



CLINICAL INVESTIGATION ON LIFE-STYLE IN DEVELOPING AND MANAGING GASTROESOPHAGEAL REFLUX DISEASE (GERD)

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ABSTRACT

Back flow of gastric contents from stomach to oesophagus is called Reflux disease. It is highly prevalent in India and is caused due to LES abnormalities like losing stiffness, LES damage, delayed gastric emptying. GERD is a manageable disease. Patient should be on continuous medications like H2 blockers, PPI's, antacids and diet. Many studies stated that GERD is more prevalent among 40 to 60 age group but this study finds lower percentage of adults with GERD in early and late 60's and also mentioned that poor quality of sleep and dietary habits are responsible for GERD and this study finds the same but sleep factor is unclear either altered sleep caused GERD or GERD affected sleep quality, because many refluxes occurred at night. Studies concluded that Asthma and GERD correlates somehow but unknown, in this research surprisingly the percentage of asthma patients who also have GERD is very low although individuals with fatty liver have higher percentage. Results claim that patients misunderstand asymptomatic state to cured and cessation of therapy causes reappearance of GERD. As mentioned, GERD is a manageable disease which take years to cure.

Key Words:- Gastroesophageal reflux disease (GERD), Reflux disease, Lower esophageal sphincter (LES), H2 blockers, Proton Pump Inhibitors (PPI), Antacids, NSAID's, Regurgitation, Heartburn, Hiatal Hernia, FSSG (Frequency Scale for the Symptoms of GERD) scores, Fatty Liver, Asthma.

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INTRODUCTION

Gastroesophageal reflux disease occurs when the stomach acid frequently flows back into the tube connecting mouth and stomach (oesophagus). This backflow (acid reflux) irritates the lining of oesophagus. Acid reflux and heartburns more than twice a week indicates GERD. It is a mild reflux disease that occurs at

least two times a week, or moderate to severe acid reflux that occurs at least once a week. Symptoms include burning sensation, pain in chest region that usually occurs after eating and worsens while lying down or being idle. Most people can manage discomfort of GERD with lifestyle changes and OTC medications. But some people with GERD cannot manage and may require stronger medications or surgery to relieve symptoms (Pandolfino et al., 2006).

PREVALENCE

Prevalence of GERD in India ranges from 7.6% to 30%, being <10% in most population studies and higher in cohort studies (Takahisa Yamasaki and Colin Hemond, 2018]. The dietary factors associated with GERD include use of spices and non-vegetarian food. Helicobacter pylori is thought to have negative relation with GERD, H. pylori negative patients have higher grade symptoms of GERD and esophagitis. Around 10% of GERD patients in Indians have erosive esophagitis (Tack J et al, 2012).

ETIOLOGY

Often and also frequent acid refluxes leads to GERD, the underlying phenomenon is when the food gets swallowed, before entering into stomach it passes through a circular band of muscle around the bottom of oesophagus. It is the Lower oesophageal sphincter (LES). In healthy individual LES prevents the backflow of food into oesophagus but in patients who suffer with GERD, the LES weakens, loses its stiffness and gets damaged or ruptured (Feldman M, et al, 2016).

Conditions that increase the risk of GERD include:

Overweight, hiatal hernia, pregnancy, scleroderma, delayed gastric clearance. And some other factors that aggravate the acid reflux disease are tobacco smoking, eating heavy at late nights, consuming frequent high fatty or fried food, taking alcohol or hot coffee and being on continuous medication, like aspirin and other NSAIDs (Ravi K, et al, 2016).

SIGNS AND SYMPTOMS

Heartburns which usually worsens at night, sharp pain in chest, dysphagia, regurgitation, frequent belching and bloating. Some may experience chronic cough, laryngitis (Vakil NB, 2017).

TYPES OF GERD

GERD has three phenotypic forms, they are:

1. NERD-Non erosive reflux disease. In which there is no evidence of oesophageal damage but the patient has frequent refluxes and has GERD.
2. ERD-In Erosive reflux disease the proof of oesophageal mucosal breaks/damage can be obtained.
3. Barrett's Oesophagus-Long term exposure to stomach acid leads to Barrett's oesophagus.

PATHOPHYSIOLOGY OF GERD

Les Pressure Abnormalities:

Physiologically, relaxations of the LES prior to contractions of the oesophagus allow food to pass into stomach. In resting conditions, LES maintains a high-pressure zone that is 15-30mmHg above intragastric pressures, depending on individual variability. Among very few patients with GERD, have constantly weak and low pressured LES around <6mmHg. Those patients experience refluxes all the time (Stein MR, 2003).

