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Research Article

**PATIENTS SURRGERING FROM POST PRANDIAL DISTRESS  
SYNDROME AND GASTRIC EMPTYING SCINTIGRAPHY**<sup>1</sup>Dr. Mehreen Farid, <sup>2</sup>Dr Sidra Ashraf, <sup>3</sup>Dr Ameer Hamza<sup>1</sup>Jinnah Hospital Lahore, <sup>2</sup>Faisalabad Institute of Cardiology, Faisalabad, <sup>3</sup>Aziz Bhatti Shaheed Teaching Hospital Gujrat.**Article Received:** October 2020**Accepted:** November 2020**Published:** December 2020**Abstract:**

*Objective: The objective of this study and research to determine the GES (Gastric Emptying Scintigraphy) pattern among patients present with PDS (Post-prandial Distress Syndrome).*

*Methodology: Patients suffering from dyspepsia of post-prandial distress from more than 6 months were the part of this research work. This research work carried out in Sir Ganga Ram Hospital, Lahore from December 2017 to April 2019. We excluded the patients suffering from dyspepsia because of epigastric pain syndrome and other abnormalities. We performed the gastro-intestinal endoscopy in all the patients to determine the organic reasons. Four-hour GES carried out in our institute. We compiled the outcomes and used the SPSS V. 23 for the statistical analysis of the collected information.*

*Results: In this research work we integrated 38 patients having range of age from 15 to 72 years with an average age of  $37.050 \pm 13.50$  years. There were 73.70% (n: 28) male and 26.70% (n: 10) female patients in this research study. Average gastric retention with standard deviations at 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> hours were  $63.0 \pm 19.04\%$ ,  $37.0 \pm 20.62\%$ ,  $19.0 \pm 16.66\%$  and  $10.0 \pm 12.73\%$  respectively. We found the early gastric emptying in 7.890% (n: 3) patients and late gastric emptying at 2<sup>nd</sup> and 4<sup>th</sup> hours was present in 10.52% (n: 4) and 32.0% (n: 10) patients respectively. Total 44.0% (n: 17) patients were present with normal gastric emptying regardless of the classical PDS symptoms. Conclusion: We evaluated the gastric dysmotility in GES in fifty percent patients as well as intuitive hypersensitivity among patients present with PDS.*

*Keywords: SPSS, PDS, GES, statistical, dyspepsia, syndrome, hypersensitivity, methodology, distress.*

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**INTRODUCTION:**

There can be different symptoms in patients as early satiety, bloating, epigastric discomfort and anorexia. Dyspepsia is combination of 2 words; “Dys”and“Pepsis” means bad digestion. Non-ulcer dyspepsia is the epigastric symptom in non-availability of the structural abrasions [1]. This is in accordance with the Rome-3 standard [2]. Various contrivances of non-ulcer dyspepsia include late gastric emptying, visceral hypersensitivity and psychological stress [3]. In IBS (Irritable Bowel Syndrome), there was same upper and lower gutdysmotility [4]. One of the well organized non-invasive and quantitative procedure for the purpose of gastric emptying scintigraphy GES [5].

Anomalous gastric emptying has link with the post-prandial fullness, vomiting andnausea [6]. There is recommendation of the 4 hours GES now a days due to variable patterns being examined at 2<sup>nd</sup> and 4<sup>th</sup>hours on radionuclide gastric emptying research works [7]. Late gastric emptying is most common stated pathophysiological mechanisms in the patients present with the post-prandial distress [8,9]. This research work carried out to determine the percentage of food retention in the stomach at 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> hours among patients suffering from PDS.

