

## Role of Homeopathy in Management of GERD

Dr. Nidhi Dave

MD (Hom), Consultant Homoeopathic Physician, Sainath Hospital, Ahmedabad  
Attached to Ahmedabad Homoeopathic Medical College, Parul University

### ABSTRACT

Gastroesophageal reflux disease (GERD) is a common disease of the gastrointestinal tract. GERD is defined as symptoms or mucosal damage as a result of abnormal reflux of gastric contents into the oesophagus or beyond.

GER (Gastro-oesophageal reflux) is a normal physiologic process in which there will be retrograde movement of gastric contents from the stomach to the oesophagus. GER is not a disease. It occurs several times a day without mucosal damage or symptoms. GERD is caused by failure of anti-reflux barrier. GERD occurs when stomach contents move to the oesophagus effortlessly which cause the reflux symptoms like heartburn and regurgitation. It is a multifactorial process.

**KEYWORDS:** *Gastro-oesophageal reflux, Gastro-oesophageal reflux disorder, Homoeopathy, GERD, Homoeopathic management, Reflux oesophagitis*

### INTRODUCTION

The term Gastroesophageal refers to the stomach and oesophagus. Reflux means to flow back or return. Therefore, gastroesophageal reflux is the return of the stomach's contents back up into the oesophagus.

Gastroesophageal reflux disease (GERD) is a common disease of the gastrointestinal tract. GERD is defined as symptoms or mucosal damage as a result of abnormal reflux of gastric contents into the oesophagus or beyond.

GER (Gastro-oesophageal reflux) is a normal physiologic process in which there will be retrograde movement of gastric contents from the stomach to the oesophagus. GER is not a disease. It occurs several times a day without mucosal damage or symptoms. GERD is caused by failure of anti-reflux barrier. GERD occurs when stomach contents move to the oesophagus effortlessly which cause the reflux symptoms like heartburn and regurgitation. It is a multifactorial process.

GERD affects the quality of life. Using endoscopy, GERD can be classified into non erosive reflux disease and erosive esophagitis. According to Los Angeles classification erosive esophagitis is graded

**How to cite this paper:** Dr. Nidhi Dave "Role of Homeopathy in Management of GERD" Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-6 | Issue-1, December 2021, pp.1327-1336, URL: [www.ijtsrd.com/papers/ijtsrd48032.pdf](http://www.ijtsrd.com/papers/ijtsrd48032.pdf)



Copyright © 2021 by author (s) and International Journal of Trend in Scientific Research and Development Journal. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0) (<http://creativecommons.org/licenses/by/4.0>)



from A-D. It has a wide variety of clinical presentations ranging from gastrointestinal (common) to extra-gastrointestinal (uncommon) symptoms.

Common gastrointestinal symptoms classical triad of symptoms is retrosternal burning pain (heartburn), epigastric pain (sometimes radiating through to the back) and regurgitation. Extra gastrointestinal symptoms are bronchial asthma, laryngitis, hoarseness of voice, chronic cough, sore throat and dental erosions. Diverse studies on various population and lifestyle background had been reported in previous literature, however the data were few from our part of the country. Henceforth, warranting more studies representing the facts from our province of the country.

Furthermore, longstanding and untreated GERD leads to morbid complications such as oesophageal ulcer, Barrett's oesophagus and oesophageal stricture. However, variable inference had been postulated regarding the association of clinical, lifestyle and endoscopic characteristics associated with complications of GERD necessitating further exploration on this background.

**AIMS & OBJECTIVES**

1. To study the role of homoeopathic medicines, selected on the basis of Homoeopathic Principles in the cases of GERD.
2. To study the Miasmatic background of GERD.
3. To study the outcome of Homoeopathic treatment in GERD.
4. To study intensity and recurrence of sufferings after administration of Homoeopathic medicines.

**MATERIALS AND METHODOLOGY**

1. Study setting:
  - Project site: Ahmedabad homoeopathic medical college and Sainath hospital.
  - Duration of study: 12 months.
2. Selection of sample:
  - Number of cases: 50 patients with complaints of Gastro-oesophageal reflux disorder will be considered.
3. Inclusion criteria:
  - Both sexes and age group of 10 to 69 will be considered.
  - All socio and economical classes will be considered.
4. Exclusion Criteria:
  - Cases with irreversible pathological changes like Barrate’s oesophagus, Adenocarcinoma of oesophagus and pure surgical cases are excluded.

- Cases with irregular follow ups.
5. Study Design:
    - Experimental.
  6. Assessment Criteria:
    - Marked/Significant improvement- Complete removal of subjective and objective symptoms accept occasional or no recurrence of complains.
    - Moderate improvement- Subsidence of subjective and objective symptoms with decrease in duration, intensity and frequency of complains.
    - No improvement- No response after considerable period of treatment.
  7. Conclusion:
    - It is based on outcome of result on bases of material and methods.