Transient lower esophageal sphincter relaxations:

In patients with GERD transient lower oesophageal sphincter relaxations account for 48-72% of reflux episodes; thus, TLESRs account for the majority of reflux episodes. Patients with GERD have an equal frequency of refluxes compared with the healthy

individuals, although they have a higher percentage of TLESRs associated with it (Rourk RM et al, 1994).

Impaired Esophageal Acid Clearance:

The extent of oesophageal mucosal injury, frequency and severity of symptoms are estimated by the range and period of oesophageal acid exposure. Protective mechanism against GERD is peristalsis. GERD patients were found to have acid clearance rate two to three times longer than healthy individuals. This impaired oesophageal acid clearance is due to two underlying mechanisms: peristaltic dysfunction and reflux. Peristaltic dysfunction is due to failed peristalsis and low amplitude contractions which leads to incomplete gastric clearance (Trimble KC et al, 1995).

Delayed Gastric Emptying:

Delay in gastric emptying results in the extended retention of acidified gastric contents in the stomach during the post-prandial period, which increase occurrence of GERD. In small proportion of individuals delayed gastric emptying contributes to the pathogenesis of GERD. Longer the food stays in the stomach and have continuous contact with the LES, the more the chances of worsening the condition. It depends on the type of food consumed, high fat meal which is spicy takes considerably longer time to move out of stomach and enter in intestines. Prolonged contact with LES aggravates the reflux disease (Dennish GW and Castell DO, 1971).

Hiatal Hernia:

Hiatal hernia is frequently observed in GERD patients. One of the ways in which hiatal hernia is believed to affect the severity of the GERD is by hindering LES function. Another potential mechanism by which hiatal hernia can lead to cause GERD is by acting as a reservoir for acid material. The acid material gets trapped in the hernia sac and have abnormal oesophageal clearance which subsequently multiplies damage and refluxes.

Diagnostic Procedures:

Upper endoscopy is the most undergone procedure to diagnose GERD. Another procedure called Ambulatory acid probe test, where the duration of acid refluxes and regurgitations are studied. It estimates the severity of reflux disease. Oesophageal manometry and X-ray of upper digestive system are also other diagnostic methods. Prior to x-ray, patient was made to drink a chalky liquid that form a coating and fills the inner lining of alimentary canal. This coating helps to find oesophageal breaks if present.

General Management of Gerd:

Antacids, H2 blockers, proton pump inhibitors are most used in the management of GERD. Other procedure called fundoplication, where the stomach around the LES is wrapped completely or partially to tighten the muscle and prevent the backflow of gastric contents. Linx device is another minimal invasive procedure where tiny magnetic rings are wrapped around the OG junction to keep the junction closed. It allows to pass the food but prevents the backflow.

Antacids like Aluminium hydroxide, magnesium trisilicate; proton pump inhibitors such as esomeprazole and pantoprazole are widely used (Tristanb, 2003).

Lifestyle and Home Remedies:

1. Avoid fast eating and chew the mouth full of food several times before engulfing.
2. Don't lie down after a meal. Wait for at least three hours after eating, before lying down to sleep.
3. Stop tobacco and alcohol consumption. Avoid food with high fat, oil and deep fried. In fact, consume fiber rich food.
4. Maintain ideal BMI, have a regular physical workout session.
5. Elevate the head position in bed and when lying idle.
6. Cutdown hot beverages like coffee and tea.
7. Do not skip medication if you are asymptomatic.

Background Information

I. A cross sectional study was performed in Japan among 19864 healthy adult volunteers using FSSG scores. It states that poor quality of sleep and irregular dietary habits are major risk factors for high FSSG (Frequency Scale for the Symptoms of GERD) scores. FSSG includes questions like;

1. How often you feel heartburns at what degree?
2. Do you feel bloated?
3. Do you eat stomach full?
4. How fast you finish your meal?
5. How is your sleep cycle? Etc. (Yamamichi, N et al, 2012)

These questions are rated basing on severity of symptoms experienced by the patient.

This study is also performed on the basis of FSSG scores.

II. Susan M Harding concluded through his study that reflux disease is prevalent in asthma patients and also stated that GERD therapy aggravates the asthma outcome in some individuals (Susan M Harding, 2003).