**METHODOLOGY:**

The ethical committee of the institute gave the permission to conduct this research work. This research work carried out in Sir Ganga Ram Hospital, Lahore from December 2017 to April 2019.We included total thirty eight patients in this research

work. We selected the patients on the basis of Rome-3 standard. We took the written consent from every patient after describing them the purpose of this research work. Patients suffering from other serious diseases were not the part of this research work. In female patient, we performed GES in 1<sup>st</sup>week ofmenstrual cycle to prevent impact from misbalance of hormones. We performed the upper GI endoscopy in all the patients after overnight fasting. We performed the GES in our institute. This research work carried out in accordance with the standard protocols of GES. We performed the imaging with the utilization of the large field of view of gamma camera with dual head. The internationally accepted normal values for lowfat,egg-white GES are present in Table-1 [10].

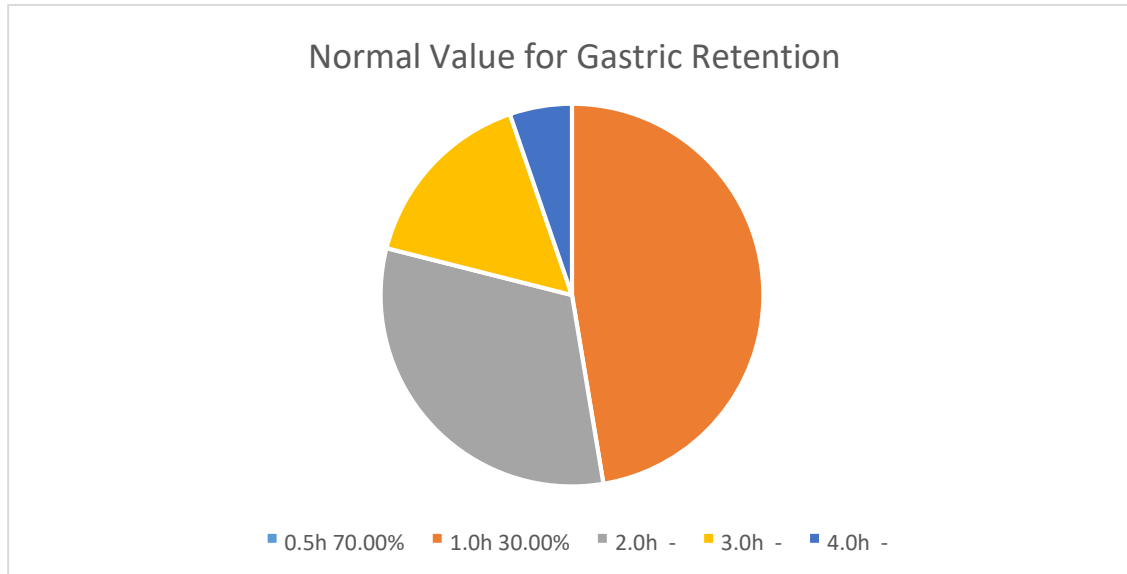
Sternness grading of late gastric emptying depending on the 4<sup>th</sup> hour values in all groups have relation to SD of normal findings [11].

1. Grade-1 (Mild): 11.0% to 20.0% retention at four hours
2. Grade-2 (Moderate): 21.0% to 35.0% retention at four hours
3. Grade-3 (Severe): 36.0% to 50.0% retention at four hours
4. Grade-4 (Extremely severe): greater than 50%.0retention at four hours

SPSS V.23 was in use for the statistical analysis of the collected information. We used the descriptive statistics for the description of the data. We used the Chi-square method for the comparison of the qualitativevariables. P value of less than 0.050 was the significant value.