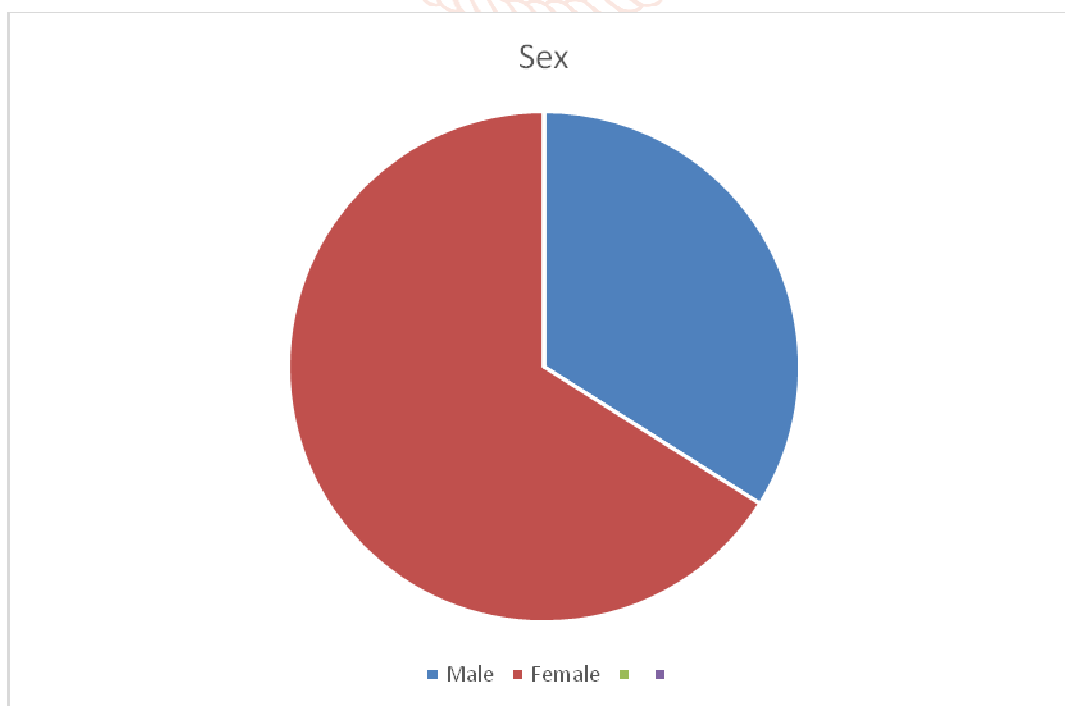
**OBSERAVATION AND RESULT:**

This section contains the description of data collected from 50 cases, who attended the OPD of Sainath Hospital, collaborated with Ahmedabad Homoeopathic Medical College, Bopal, Ahmedabad. The cases were selected on the basis of Random sampling method. The data collected from these patients were subjected to statistical analysis. Descriptive, inferential statistics are used in analysis and interpretation of study. The observations made and results of this analysis are presented in the form of tables, diagrams and charts.