Methodology

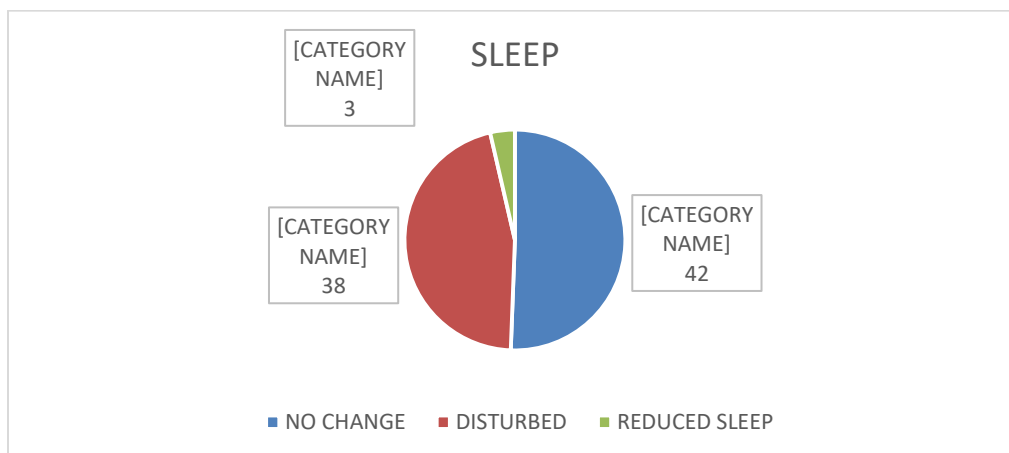
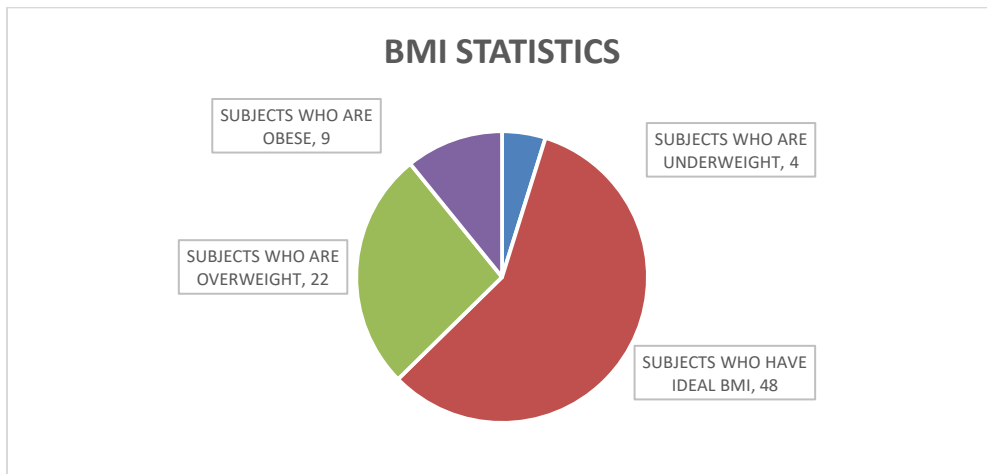
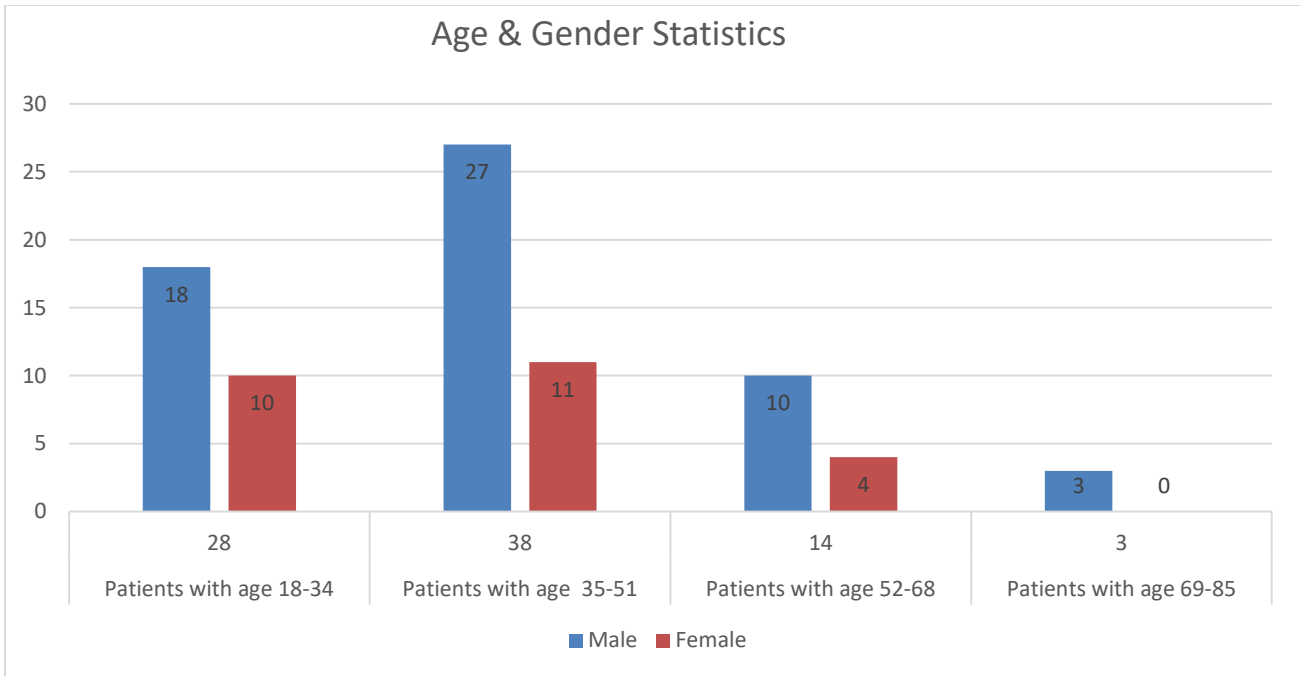
This is a prospective study conducted among 83 patients in GEM Hospital & Research Centre, Perungudi, Chennai. Data was extracted from patients through simple questions (FSSG) and scored / rated based on the severity of the symptoms.