**Table-I: Normal value for Low-Fat, Egg-White Gastric retention.**

| Time Point | Lower limit | Upper limit |
|------------|-------------|-------------|
| 0.5h       | 70.00%      | -           |
| 1.0h       | 30.00%      | 90.00%      |
| 2.0h       | -           | 60.00%      |
| 3.0h       | -           | 30.00%      |
| 4.0h       | -           | 10.00%      |

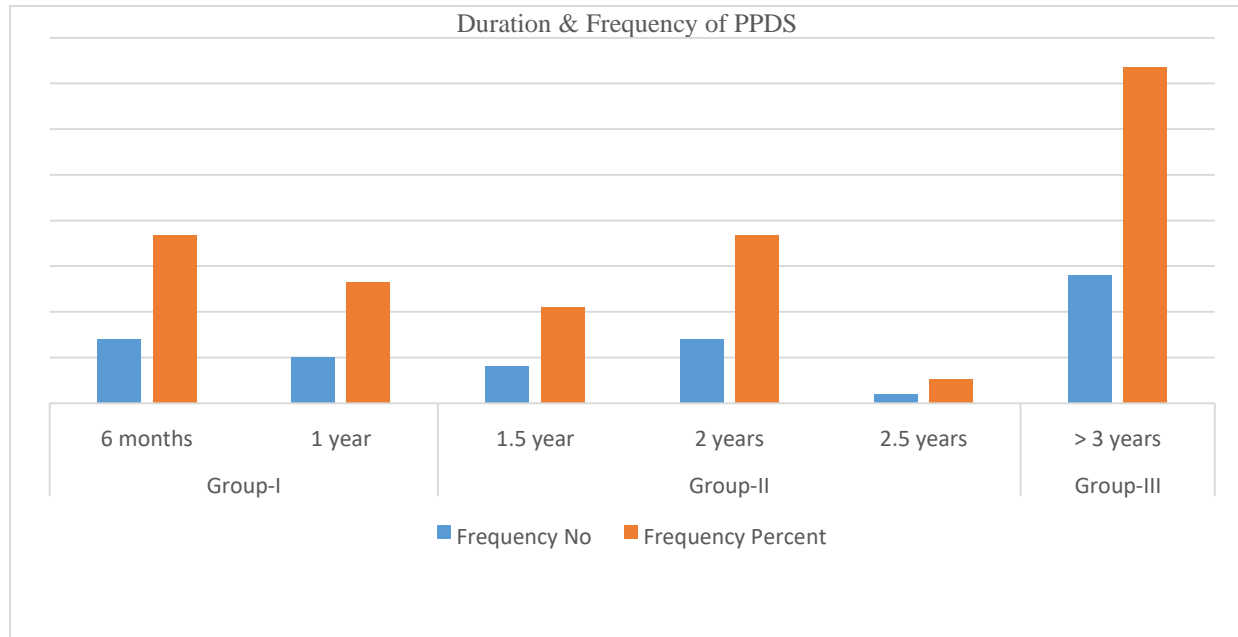


### RESULTS:

We included total 38 patients in this research work with a range of age from 15.0 to 72.0 years with an average age of  $37.050 \pm 13.50$  years. There were 73.30% (n: 28) male and 26.70% (n: 10) females in this research work. The symptoms of duration of these thirty eight patients are present in Table-2.

**Table-II: Duration of post prandial distress syndrome with frequency.**

| Groups    | Duration of Symptoms | Frequency |         | Group     |            |
|-----------|----------------------|-----------|---------|-----------|------------|
|           |                      | No        | Percent | Frequency | Percentage |
| Group-I   | 6 months             | 7.0       | 18.40   | 12.0      | 31.580     |
|           | 1 year               | 5.0       | 13.20   |           |            |
| Group-II  | 1.5 year             | 4.0       | 10.50   | 12.0      | 31.580     |
|           | 2 years              | 7.0       | 18.40   |           |            |
|           | 2.5 years            | 1.0       | 2.60    |           |            |
| Group-III | > 3 years            | 14.0      | 36.80   | -         | 36.840     |
| Total     |                      | 38.0      | 100.00  |           | 100        |