**DEMOGRAPHY: -**

**TABLE NO. 1 DISTRIBUTION OF PATIENT ACCORDING TO SEX**

SEX	NO. OF PATIENTS	NO. OF PATIENTS IN PERCENTAGE
MALE	17	34%
FEMALE	33	66%
TOTAL	50	100%

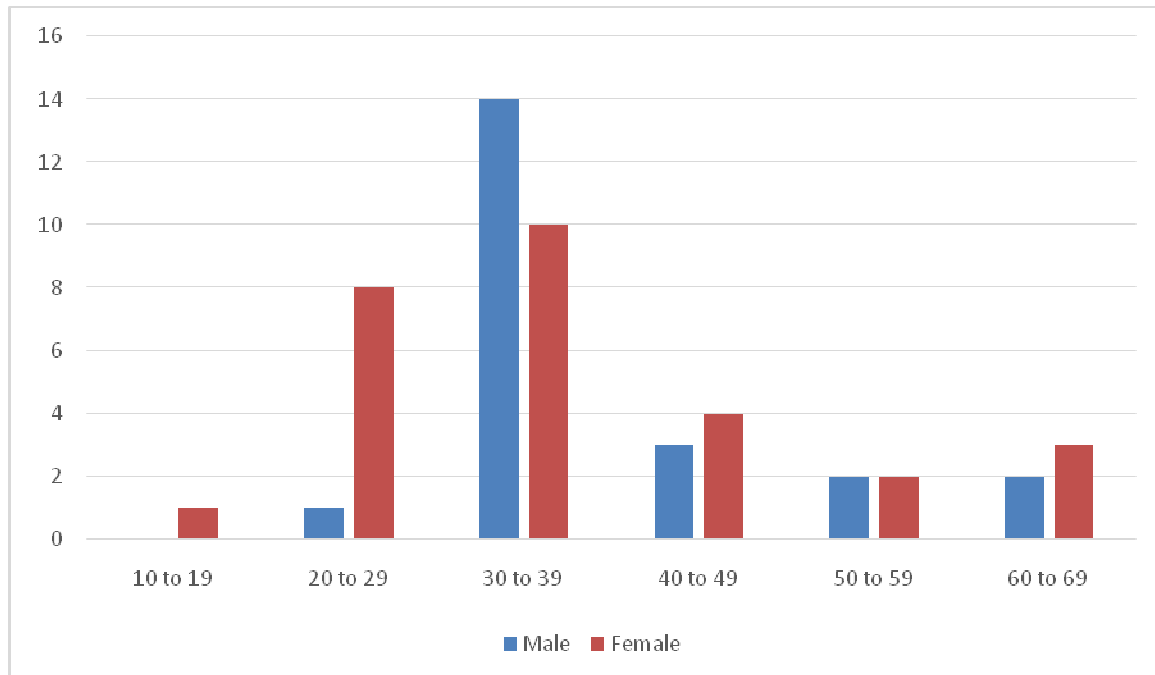


**OBSERVATION FROM TABLE 1**

Out of 50 cases selected for study, As shown in table 1, 33 of patients (66%) were females and 17 of patients (34%) were male. This suggest occurrence of Gastro-oesophageal reflux disorder is predominant in Females than compared to Male.

**TABLE 2 DISTRIBUTION OF PATIENTS ACCORDING TO THEIR AGE**

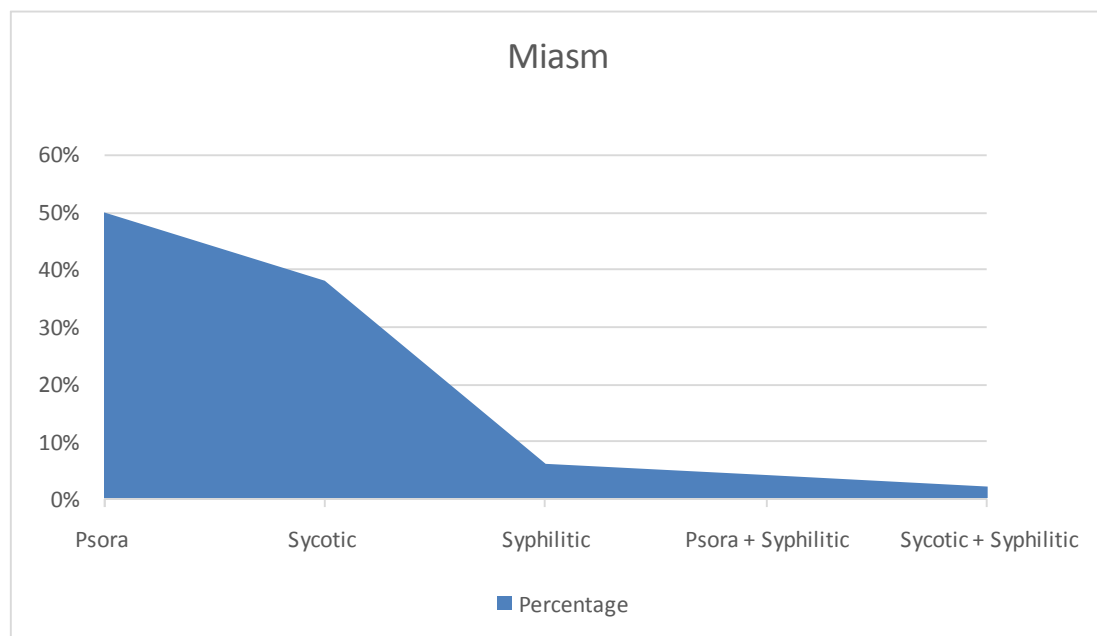
Age Group of Patient (In Year)	Number of Patients			NUMBER OF PATIENT IN Percentage (%)
	Male	Female	Total	
10-19	0	1	1	2
20-29	1	8	9	18
30-39	14	10	24	48
40-49	3	4	7	14
50-59	2	2	4	8
60-69	2	3	5	10

**DISTRIBUTION OF PATIENTS ACCORDING TO THEIR AGE****Observation from Table-2:**

As shown in Table 2, maximum incidence of Gastro-oesophageal reflux disorder is seen in age group of 30 to 40 years, which is 48% (24 patients). After that, age groups of 20 to 29 and 40 to 49 years with the incidence of 18% and 14% (18 and 14 patients), age group of 60 to 69 years with the incidence of 10% (5 patients) and, minimum incidence is seen in age group of 10 to 19 years which is 2% (1 patients).

**TABLE 3 DISTRIBUTION OF CASES ACCORDING TO MIASM**

MIASM (Gastro-oesophageal reflux disorder)	NUMBER OF PATIENTS	NUMBER OF PATIENTS IN PERCENTAGE (%)
Psora	25	50
Sycotic	19	38
Syphilitic	3	6
Psora+ Syphilis (Tubercular)	2	4
Sycotic + Syphilitic	1	2
TOTAL	50	100