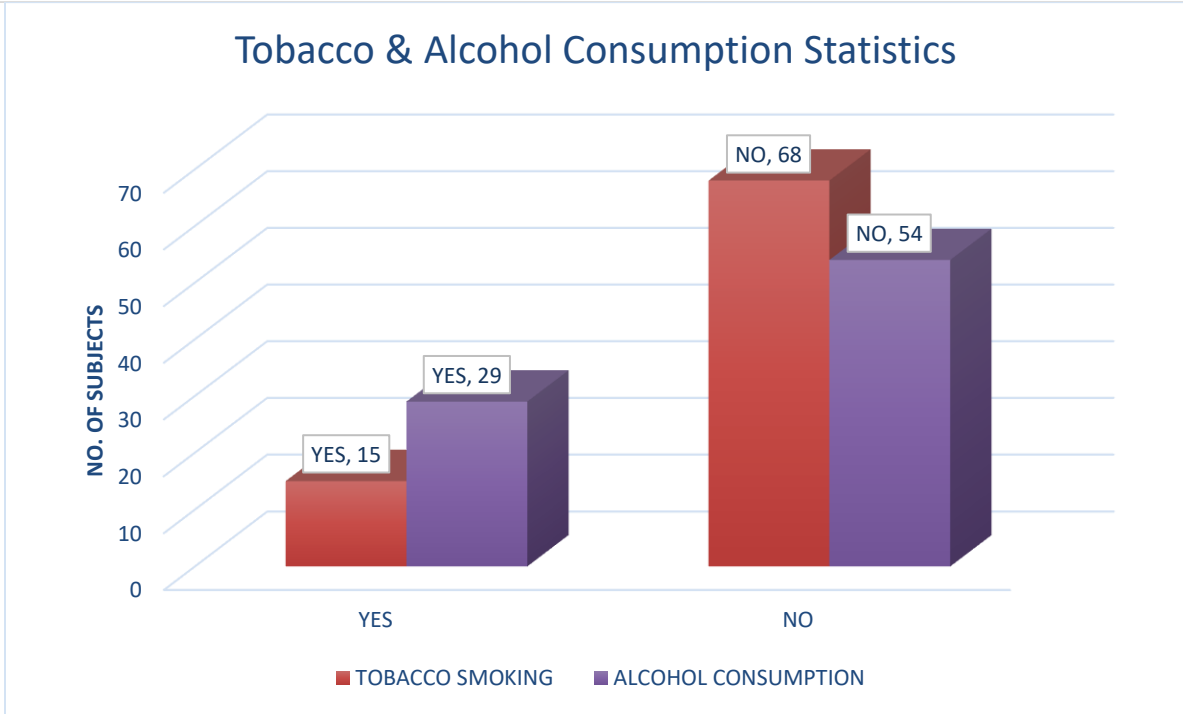
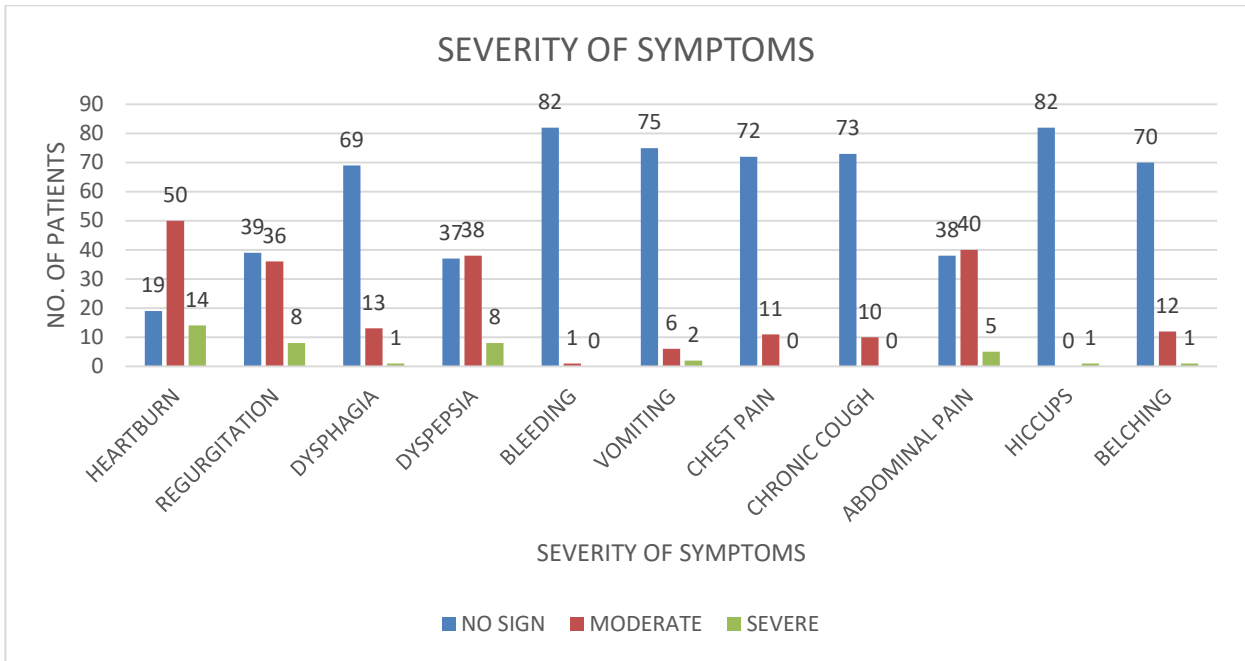
Inclusion and Exclusion Criteria:

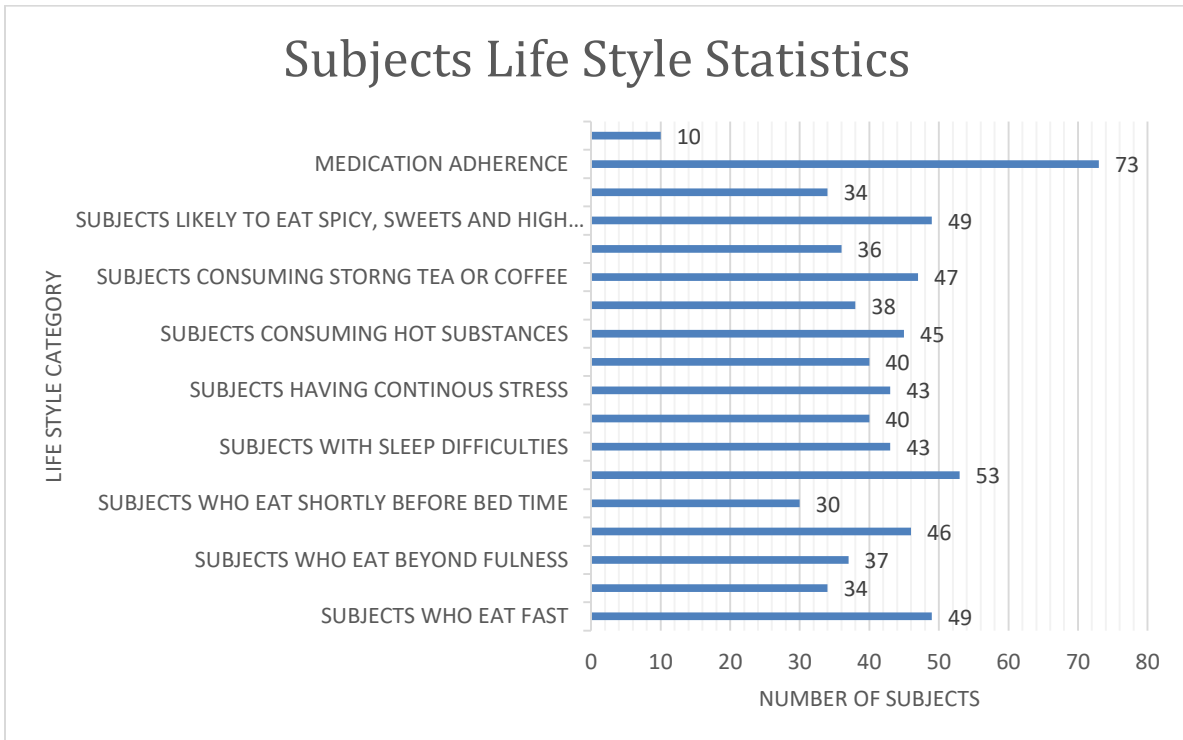
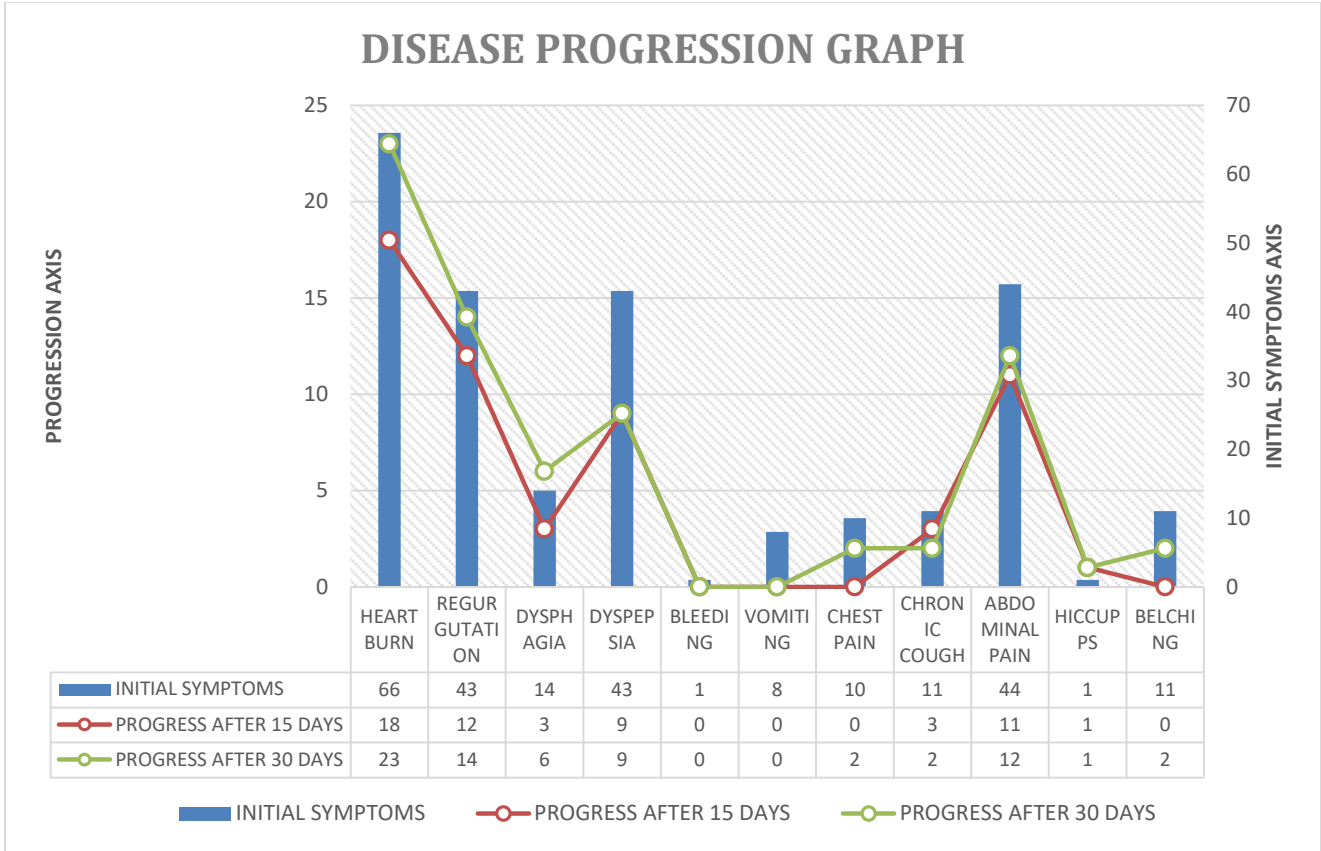
Patients above the age of 18 of both genders are included in the study, patients above the age of 80 are excluded from the study. Individuals with other comorbidities which would affect the outcomes or impacts GERD are excluded.