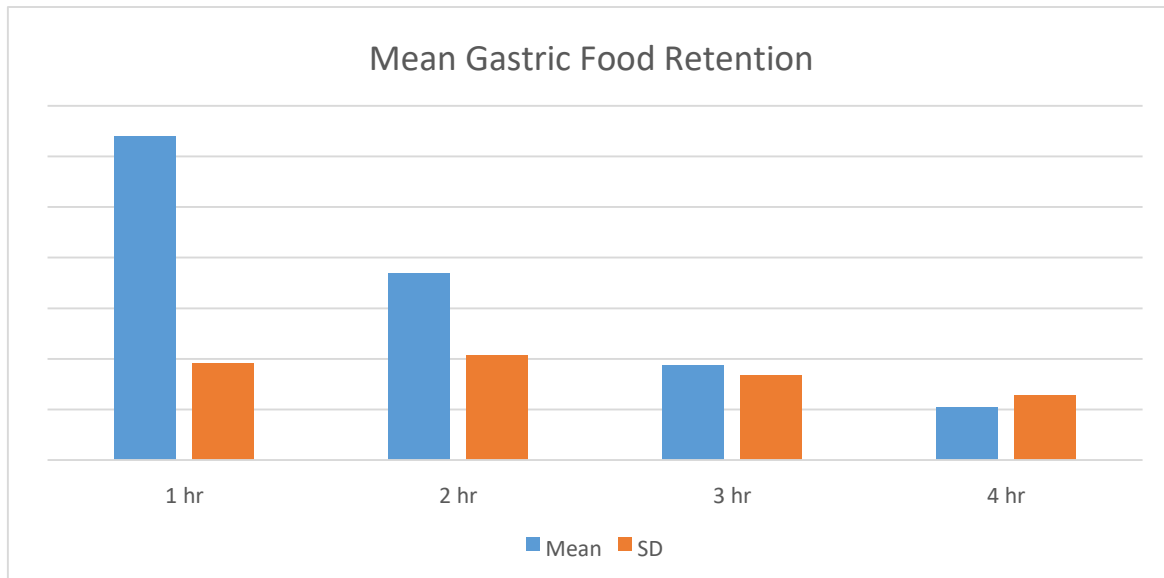
There were twelve patients in Group-1 who were present with symptoms of 1 year duration, Group-2 consist twelve patients with 2 to 3 year duration and Group-3 consisted fourteen patients present with the symptoms of greater than 3 years of duration. The comparison of the gastric retention separated the patients into 3 groups depending upon their symptoms (Table-2).

In current research work, stomach counts at intervals of hours show the percentage food retention amount in stomach. At 1 hourpost intake, the range of gastric retention was from 15.0% to 98.0% with average retention of  $62.30 \pm 18.60\%$ . At 2 hours, the range was

from 2.0% to 75.0% with an average value of  $36.940 \pm 20.490\%$ . There was 1.0% to 60.0% and 0.0% to 48.0% retention of food in the stomach at 3<sup>rd</sup> and 4<sup>th</sup> hours post intake correspondingly with an average retention of  $18.730 \pm 16.70\%$  and  $10.40 \pm 12.74\%$  respectively. This summary of this information is present in Table-3. In the population of this research work, the findings showed that from 1<sup>st</sup> to 3<sup>rd</sup> hours, we found low retention of food in stomach as compared to the accepted international values of 90.0%, 60.0% and 30.0%. But at 4<sup>th</sup> hour, the findings were comparable with international specimens [7].

**Table-III: Mean gastric food retention hourly in total population.**

| Gastric retention at | Mean   | SD     | p-value |
|----------------------|--------|--------|---------|
| 1 hr                 | 63.980 | 19.040 | <0.0100 |
| 2 hr                 | 36.870 | 20.620 | <0.0100 |
| 3 hr                 | 18.770 | 16.660 | <0.0100 |
| 4 hr                 | 10.420 | 12.730 | 0.839   |