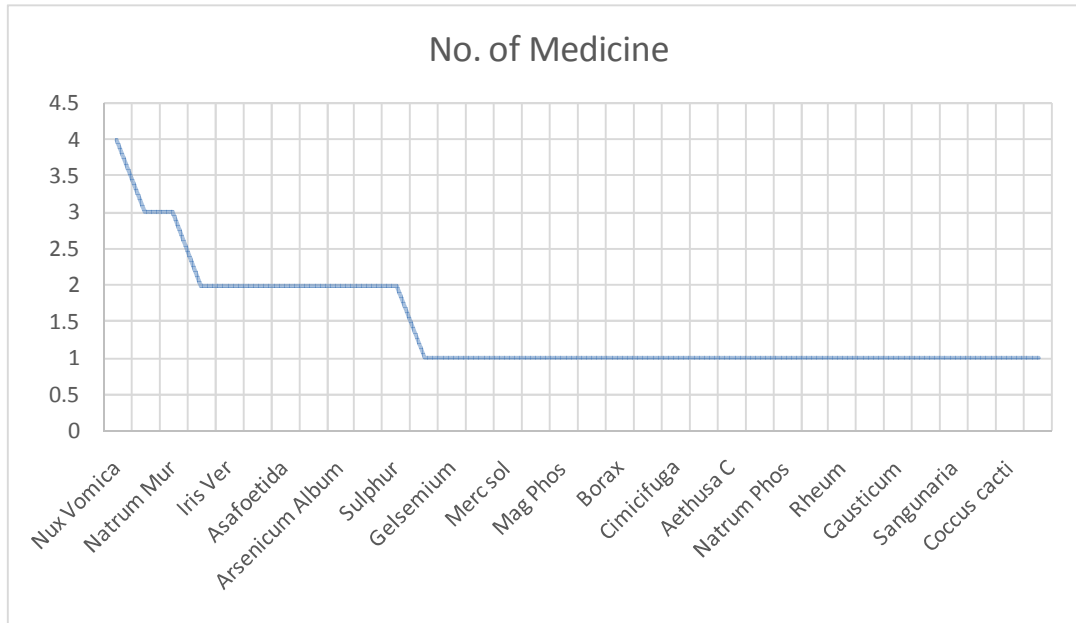
**From Table-3:**

As shown in table-3; maximum patients are having Psoric miasm in background, 50% (25 Patients), 38% of patients are having Sycotic miasm in background. Remaining 6%, 4% and 2% of patients are having Syphilitic, Psora + Syphilitic and Sycotic + Syphilitic in background.

**TABLE 4 DISTRIBUTION ACCORDING TO MEDICINE PRISCRIBE TO PATIENT**

Medicine	No. of medicines
Nux Vomica	4
Bryonia	3
Natrum Mur	3
Carbo veg	2
Iris Ver	2
Acid Sulph	2
Asafoetida	2
Chelidonium	2
Arsenicum Album	2
Sepia	2
Sulphur	2
Robinia	1
Gelsemium	1
Raphanus	1
Merc sol	1
Phosphorous	1
Mag Phos	1
Mag Mur	1
Borax	1
Alumina	1
Cimicifuga	1
Calcarea carb	1
Aethusa C	1
Aloe Soc	1
Natrum Phos	1
Argentum Nitricum	1
Rheum-	1
Picric Acid	1
Causticum	1
Graphitis	1

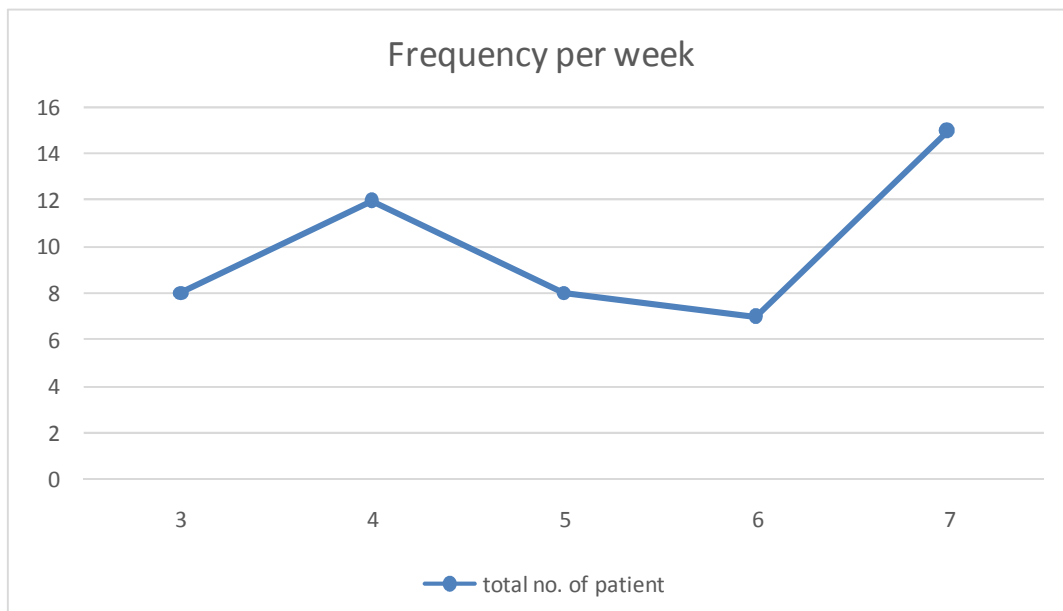
Sangunaria	1
Cardus M.	1
Coccus cacti	1
Veretrum Alb	1
Natrum Sulph	1
Veretrum Viridi	1



Above table shows, Nux vomica is given in 4 cases out of 50. But this doesn't indicate a group of medicines, particularly indicated in this condition. This means that, though disease condition may remain same, the sick individual will manifest the symptoms of as per their own individual pattern of reaction & their own mode of living.

