

Original research article:

A study on risk factors of dyspepsia

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Abstract

Introduction: Dyspepsia refers to upper abdominal symptoms usually following intake of food, which appear to arise from an abnormality in the upper gastrointestinal tract with a worldwide prevalence ranging from 7 to 40%. Though dyspepsia has been studied extensively the associated risk factors may vary from one region to other depending on various habits, culture and socio economic status.

Objectives: The purpose of this study was to evaluate the risk factors of dyspepsia in a tertiary care general hospital, Rajahmundry, India.

Methods: A cross sectional study was done in a tertiary care general hospital over a period of 2 years from January 2013 to December 2014 in patients aged 20 years and above, attending the casualty, out patient department and wards of General Medicine with complaint of dyspepsia.

Results: In our study out of 288 patients 178 are males and 110 are females with mean age 39.28 ± 14.29 years. In our study 82 patients are consuming alcohol, 72 are smokers and 36 using NSAID's. There was significant association between alcohol consumption, smoking and Gastric lesions such as Gastritis, Gastric erosions, Ulcers and Gastric carcinoma. But there was no significant association found between NSAID's use and Gastric, Oesophageal and Duodenal lesions.

Conclusion: Alcohol and smoking was significantly associated with dyspepsia. The use of NSAIDs was not significantly associated with dyspepsia. These findings emphasize the need of awareness of reducing risk factors associated with dyspepsia.

Key words: Dyspepsia, Alcohol, Smoking, Non-steroidal anti-inflammatory drugs.

Introduction:

Dyspepsia is a Greek word meaning "duis" (bad or difficult) and "peptin" (to digest), which is described by patients as indigestion; both these words are a poor expression, as dyspepsia has no relation to digestion of food. Dyspepsia is a common complaint

among individuals seeking medical care as well as in general population.^[1] An international committee of clinical investigations (Rome IV Committee) defined Dyspepsia as one or more of the following symptoms^[2]

- Postprandial fullness

- Early satiation (meaning inability to finish a normal size meal)
- Epigastric pain or burning.

Dyspepsia is a condition of great clinical significance as large proportion of patients visiting gastroenterology clinics all over have dyspepsia.^{[3],[4]} Prevalence of dyspepsia is about 20-30% worldwide.^[5] From the limited data available prevalence of dyspepsia in India is 30.4 to 49%.^{[6],[7],[8]} The variations in prevalence rate of dyspepsia could be due to different definitions of dyspepsia and survey methods used. Talley *et al* ^[9] used a postal survey for evaluation of dyspepsia, Farsakh *et al* ^[10] had used a questionnaire which evaluated the family members of medical students . Upper GI symptoms cause problems with sleep, employment, physical and social activities and the consumption of food and drink.^[11] Potential lifestyle factors associated with dyspepsia include tobacco, alcohol, and analgesic consumption. Dietary habits that include consumption of smoked food, fast food, salty food, coffee/tea, and spicy food may also cause dyspepsia. Studies showed that smoking negatively affects dyspepsia symptoms by decreasing mucosal production, limiting the neutralizing base production, and decreasing blood flow to the inner layers of the stomach, interfering with normal physiological protective mechanisms of the stomach.^{[12][13][14]}

Many medications including Aspirin, Non steroidal anti-inflammatory drugs, Antibiotics, Neuropsychiatric, Anti-hypertensives cause dyspepsia. Topical effects of Non-steroidal anti-inflammatory drugs (NSAID's) cause submucosal erosions. In addition, by inhibiting cyclo-oxygenase, NSAIDs inhibit the formation of prostaglandins and their protective cyclo-oxygenase – 2 mediated effects

(i.e., enhancing gastric mucosal protection by stimulating mucus and bicarbonate secretion and epithelial cell proliferation and increasing mucosal blood flow).^[13]

A host of agents above been reported to result in iatrogenic dyspepsia and range from alcohol, through a variety of “recreational” drugs to over the counter and prescription of NSAID's to the powerfully enterogenic cancer chemotherapeutic agents. Assessment of intake of all potentially gastro toxic compounds should be an essential component of the investigation of a patient with dyspepsia.

The association between smoking, alcohols, NSAID's with dyspepsia has been found consistent in some studies and not been found consistent in many other studies. In this scenario, this study was carried out to find the risk factors associated with dyspepsia.