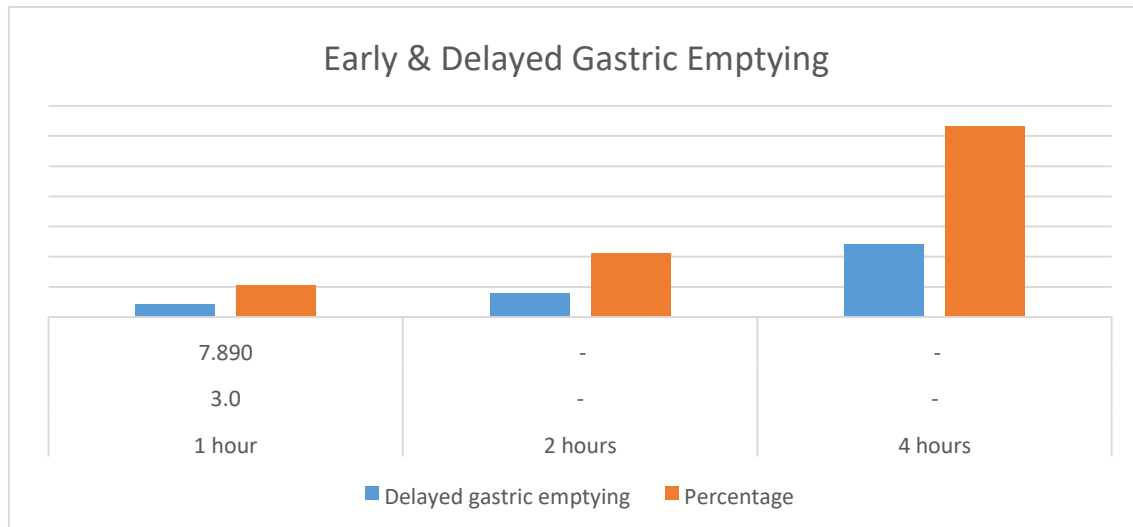


We divided the patients of this research work 3 groups depending upon the symptoms duration as presented in Table-2. There were 3 patients of early gastric emptying among total thirty eight patients who were present with lower than 30.0% retention of food at 1 hour post-intake. Late gastric emptying with retention of food of greater than 90.0% at 1<sup>st</sup> hour was present in 2 patients and at 2 hours, greater than 60.0% retention of food was present in 4 patients.

However, we noted the late gastric emptying at 4<sup>th</sup> hours with greater than 10.0% food retention in stomach of twelve patients. Among these twelve patients, 5 were present with mild, 4 were moderate and 3 had severe late gastric retention depending upon the grades of severity in methods and materials. The summary of the percentage values are present in Table4.

**Table-IV: Early or delayed Gastric Emptying and number of cases.**

| Time after intake | Early gastric emptying | Percentage | Delayed gastric emptying | Percentage |
|-------------------|------------------------|------------|--------------------------|------------|
| 1 hour            | 3.0                    | 7.890      | 2.0                      | 5.260      |
| 2 hours           | -                      | -          | 4.0                      | 10.520     |
| 4 hours           | -                      | -          | 12.0                     | 31.570     |



The symptoms duration has correlation with the gastric retention. There is no significant disparity in average gastric retention between Group-1 and Group-2 at 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> hours. We found significant difference in average gastric retention between Group-3 and rest of the 2 Groups at 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> hours postintake.

#### DISCUSSION:

In this research work, we presented the association of the symptoms with the retention of food. The present information showed that there is linear association of the symptoms duration with the amount of retention of food in stomach. There was participation of few patients in this research work due to the large duration of procedural time. Patients with symptoms of early gastric emptying appear in same way as in late gastric emptying. We examined one hour EGE (Early Gastric Emptying) in 7.89% (n: 3) and DGE (Delayed Gastric Emptying) in 5.26% (n: 2) patients. This reported value is very much low as stated by Delgado in which there was presence of EGE in 41.0% patients [12]. At 4 hours mild, moderate and severe retention of food was available in 13.150%, 10.520% and 7.890% respectively with 32.0% (n: 12) total patients. This outcome is much close to a research work conducted in Japan by Asano H where there was presence of 25.50% presence of gastric emptying in group of PDS [13]. Ochi M was not able to find any association of DGE in 2 groups present with functional dyspepsia pointing to various mechanism for the PDS [14]. Vanheel also supported this very finding [15], in which there was close association between visceral hypersensitivity with the PDS. He did not find any disparity between Rome-3 subgroups in occurrence of the gastric hypersensitivity, DGE and imbalanced gastric accommodation. There is also