**TABLE NO. 5 DISTRIBUTION OF PATIENTS ACCORDING TO FREQUENCY OF SYMPTOMS PER WEEK**

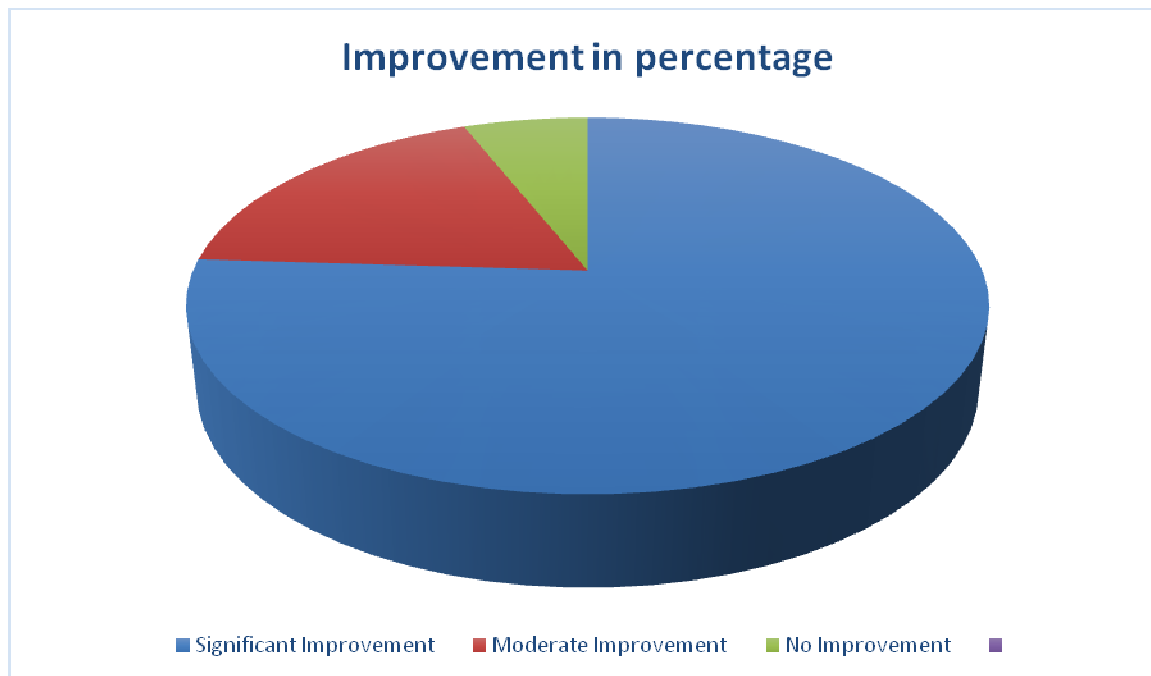
Frequency per week	No. of Patients	No. of patient in percentage (%)
3	8	16
4	12	24
5	8	16
6	7	14
7	15	30
Total	50	100



As per table no. 5, 30% of patients manifest Symptoms of GERD every day in week.

**TABLE NO. 6 RESPONSE OF PATIENTS TO TREATMENT**

RESPONSE TO TREATMENT	NUMBER OF PATIENT	PERCENTAGE (100%)
Significant Improvement	38	76
Moderate Improvement	9	18
No improvement	3	6
Total	50	100



As per table no. 6,

76% of the patients showed significant improvement after treatment. 18% showed moderate improvement. Here, moderate improvement is considered in those cases, where Anti miasmatic medicines had to administered during treatment, to bring out Improvement in condition. 6% showed no improvement with treatment.

**DISCUSSION**

The study undertaken here is one of the most common condition found in our day-to-day life. This condition is not the one which may prove to be life threatening, but is the one which causes lot of discomfort as the array of symptoms which it produces, mainly like Heartburn and Regurgitation. GERD is the most common condition of upper GIT, involving lower oesophageal sphincter. GERD is one of the chronic, common and relapsing condition. Hence it is necessary to diagnose, cure the disease and prevent the recurrence in order to improve quality of life. About 66% of females between age of 10 to 69 year show significant Symptoms as compared to 34% of males in the same age group. It is also detected in pregnant women. It may be present as secondary manifestations to some illness or it may be drug induced. In other mode of treatment, they concentrate more over controlling the acute attack for management of disease rather than giving permanent cure & considering the patient who is suffering. They try to manage the disease by giving oral as well as injectable Antacids, in which chance of recurrence is much higher & sometimes due to recurrent

administrations of PPI, symptoms of Developing Structural changes may remain unrecognized.

Homoeopathic mode of treatment is superior to other modes of treatment since it treats the person as a whole, not the diseased parts or organs. It is the man who is sick and not his body and as a matter of fact he needs to be treated.

It is here the concept of individualization comes into practice, where the physical as well as the mental characteristics of the individual is taken.

This includes, detailed case taking, in order to make portrait of disease, which helps in person diagnosis, disease diagnosis and management of case, both specific as well as general.

