Original Research Paper

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General Medicine

GASTRO ESOPHAGEAL REFLUX DISEASE AND OBESITY.

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ABSTRACT **INTRODUCTION:** Gastroesophageal reflux disease is multifactorial process and a common problem which accounts for a sizeable proportion in terms of health care costs to diagnose and treat the condition

The reflux of acid, particularly after meals, is a physiologic process, the simple presence of gastroesophageal reflux (GER) or occasional symptoms of heartburn or acid regurgitation cannot be defined as a disease. GERD is the failure of normal antireflux barrier to protect against frequent and abnormal amounts of gastric contents moving retrograde effortlessly from the stomach into the esophagus.

AIMS OF THE STUDY: To evaluate the association between Body Mass Index and Gastroesophageal Reflux Disease. To determine the correlation between Obesity and GERD in women.

MATERIALS AND METHODS: The study was done among 106 patients with GERD in between January 2020 to March 2021 at Alluri Sitarama Raju Academy of Medical Sciences, Eluru, Andhra Pradesh.

INCLUSION CRITERIA: Consecutive patients attending General Medicine outpatient department at Alluri Sitarama Raju Academy of Medical Sciences Hospital for symptoms of GERD were included in the study.

EXCLUSION CRITERIA: Patients who had dysmotility, those with history of abdominal surgery and pregnant women were excluded from this study.

RESULTS: Of the 106 patients presenting with GERD. 52 (49.1%) had BMI <23, out of which 14 were underweight and 38 were of normal BMI. 54 (50.9%) had BMI >23, among which 22 were overweight and 32 were obese.

CONCLUSION: This study adds to a growing body of literature that strongly suggests an association between obesity and gastroesophageal reflux disease.

Prevalence of obesity among patients with GERD was more based on waist circumference and waist-hip ratio than BMI. The link between obesity and GERD is stronger in women.

KEYWORDS :

INTRODUCTION:

Gastroesophageal reflux disease is multifactorial process and a common problem which accounts for a sizeable proportion in terms of health care costs to diagnose and treat the condition The reflux of acid, particularly after meals, is a physiologic process, the simple presence of gastroesophageal reflux (GER) or occasional symptoms of heartburn or acid regurgitation cannot be defined as a disease. GERD is the failure of normal antireflux barrier to protect against frequent and abnormal amounts of gastric contents moving retrograde effortlessly from the stomach into the esophagus.

A globally acceptable Montreal definition and classification of GERD can be applied in clinical practice and in research2. This international group defined GERD as "a condition which develops when the reflux of stomach contents causes troublesome symptoms and/or complications." Troublesome symptoms are defined by the patient to affect their quality of life. Mild symptoms occurring 2 or more days per week or moderate to severe symptoms occurring more than 1 day per week are often considered troublesome by patients.

Patients may be diagnosed based on typical symptoms alone or on tests demonstrating reflux of stomach contents (e.g. pH testing, impedance monitoring) or the injurious effects of the refluxate (endoscopy, histology, electron microscopy), in the presence of typical or atypical symptoms or complications. This new definition also recognizes that the refluxate causing symptoms may be weakly acidic or gaseous.

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Patients who had dysmotility, those with history of abdominal surgery and pregnant women were excluded from this study.

Symptoms Defining Gastroesophageal Reflux Disease Classic symptoms of GERD such as heartburn and/or regurgitation,and other symptoms such as dysphagia, noncardiac chest pain, water brash, odynophagia, burping, bloating, early satiety, hiccups, nausea, vomiting, asthma, hoarseness of voice, chronic cough, recurrent lower respiratory symptoms, caries teeth, weight loss, upper GI bleed. history of other comorbidillnesses especially related to obesity were recorded after direct questioning.

History regarding diet habits such as intake of fatty food, fried food, spicy food, quantity of meals, excessive intake of citrus fruits, beverages such as coffee and tea, chocolates, aerated soft drinks, smoking, alcohol consumption, tobacco chewing, use of NSAIDs, oral contraceptives were recorded.

History regarding radiation treatment, prolonged naso gastric aspiration and previous peptic ulcer disease were also recorded.

Anthropometric Indices Were Recorded

Weight was measured using a standard spring balance type of weighing machine; height measured using a stadiometer on even ground; waist,hip circumference and abdominal girth were measured using a flexible nonelastic type of measuring tape.