Material and methods:

A cross sectional study was conducted at GSL Medical College & General Hospital, Rajahmundry for a period of 2 years from January 2013 to December 2014 on total of 288 dyspeptic patients irrespective of sex, attending the casualty, out patient department and wards of General Medicine in GSL General Hospital were included. All patients aged 20 years and above were included in the study. Patients were excluded if age is below 18 and above 80 years, those who are seriously ill, having cerebrovascular accident and patients who had previously undergone gastric surgery.

Patients are entitled to be fully informed of the reasons why a procedure is recommended, its expected benefits, the potential risks, its limitations and the alternatives. They also need to know exactly what will happen, and have the chance to ask questions. A written informed consent was taken and patients who are willing are subjected to upper

gastro-intestinal endoscopy after relevant investigations. Pentax Epk 150c Fiber optic endoscope was used for the study. Data regarding clinical parameters, symptoms, investigations, and endoscopic diagnosis is recorded in the proforma.

All statistical analysis was performed by using SPSS (statistical package for social sciences) software version 20 and MS EXCEL 2007. Descriptive statistic values were presented as in the form mean \pm SD and percentages. Chi-square test was performed to assess the association among different categorical variables. For all statistical analysis $p < 0.05$ was considered as statistically significant.

Results:

In our study, 288 patients who presented with Dyspepsia were included and Upper GI Endoscopy was done. The incidence of dyspepsia is high in the age group of 21-40 years. Out of 288 patients 178 are males and 110 are females. The mean age in our study was 39.28 ± 14.29 years. In this study 176 (61.1%) patients are between the age group of 21 to 40 years. (Table 01)

In our study 82 patients are consuming alcohol, 72 are smokers and 36 using NSAID's. In our study two female and eighty male are alcoholics, eight female and sixty four male are smokers. Alcohol (p value < 0.0001) and Smoking (p value < 0.0001) are found to be significantly associated with dyspepsia. NSAID's usage (p value: 0.56) was not significantly associated with dyspepsia in our study. (Table 02) In our study, out of 82 subjects consuming alcohol 20 had gastric lesions, 10 had Oesophageal lesions, 8 had duodenal lesions and 6 subjects had multiple lesions. Out of 72 subjects who are smokers, 18 had Gastric lesions, 10 had Oesophageal lesions, 4 had Duodenal lesions and 4 had multiple lesions. Out of 36 subjects using NSAID's, 8 had Gastric lesions, 4 had Duodenal

lesions, 2 had Oesophageal lesions and 2 had multiple lesions. There was significant association between alcohol consumption and Gastric lesions such as Gastritis, Gastric erosions, Ulcers and Gastric carcinoma. Smoking and Gastric lesions are also found to be significantly associated as like alcohol consumption and gastric lesions. But there was no significant association found between NSAID's use and Gastric, Oesophageal and Duodenal lesions. (Table 03)

Discussion:

Apart from alcohol consumption, smoking and NSAID's usage there are many other conditions such as lack of sleep, obesity, dietary habits, socio economic factors that play a major role in dyspepsia. Considering the variation in frequency of risk factors such as social, psychological, non-vegetarianism, chili consumption, pickle usage, alcohol consumption, smoking, among western population and Indians, this study play a crucial role in detecting the native risk factors among the Indians.

A cross sectional observation study was done to find out the association between risk factors such as smoking, alcohol consumption and NSAID's usage with the dyspepsia. Association between alcohol consumption and dyspepsia has been found in many studies.^{[6][15]} The relationship of regular alcohol intake and dyspepsia, has been not proven in various studies.^[16] In a Nigerian study no significant association was found between smoking, drinking of alcohol, use of NSAID, number of meals or coffee intake.^[17] It is very interesting to note that pepper intake, tea intake and greater years of education were found to be significant contributors to dyspepsia.^[17] Crean *et al* termed a condition called 'alcohol dyspepsia'.^[18] This discordance could be due to

differences in socio cultural and economic factors of the population.