We in Homoeopathy, believes in concept of Individualization. We decide the potency as per susceptibility of the patient. Susceptibility is power of organism to react against external stimuli. Higher the susceptibility, High will be the potency.

Therefore, a study has been taken to evolve a suitable homoeopathic approach in the effective management of GERD.

In this study maximum incidence of GERD was seen in the age group of 30-39 years, which is 24 patients (48%), in which 14 patients were male and 10 patients were female, out of 50 (100%). 9 (18%) were in the age group of 20-29, in which 1 patient were male and 8 patients were female. 7 (14%) were in the age group of 40-49 years, in which 3 patients were male and 4 patients were female. 5 (10%) were in the age group of 60-69 years in which 2 patients were male and 3 patients were female. And 4 (8%) were in the age group of 50-59 years, in which 2 patients was male and 2 patients was female. As per the literature, Incidence of GERD is increasing with age, commonly seen in female > male. This study is agreeing with that.

As seen in the study 33 patients (66%) were female and 17 patients (34%) were male.

As per the literature, GERD Affects the people irrespective of sex. This study is agreed with this.

As per study, Nux vomica is given in 4 cases out of 50 cases & Bryonia, Natrum mur, Carbo veg were given for 3 times. But this doesn't indicate a group of medicines, particularly indicated in this condition. This means that, though disease condition may remain same, the sick individual will manifest the symptoms of as per their own individual pattern of reaction & their own mode of living. Hence, in this study, Selection of medicine has done on the basis of individualization.

As per study, out of 50 cases: 38 patients (76%) were markedly or significantly improved, 9 patients (18%) were moderately improved, 3 patients (6%) were not improved.

## SUMMARY AND CONCLUSION

GERD is a common health problem which many times remain undetected due to free and wide spread use of PPIs & sometimes patient may diagnose the complaint by themselves & they avoid to go to clinics unless they cause discomfort.

But the GERD can be very well treated with homeopathic remedies without any complications. It commonly affects the quality of life of patient. 50 different cases have been taken, who are suffering from GERD. (based on inclusion and exclusion criteria) between the age of 10-69 years, from the Sainath Hospital, collaborated with Ahmedabad Homeopathic Medical college for the study. These cases were followed regularly.

They were studied according to age, sex, according to type of disease, according to remedy selection and results.

Chief complains, Causation, Sensation, Location, modalities & concomitants. Along with other associated co-morbidities, constitution, past history, family history, physical generals, and mental are considered in order to select similitum. Laws of homeopathy (law of similar, law of single, law minimum dose and law of individualization) were followed in all the cases.

Wherever possible majority of cases are studied with laboratory investigations, which are CBC, Urine R/M, SGPT, Creatinine, RBS. And in cases with chest pain & Gabharaman, ECG has also taken in order to rule out any cardiac cause.

Majority of cases which has studied were taken primarily allopathic treatment. but due to repeated attacks and increase severity, they selected homeopathic mode of treatment.

Here, in each cases remedy was selected on the basis of law of similarity. Individualization of the patient, in order to reduce suffering & prevent relapses.

Patients are advised to take regular medicine and follow the preventive measurement given.

After this study, I reach on following conclusion:

- Out of 50 cases, Marked/Significant improvement found in 38 patients (76%), Moderate improvement found in 9 patients (18%), No improvement seen in 3 patients (6%). This proves that, when homeopathic medicine selected on the basis Symptom similarity, (considering Mental and Physical) it gives desirable results.
- In my study I have found females are affected more than males. Majority cases are found in the age group of 30-39years (48%). Most of the patients are found to having Classical symptoms of GERD (Heartburn, Regurgitation) along with Headache & Constipation.
- Though there are so many specific, indicated medicines for GERD, but in my study, I found that no two cases are alike. Hence, medicine is selected on the basis of symptom similarity and individualization of patients. the recovery, Significant improvement, Moderate improvement and No improvement was 76:18:6.

Thus, positive result was obtained.

This shows that, no medicine can be a specific for all the cases of GERD.

- This work considering conscientious and diligent observations made on 50 cases and its statistical outcome concludes that homeopathic medicine if chosen authentically on the basis of Symptom similarity, can bring about the outstanding results,

irrespective of severity of symptoms, gross local pathological changes.

- Secondly, a single remedy given with the minimum dose shall bring about the steady but sure and consistent result in the cases of GERD. In some cases, where improvement stops, Administration of Intercurrent medicines, will help to bring about cure. In my study, I have Used sulphur, Thuja, Medorrhinum etc as an intercurrent medicines in cases of moderate improvement.
- As Upper GI Scopy was not carried out in all the cases, the exact aetiology couldn't be understood. Therefore, the effectiveness of each these homeopathic medicines in different conditions could not be analysed.

## RESULTS

The results obtained from this study has utility in day-to-day practice. I have found in study that few cases didn't response to the medicine selected, but the result was positive.

In each case, similimum was given, based on individualization. The present attempt of this study is to evaluated the role of homeopathic medicines in GERD, to reduce the sufferings, prevent recurrence.