Abdominal girth was measured at the level of umbilicus in supine posture. Waist circumference was measured as the narrowest part of the torso in standing position and hip circumference as the widest part at the level of buttocks. Waist hip ratio was calculated.

BMI was calculated : weight(kg)/height(m2) Patients were then assigned to four categories according to their BMI.

Statistical analysis was done for quantitative variables and expressed +/- SD. as mean The significance of differences in gender according to BMI, waist circumference and waist hip ratio were assessed using chi squared test. P value less than 0.05 was considered statistically significant.

RESULTS:
Of the 106 patients presenting with GERD.

52(49.1%) had BMI <23, out of which 14 were underweight and 38 were of normal BMI.

54(50.9%) had BMI >23, among which 22 were overweight and 32 were obese.

Table1: Showing BMI distribution.

BMI	<18.4	18.5 - 22.9	23 - 24.9	>25
No	14	38	22	32
%	13.2	35.85	20.7	30.2

Table 2: Showing comparison between male and female patients.

Gender	Total	BMI >23 % (No.)	WC >87 & 82 cm % (No.)	W-H R>0.9 & 0.8 % (No.)
Male	45	31.1%(14)	35.6%(16)	44.4%(20)
Female	61	65.6%(40)	63.9%(39)	83.6%(51)
P value		0.01	0.06	0.02

Table 3: Showing distribution of female GERD patients based on BMI, waist circumference (WC) and waist-hip ratio (W-H R).

BMI	<23	>23
NO.	21	40
WC	<82	>82
NO.	22	39
W-H R	<0.8	>0.8
NO.	10	51

Upper GI endoscopy was done in 99 patients out of which there were 42 males and 57 females. Patients were classified as having erosive(ERD) vs nonerosive (NERD) reflux disease.

There were more males with NERD than ERD; p value:0.03. There were more females with NERD than ERD; p value:0.07.

Males were more likely to have ERD compared to females.

OR:4.7 95% CI 1.6-13.6;pvalue:0.003.

7 out of the 15 males with ERD were smokers.

Table 4: Showing comparison between male and female patients with NERD VS ERD

VARIABLES	NERD	ERD
TOTAL NO.	78	21
MALE	27	15
FEMALE	51	6
BMI>23	44	10
MALE	8	6
FEMALE	36	4

56.4% of NERD patients were of BMI>23;
46.6% of ERD patients were of BMI>23.

Out of 78 patients with NERD 70.6% of females and 29.6% of males had BMI >23.
Out of 21 patients with ERD 66.6% of females and 40.0% of males had BMI >23.

DISCUSSION:
Association Between Obesity And Gerd Gastro esophageal reflux disease is a multifactorial process resulting from an imbalance between defensive factors (antireflux barriers, esophageal acid clearance, tissue resistance) and aggravating factors (gastric acidity, volume and duodenal contents).

Obesity satisfies several criteria for a causal association with GERD and abdominal obesity impairs antireflux function by increasing intragastric pressure, gastroesophagealgradient, TLOSR and esophageal acid exposure. El-Serag157 reviewed epidemiological data to find a consistent association of obesity with GERD symptoms, erosive esophagitis and esophageal adenocarcinoma.

The Asia Pacific consensus update states that GERD is increasing in frequency in Asia. Risk factors include increased body mass index. Weight loss improves reflux symptoms Factors Defining Obesity BMI has been widely used as an indicator of adiposity; its limitations have been widely recognized by its dependence on race: Asians have larger percentage of body fat at lower BMI values.As compared to BMI, waist circumference and waist-hip ratio have been used as surrogates of body fat centralization.

Many studies such as the INTERHEART have proposed the use of waist circumference and waist-hip ratio as markers of obesity rather than BMI. In this study, obesity was defined according to the WHO cutoff as BMI >25 and overweight as BMI >23 irrespective of gender102 Waist circumference and waist-hip ratio cut points were defined as >87 in males, >82 infemales and >/=0.9 in males and >/=0.8 in females respectively as per current recommendations for urban Asian Indians

CONCLUSION:
This study adds to a growing body of literature that strongly suggests an association between obesity and gastroesophageal reflux disease.

Prevalence of obesity among patients with GERD was more based on waist circumference and waist-hip ratio than BMI.

The link between obesity and GERD is stronger in women.

Implications of this study is that:
a) Clinicians should ask about symptoms of GERD when assessing the health risks in overweight and obese patients.
b) Weight reduction should be advised in those with reflux symptoms as Barrett's esophagus and esophageal cancer are known risks of long standing reflux.

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