EM, Jung HK, Jung JM. The association between reflux esophagitis and psychological stress. *Dig Dis Sci* 2013;58(2):471-7.
- [10] Rosenstock S, Jorgensen T, Bonnevie O, et al. Risk factors for Peptic Ulcer disease: a population-based prospective cohort study comprising 2416 Danish adults. *Gut* 2003;52(2):186-93.
- [11] Ramanan VV, Singh SK. A study on alcohol use and its related health and social problems in rural Puducherry, India. *J Family Med Prim Care* 2016;5(4):804-8.
- [12] Chou SP. An examination of the alcohol consumption and peptic ulcer association-results of a National Survey. *Alcohol Clin Exp Res* 1994;18(1):149-53.
- [13] Fu-Wei W, Ming-Shium T, Guang-Yuan M, et al. Prevalence and Risk factors of symptomatic Peptic Ulcer disease in Taiwan. *World J Gastroenterol* 2011;17(9):1199-203.

- [14] Berkowitz L, Schultz BM, Salazar GA, et al. Impact of Cigarette smoking on the gastrointestinal tract inflammation: opposing effects in Crohn's disease and ulcerative colitis. *Front Immunol* 2018;9:74.
- [15] Koffeman AR, Valkhoff VE, Celik S, et al. High risk use of over-the-counter non-steroidal anti-inflammatory drugs: a population-based cross-sectional study. *Br J Gen Pract* 2014;64(621):191-8.
- [16] Fujita T, Kutsumi H, Sanuki T, et al. Adherence to the preventive strategies for non-steroidal anti-inflammatory drug - or low-dose aspirin-induced gastrointestinal injuries. *J Gastroenterol* 2013;48(5):559-73.
- [17] Castellsague J, Riera-Guardia N, Calingaert B, et al. Individual NSAIDs and upper gastrointestinal complications: a systematic review and meta-analysis of observational studies (The SOS) Project. *Drug Saf* 2012;35(12):1127-46.
- [18] Sostres C, Gargallo CJ, Lanás A. Non-steroidal anti-inflammatory drugs and upper and lower gastrointestinal mucosal damage. *Arthritis Res Ther* 2013;15 (Suppl 3):S3.
- [19] Tovey F. Peptic ulcer in India and Bangladesh. *Gut* 1979;20(4):329-47.
- [20] Shimamoto T, Yamamichi N, Kodashima S, et al. No association of coffee consumption with gastric ulcer, duodenal ulcer, reflux esophagitis and non-erosive reflux disease: a cross sectional study of 8,013 healthy subjects in Japan. *PLOS One* 2013;8(6):e65996.
- [21] Papakonstantinou E, Kechribari L, Sotirakoglou K, et al. Acute effect of coffee consumption on self-reported gastrointestinal symptoms, blood pressure and stress indices I in healthy individuals. *Nutr J* 2016;15:26.
- [22] Jung JG, Kang HW, Hahn SJ, et al. Vegetarianism as a protective factor for reflux esophagitis: a retrospective comparative cross sectional study between Buddhist priests and general population. *Dig Dis Sci* 2013;58(8):2244-52.
- [23] Zaidi SF. *Helicobacter pylori* associated Asian enigma: Does diet deserve distinction? *World J Gastrointest Oncol* 2016;8(4):341-50.