GERD is one of the most common problem now a days due to major life style errors in both men & women, having maximum time visits to the hospital. The demand of the time to improve clinical applicability of homeopathic remedies. This is my sincere endeavour to throw light on the subject and to initiate more research work in this channel. Despite the modern trend towards group thinking, group practice, emergence of very recent concept of universality and globalization, Individualisation is still unique and continued to be as an important factor as before towards sustained growth of mankind and homeopathy. Homeopathy is principle concerned with the law of SIMILARITY, so selection of medicine is based on symptom similarity, no specification or groupism were considered. Only law of similarity is considered. I humbly submit this work to Homeopathic fraternity for their scrutiny, approval, guidance and application.

## REFERENCES

[1] Kasper DL, Fauci AS, Hauser SL, Longo DL, Jameson JL, Loscalzo J. Preface Harrison's Manual of Medicine. Asia Book Registry. 2019 Aug 28.

[2] Sitaraman SV, Friedman LS, editors. Essentials of gastroenterology. Wiley-Blackwell; 2012 Apr 30.

[3] Tsai HH. Harrison's Gastroenterology and Hepatology.

[4] Williams NS, O'Connell PR, McCaskie A, editors. Bailey & Love's short practice of surgery. CRC press; 2018 Apr 27.

[5] Hahnemann S. Organon of medicine. B. Jain publishers; 2002.

[6] Hahnemann S. The chronic diseases. Boericke & Tafel; 1904.

[7] Campbell A. Principles and Practice of Homoeopathy, Vol. 1. By ML Dhawale. Karnatak Publishing House, Bombay. No price quoted. 638 pp.

[8] Kent JT. Repertory of the homoeopathic materia medica. B. Jain Publishers; 1992.

[9] Allen TF. Boenninghausen's Therapeutic Pocket Book. B. Jain Publishers; 2003.

[10] Desai BD. Boger-Boenninghausen's Repertory.

[11] Inderbir Singh, Pal GP. Text book of Human Embryology. Eight editions. Anatomy of the stomach:152-3.

[12] Boericke W. Homeopathic Materia Medica. New York: Kessinger Publishing; 2004.

[13] Stomach & epigastrium, epigastrium, Concomitant- Chest pains

[14] Kang JY. Systematic review: geographical and ethnic differences in gastro-oesophageal reflux disease. Aliment Pharmacol Ther. 2004;20:705-717

[15] Sandier RS, Everhart JE, Donowitz M, et al. The burden of selected digestive diseases in the United States. Gastroenterology 2002 May; 122(5): 1500-11

[16] El-Serag HB, Sweet S, Winchester CC, Dent J. Update on the epidemiology of gastro-oesophageal reflux disease: a systematic review. Gut. 2014;63(6):871-80. doi: 10.1136/gutjnl-2012-304269.

[17] Shobna J, Bhatia & D. Nageshwar Reddy et al. Epidemiology and symptom profile of gastroesophageal reflux in the Indian population: Report of the Indian Society of Gastroenterology Task Force. Indian J Gastroenterol (May-June 2011) 30(3):118-127

[18] Hai-Yun Wang, Kondarapassery Balakumaran Leena, et al. Prevalence of gastro-esophageal reflux disease and its risk factors in a communitybased population in southern India. BMC Gastroenterol. 2016; Mar 15, 16: 36.



