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Original Research Paper

Gastroenterology

A CASE CONTROL STUDY ON RELATION BETWEEN FOOD HABITS AND DEVELOPMENT OF GASTRO ESOPHAGEAL REFLUX DISEASE (GERD)

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ABSTRACT This case control study was conducted in a Medical College in South India and the aim was to find out whether certain food habits and types of food are related to development of GERD. This was conducted with 138 subjects among that 46 were cases of GERD and 92 were hospital-based controls. Institutional Ethics Committee permission and Informed consent were obtained before starting the study. Data collection was done using a pre tested questionnaire and some of the data were collected from the medical records. Data were entered in Microsoft Excel and analysed using the SPSS software. Simple proportions and Odds ratio were calculated for the collected data. Intake of tea, coffee and habit of Irregular food intake were found to be associated with development of GERD.

KEYWORDS : GERD, Odd's ratio, Upper GI endoscopy, Tea, Coffee, Irregular food intake

INTRODUCTION

Gastroesophageal reflux disease (GERD) is a common condition in which the reflux of gastric contents into the oesophagus results in symptoms and/or complications [1] Two previous systematic reviews and one previous meta-analysis evaluated the prevalence of gastro-oesophageal reflux disease and its geographical variation. These studies suggested that the prevalence of this disease around the world ranged from 2·5% to 33·1%, and that prevalence was lower in east Asia and south east Asia2.Some of the risk factors for GERD include obesity, tobacco use, pan chewing, alcohol abuse, spicy and oily food, some Non communicable diseases like Diabetes mellitus, hypothyroidism, increased consumption of coffee and carbonated drinks, irregular food intake, regular intake of drugs like NSAIDs etc. Some of the risk factors are proven and some are to be proved. In one-third of GERD patients, foods inducing typical symptoms were identified. Hot spicy stews, rice cakes, noodles, fried foods etc. were the foods frequently inducing typical symptoms 3Upper GI endoscopy is the main diagnostic technique for GERD as it can detect the complications of GERD like Barrett's Esophagus and detect development of Adenocarcinoma of lower end of oesophagus earlier. So, this study was planned to find out whether any particular dietary habit or any particular type of food are risk factors of GERD.

MATERIAL AND METHODS

This was conducted as a case control study which was age matched among the patients attending the Medical Gastroenterology OPD of a Tertiary Care Hospital in South Kerala after obtaining ethical clearance. There were 46 cases and 92 controls and was calculated using statistical formula by putting Odd's ratio as three. GERDQ was used for categorising cases and controls. Collected data about the risk factors using a pre tested questionnaire. GERDQ is a tested tool to assess the symptoms of GERD within the last one week of interview and was validated in the Diamond study (clinical trial number: NCT00291746).4 It is validated in India also by Madan K et al. 5 The score was from 0 to 18. A score of less than 8 was taken as 'no GERD' and a score of 8 and above was taken as a 'case of GERD'. Data was compiled and entered in Microsoft Excel and analysed using SPSS. We calculated simple proportions and Odds ratio with 95% CI.

RESULTS

Description of Study Population

Total number of study subjects was 138, which included 46 patients with GERD and 92 people without GERD.

Most of the study subjects were in the age group 40 to 49 yrs and 59% were males. 93% were from rural areas. 35% studied above higher secondary level. 93% of the study subjects were married. 12% were alcoholics and 14% were pan chewers. 45% had hypercholesterolemia. 15% were hypertensives.

Risk factors of GERD

Odds ratio (OR) with 95% Confidence Intervals were found out to assess the associated factors. If Odds ratio is above one that variable is considered as a risk factor. If "R" is the OR for a particular factor the person with that will be having "R" times more risk of developing GERD than a person without that factor. It is statistically significant if the upper and lower limit of 95% CI is above one.

DISCUSSION

Regarding the food habits 56% were taking spicy foods for more than 3 days in a week, 51% were taking fried items, 60% were consuming tea and 32% were taking coffee for more than three days a week.19% of the persons had habit of taking food irregularly and 19%. 78% were going to sleep within one hour of taking dinner.

By Univariate analysis Crude Odds ratio of the risk factors with 95% Confidence Intervals were found out. In this study Intake of tea and coffee for more than three days in a week and Irregular food intake were found to risk factors of GERD by Univariate analysis. In a study specific types of food and beverages, such as fast food, tea, oily food, and carbonated drinks, have been associated with an increased prevalence of GERD.6 In this study no relation between GERD and time gap between food intake and bed time. In another study they got an interval of less than 2 hours between dinner and sleep, eating 2 hours before bed, and an interval of less than 3 hours between dinner and sleep were positively correlated with GERD.7Table: 1 Risk factors with proportion

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Variable	Consumption per week	Frequency	Percentage
Spicy Food	More than 3 days	77	56%
	Upto 3 days	61	44%
Fried Items	More than 3 days	71	51%
	Upto 3 days	67	49%
Tea	More than 3 days	83	60%
	Upto 3 days	55	40%
Coffee	More than 3 days	44	32%
	Upto 3 days	94	68%
Regularity of Food	Irregular	26	19%
	Regular	112	81%
Dinner to sleep	Upto 1 hour	107	78%
	More than 1 hour	31	22%

Table 2: Risk factors with Odd's Ratio

Variable	Consumption per week	Case	Control	Total	Odd's Ratio (95% CI)
Spicy Food	More than 3 days	28	49	77	1.365 (0.664 - 2.804)
	Upto 3 days	18	43	61	
Fried Items	More than 3 days	26	45	71	1.358 (0.666 - 2.767)
	Upto 3 days	20	47	67	
Tea	More than 3 days	40	43	83	7.597 (2.936 - 19.659)
	Upto 3 days	6	49	55	
Coffee	More than 3 days	20	24	44	2.179 (1.034 - 4.595)
	Upto 3 days	26	68	94	
Regularity of Food	Irregular	18	8	26	6.750 (2.647 - 17.215)
	Regular	28	84	112	
Dinner to sleep	Upto 1 hour	38	69	107	1.583 (0.646 - 3.881)
	More than 1 hour	8	23	31	

CONCLUSION

Some types of foods and food habits were identified as risk factors of development of GERD in this study.

Limitations

Could not follow up the patients.

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