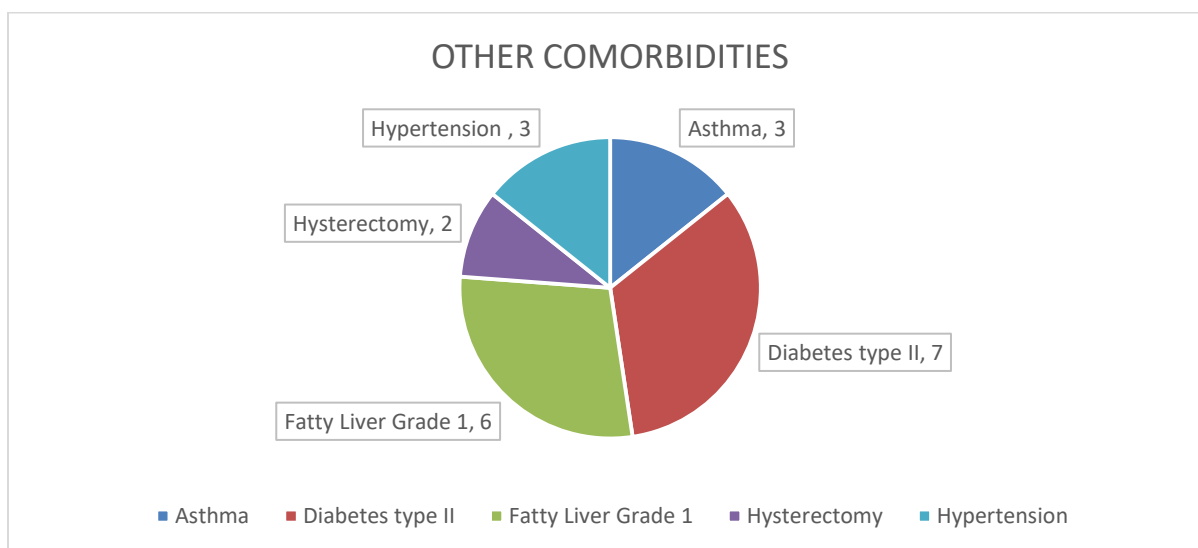
Work Duration and Sample Size:

This research was conducted from 16/01/2021 to 31/03/2021 among 83 patients.









RESULTS:

Age and gender chart depicts that GERD mostly happens to be in patients of age 35 to 51 followed by the age group 18 to 34, surprisingly patients with age greater than 52 are only 14 in the study. And men are more predominant in occurring GERD in any age group. Past studies shows that 40 – 60 and even >60 is the most common age of occurrence of GERD, whereas this study states that GERD is more common in late 30's to late 40's.

The BMI chart illustrates that 48 GERD patients have ideal BMI; 22 individuals are overweight and 9 are obese. 22 among 83 patients, is considerably a large data. May increase with increase in total patients involved and this finding agrees with the studies stating that GERD predominantly occur in overweight and obese adults.

Sleep factor has bigger impact on the subjects. 42 patients who suffer with GERD have unaltered sleep pattern and good quality of sleep. 38 have experienced disturbed sleep and 3 patients suffer with insomnia. There is no clear information that whether disturbed sleep led GERD or reflux disease disturbed/reduced sleep & sleep quality.

As mentioned, this study followed FSSG score method and data is collected through simple questions and basing on responses the severities are assessed. Among 83 individuals, heartburn, regurgitation, dyspepsia and abdominal pain are the symptoms patients experience most. 40 people experience moderate abdominal pain next to 50 people experience moderate heartburn. Individual patient may experience more than one symptom either severe or moderate. Hiccups and bleeding are also the parameters of assessment of GERD but very rarely experienced.