- [19] Johnson DA, Fennerty MB. Heartburn severity underestimates erosive esophagitis severity in elderly patients with gastroesophageal reflux disease. *Gastroenterology*. 2004 Mar;126(3):660-4.
- [20] Hajar N, Castell DO, Ghomrawi H, et al. Impedence pH confirms the relationship between GERD and BMI. *Dig Dis Sci*; 57:1875-9
- [21] Lagergren J, Bergström R, Nyrén O. No relation between body mass and gastro-oesophageal reflux symptoms in a Swedish population based study. *Gut* 2000;47:26-29.
- [22] Douglas A Corley, Ai Kubo, and Wei Zhao. Abdominal obesity, ethnicity and gastro-oesophageal reflux symptoms. *Gut*. 2007 Jun; 56(6): 756–762.
- [23] De Giorgi F, Palmiero M, Esposito I, Mosca F, Cuomo R. Pathophysiology of gastro-oesophageal reflux disease. *Acta Otorhinolaryngologica Italica*. 2006;26(5):241-246.
- [24] Dent J, Holloway R, et al. Mechanisms of lower oesophageal sphincter incompetence in patients with symptomatic gastroesophageal reflux. *Gut*. 1988; 29: 1020–1028.
- [25] Holloway RH, Boeckxstaens GE, Penagini R, et al. Objective definition and detection of transient lower esophageal sphincter relaxation revisited: is there room for improvement? *Neurogastroenterol Motil*. 2012; 24:54- 60.
- [26] Mittal R, McCallum R. Characteristics of transient lower esophageal sphincter relaxation in humans. *Am J Physiol*. 1987 ; 252: G636-41.
- [27] Pandolino J, Shi G, Trueworthy, Kahrilas P. Esophagogastric junction opening during relaxation distinguishes non-hernia reflux patients, hernia patients and normal subjects. *Gastroenterology* 2003; 125:1018-24.
- [28] Mittal R, Lange R, MaCallum R. Identification and mechanism of delayed esophageal clearance in subjects with hiatus hernia. *Gastroenterology* 1987; 92:130-5.
- [29] Dodds W, Dent J, et al, Mechanism of gastroesophageal reflux in normal human subjects. *J Clin Invest*. 1980;65:256–67.
- [30] Casselbrant A, Edebo A, et al. Actions by Angiotensin II on Esophageal Contractility in Humans. *Gastroenterology*. 2007;132:249-60.
- [31] Salapatek A, Diamant N. Assessment of neural inhibition of the lower esophageal sphincter in cats with esophagitis. *Gastroenterology*. 1993;104:810-8.34.
- [32] Koek G, Sifrim D, et al. Multivariate analysis of the association of acid and duodenogastro-esophageal reflux exposure with the presence of esophagitis, the severity of esophagitis and Barret's esophagus. *Gut* 2008; 57: 1056-64
- [33] Carlsson R, Dent J et al. The usefulness of a structured questionnaire in the assessment of symptomatic gastroesophageal reflux disease. *Scand J Gastroenterol*. 1998 Oct;33(10):1023-9.
- [34] Mark Feldman, Lawrence Friedman, Lawrence Brand. *Sleisenger and Fordtran's Gastrointestinal and Liver Disease: Pathophysiology, Diagnosis, Management*.
- [35] Fass R, Naliboff BD, Fass SS et al. The effect of auditory stress on perception of intraesophageal acid in patients with gastroesophageal reflux disease. *Gastroenterology*. 2008 Mar;134(3):696-705.
- [36] Schey R, Dickman R et al. Sleep deprivation is hyperalgesic in patients with gastroesophageal reflux disease. *Gastroenterology*. 2007 Dec;133(6):1787-95.
- [37] Dent J, Brun J, Fendrick A et al. An evidence-based appraisal of reflux disease management — the Genval Workshop Report. *Gut*. 1999 Apr; 44(Suppl 2): S1–S16.
- [38] Kahrilas PJ. Clinical vignette: refractory heartburn. *Gastroenterology* 2003;124, 1941-5.
- [39] Guarino MP, Cheng L, Ma J, et al. Increased TRPV1 gene expression in esophageal mucosa of patients with non-erosive and erosive reflux disease. *Neurogastroenterol Motil* 2010 ;22:746-51, e219.
- [40] Tobey N, Hosseini S, Caymaz-Bor C, et al. The role of pepsin in acid injury to esophageal epithelium. *Am J Gastroenterol*. 2001 ;96 :3062-70.
- [41] Balaban D, Yamamoto Y, Liu J, et al. Sustained esophageal contraction: a marker of esophageal chest pain identified by intraluminal ultrasonography. *Gastroenterology*. 1999; 116:29-37.
- [42] Jacob P, Kahrilas P, Vanagunas A. Peristaltic dysfunction associated with nonobstructive dysphagia in reflux disease. *Digestive Diseases*

- and Sciences. August 1990, Volume 35, Issue 8, pp 939–942.
- [43] Brazana R, Koch K. Gastroesophageal reflux disease presenting with intractable nausea. *Ann Intern Med* 1997; 9:23-7.
- [44] Ranjitkar S, Smales RJ, et al. Oral manifestations of gastroesophageal reflux disease. *J Gastroenterol Hepatol* 2012; 27:21-7.
- [45] Gustafsson U, Tibbling L. The effect of edrophonium chloride-induced chest pain on esophageal blood flow and motility. *Scand J Gastroenterol.* 1997;32:104-7.
- [46] Kushnir VM, Sayuk GS, Gyawali CP. Abnormal GERD parameters on ambulatory pH monitoring predict therapeutic success in noncardiac chest pain. *Am J Gastroenterol.* 2010;105:1032-8.
- [47] Van Houtte E, Van Lierde K, et al. The prevalence of laryngeal pathology in a treatment-seeking population with dysphonia. *Laryngoscope* 2010; 120:306-12.
- [48] Adhami T, Goldblum J, et al. The role of gastric and duodenal agents in laryngeal injury: An experimental canine model. *Am J Gastroenterol* 2004; 99:2098-106.
- [49] Tack J, Becher A, et al. Systematic review: The burden of disruptive gastro-oesophageal reflux disease on health-related quality of life. *Aliment Pharmacol Ther* 2012; 35:225-34.
- [50] Fass R, Johnson DA, et al. The effect of dexlansoprazole MR on nocturnal heartburn and GERD-related sleep disturbances in patients with symptomatic GERD. *Am J Gastroenterol* 2011; 106:421-31
- [51] Xiao YL, Liu FQ, et al. Gastroesophageal and laryngopharyngeal reflux profiles in patients with obstructive sleep apnea / hypopnea syndrome as determined by combined multichannel intraluminal impedance-pH monitoring. *Neurogastroenterol Motil* 2012; 24:e258-65.
- [52] Richter J. Gastresophageal reflux disease during pregnancy. *Gastroenterol Clin North Am* 2003; 32:235-61.