In our study there was significant association found between alcohol consumption and dyspepsia in accordance with few Indian studies reported previously.^[6] On upper gastrointestinal (UGI) endoscopy of the patients who are consuming alcohol, it was found to be having a significant association between alcohol consumption and gastric lesions such as Gastritis, Gastric erosions, Ulcers and Gastric carcinoma. Association between dyspepsia and smoking is not consistent. In some studies smoking has not been found as a risk factor,^{[19][20][21][22][23]} where as in European,^[16] Indian^[6] studies smoking has been found to be an associated risk factor with dyspepsia. There are studies which had clearly identified smoking as risk factor for peptic ulcer disease.^[24] Electron microscopic changes in the gastric mucosa have been observed in habitual tobacco chewers.^[25] Studies in US, Canada and UK claimed association between smoking and dyspepsia.^{[1][26][27]}

The results of our study are in accordance with the European and Indian studies as it has been found to be having a significant association between smoking and dyspepsia. The differences might be due to ethnic variation (Indian population versus Chinese and Western population). On upper gastrointestinal (UGI) endoscopy of the patients who are smoking, it was found to be having a significant association between smoking and gastric lesions as like between alcohol consumption and gastric lesions. The variations in associations between smoking and alcohol consumption with dyspepsia may also be due to different definitions of dyspepsia (Rome III versus Rome I or II) adopted in various individual studies.

Population based studies in Britain and America have revealed a relationship between use of NSAID and dyspepsia.^{[26][1]} The Nigerian study showed no association between dyspepsia and usage of NSAID.^[17] In our study also there was no significant association between NSAID's usage and dyspepsia. No significant association was found between NSAID's usage and oesophageal, gastric or duodenal lesions on UGI endoscopy. The different findings in various studies may be due to difference in population studied, availability and affordability of NSAID's. Recognition of association between dyspepsia and certain co-morbidities and medication use may assist in management.

There are certain limitations present in our study. Firstly, our study was designed as a hospital based study at a medical college level which could narrow down the patients when compared to a primary care hospital or a general population based survey in huge sample across all over India covering various ethnic populations spread all across agricultural belt, hilly areas, cities, towns and villages with different cultural, social and economic activities. Secondly, co-morbidities such as diabetes, hypertension might have caused bias, even though we tried to exclude all seriously ill patients such as heart failure, cerebrovascular accidents and chronic pulmonary disorders, as this is a cross sectional observation study and not a case control study. Thirdly, the number of patients and sample size may be small to generalize the findings of our study all across India. Fourthly, recall bias may also be present as a part of filling up the questionnaire.

Conclusion:

The study showed that alcohol and smoking was significantly associated with dyspepsia. The use of NSAID's was not significantly associated with

dyspepsia. The results of our study are based on complete evaluation of dyspepsia, which is more notable when compared to many other studies which are done in un-investigated dyspepsia. These findings emphasize the need of awareness of risk factors and their role in dyspepsia.

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Table 01: Age and Gender distribution in the study population

S.No.	AGE (yrs)	MALE	FEMALE	TOTAL
1	20	4	0	2 (1.4%)
2	21-40	106	70	88 (61.1%)
3	41-60	50	30	40 (27.8%)
4	61-80	18	10	14 (9.7%)
	TOTAL	178 (61.8%)	110 (38.2%)	288 (100%)

*p value <, 0.05 is significant.

Table 02: Distribution of risk factors for Dyspepsia in the study population

S.No	Risk factors for dyspepsia	Present		Absent		p Value*
		Males	Females	Males	Females	
1	Alcohol	80	2	98	108	0.0001
2	Smoking	64	8	114	102	0.0001
3	NSAIDs	20	16	158	94	0.56

*p value <, 0.05 is significant

Table 03: Distribution of lesions in Alcoholics, Smokers and NSAID's usage

ORGAN	LESION	ALCOHOL		p value	SMOKERS		p value	NSAID's		p value
		YES	NO		YES	NO		YES	NO	
Oesophagus	Oesophgeal lesions	10	28	0.594	10	28	0.353	2	36	0.736
	Normal	72	178		62	188		34	216	
Stomach	Gastric lesions	20	16	0.029	18	18	0.030	8	28	0.364
	Normal	62	190		54	198		28	224	
Duodenum	Duodenal lesions	8	18	0.567	4	22	0.606	4	22	0.259
	Normal	74	188		68	194		32	130	

*p value <,0.05 is significant

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