Only 15 individuals do smoke and 29 consume alcohol among 83 GERD patients who are involved in the study.

GERD is a manageable disease. In the disease progression graph the initial symptoms were indicated by blue bars, progress after 15 and 30 days are observed after therapy and are represented through lines. There is a significant drop in the number of patients experiencing symptoms after 15 days of treatment. But there is a slight raise in patients count experiencing symptoms after 30 days. Symptoms often re-appear in most of the patients due to many reasons such as poor medication adherence and therapy course completion.

49 subjects who eat spicy, high fat & sugar food and who eat fast are likely to get GERD. Next big factor that affects prevalence of GERD is consuming hot substances/beverages like hot coffee/tea. Stress is also a major cause of occurrence of GERD.

Even though there is no significant and exact correlation between Asthma and GERD, previous studies stated that having asthma develops or worsens the reflux disease. Due to drugs used in treatment of asthma. But surprisingly in this study only 3 patients were previously diagnosed with asthma have GERD.

CONCLUSION:

Most unchecked or untreated reflux disease develops into a chronic condition and leads to permanent oesophageal damage. Average age of developing GERD was found to be 41 but the proportion was decreased in early and late 60's group. Mostly GERD cannot be managed by medication adherence alone, proper diet is necessary. No need of surgery in many cases. These responses collected helps in improving quality of life of patients. Most of the patients are not aware of GERD and

often misunderstand it as cured, where it has to be managed many years to get cured. As observed in results, there is a slight rise in count of subjects after 4 weeks. However, the increase is not significant but in large sample size there might be a raised graph. Therapy should be continued even subjects experience no symptoms and should be vigilant about life style.

Limitations:

This is conducted among 83 patients, the sample size is small, higher sample size might alter the graphs and percentage.

REFERENCES

- Dennish GW, Castell DO. Inhibitory effect of smoking on the lower esophageal sphincter. *N Engl J Med*. 284(20), 1971, 1136–1137.
- Dent J, El-Serag HB, Wallander MA, Johansson S. Epidemiology of gastro-oesophageal reflux disease: a systematic review. *Gut*. 54(5), 2005, 710–717.
- Feldman M, et al. Gastroesophageal reflux disease. In: Sleisenger and Fordtran's Gastrointestinal and Liver Disease: Pathophysiology, Diagnosis, Management. 10th ed. Philadelphia, Pa.: Saunders Elsevier; 2016. <http://www.clinicalkey.com>. Accessed Jan. 17, 2017.
- Pandolfino JE, El-Serag HB, Zhang Q, Shah N, Ghosh SK, Kahrilas PJ. Obesity: a challenge to esophagogastric junction integrity. *Gastroenterology*. 130(3), 2006, 639–649.
- Ravi K, et al. Esophageal impedance monitoring: Clinical pearls and pitfalls. *American Journal of Gastroenterology*. 111, 2016, 1245.
- Rourk RM, Namiot Z, Edmunds MC, Sarosiek J, Yu Z, McCallum RW. Diminished luminal release of oesophageal epidermal growth factor in patients with reflux esophagitis. *Am J Gastroenterol* 89, 1994, 1177–84.
- Stein MR. Possible mechanisms of influence of oesophageal acid on airway hyperresponsiveness. *Am J Med* 115(Suppl 3A), 2003, S55–9.
- Susan M Harding, Recent clinical investigations examining the association of asthma and gastroesophageal reflux, *The American Journal of Medicine*, 115(3), Supplement 1, 2003.
- Tack J, Becher A, Mulligan C, Johnson DA. Systematic review: the burden of disruptive gastro-oesophageal reflux disease on health-related quality of life. *Aliment Pharmacol Ther*. 35, 2012, 1257–1266.
- Takahisa Yamasaki, *Colin Hemond J Neurogastroenterol Motil*. 24(4), 2018, 559–569.
- Trimble KC, Pryde A, Heading RC, et al. Lowered oesophageal sensory thresholds in patients with symptomatic but not excess gastroesophageal reflux: evidence for a spectrum of visceral sensitivity in GORD. *Gut* 37, 1995, 7–12.
- Vakil NB. Antiulcer medications: Mechanism of action, pharmacology, and side effects. <http://www.uptodate.com/home>. Accessed Jan. 17, 2017.
- Yamamichi N, Mochizuki S, Asada-Hirayama I. Lifestyle factors affecting gastroesophageal reflux disease symptoms: a cross-sectional study of healthy 19864 adults using FSSG scores. *BMC Med* 10, 45(2012).

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