support of the hypersensitivity's concept with PDS in research work conducted by Tack J [6] as well as in one research work conducted by Di Stefano [17].

#### CONCLUSION:

There is need of more research works to consolidate the findings of this research study. Visceral hypersensitivity may be the pathophysiological contrivances other than the late gastric emptying in patients present with PDS.

#### REFERENCES:

1. Abell TL, Camilleri M, Donohoe K, Hasler WL, Lin HC, Maurer AH, et al. Consensus Recommendations for Gastric Emptying Scintigraphy: A Joint Report of the American neuro gastroenterology and motility Society and the society of nuclear medicine. *Am J Gastroenterol.* 2008;103:753–763.
2. Shindo T, Futagami S, Hiratsuka T. Comparison of gastric emptying and plasma ghrelin levels in patients with functional dyspepsia and non-erosive reflux disease. *Digestion.* 2009;79:65-72.
3. Sarnelli G, Caenepeel P, Geypens B. Symptoms associated with impaired gastric emptying of solids and liquids in functional dyspepsia. *Am J Gastroenterol.* 2003;98:783-788.
4. Seok JW. How to Interpret Gastric Emptying Scintigraphy. *Neuro gastroenterol Motil.* 2011;17(2):189-191.
5. Thompson WG. Non-ulcer dyspepsia. *Can Med Assoc J.* 1984;130(5):565-569.
6. Timmons S. Functional dyspepsia: motor abnormalities, sensory dysfunction and therapeutic options. *Am J Gastroenterol.* 2004;99:739-742.

7. Delgado-Aros S, Camilleri M, Cremonini F, Ferber I, Stephens D, Burton DD. Contributions of gastric volumes and gastric emptying to meal size and post meal symptoms in functional dyspepsia. *Gastroenterology*. 2004;127(6):1685-1694.
8. Tack J, Talley NJ, Camilleri M. Functional gastro duodenal disorders. *Gastroenterology*. 2006;130:1466-1479.
9. Di Stefano M, Miceli E, Tana P. Fasting and postprandial gastric sensorimotor activity in functional dyspepsia: postprandial distress vs epigastric pain syndrome. *Am J Gastroenterol*. 2014;109:1631-1639.
10. Tack J, Caenepeel P, Fischler B. Symptoms associated with hypersensitivity to gastric distention in functional dyspepsia. *Gastroenterology*. 2001;121:526-535.
11. Vanheel H, Carbone F, Valvekens L, Simren M, Tornblom H, Vanuytsel T, et al. Pathophysiological Abnormalities in Functional Dyspepsia Subgroups According to the Rome III Criteria. *Am J Gastroenterol*. 2017;112:132-140. doi: 10.1038/ajg.2016.499.
12. Ochi M, Tominaga K, Tanaka F. Clinical classification of subgroups according to the Rome III criteria cannot be used to distinguish the associated respective pathophysiology in Japanese patients with functional dyspepsia. *Intern Med*. 2013;52:1289-1293.
13. Asano H, Tomita T, Nakamura K, Yamasaki T, Okugawa T, Kondo T, et al. Prevalence of gastric motility disorders in patients with functional dyspepsia. *J Neuro gastroenterol Motil*. 2017;23(3):392-399. doi: 10.5056/jnm16173
14. Tack J, Talley NJ. Functional dyspepsia - symptoms, definitions and validity of the Rome III criteria. *Nat Rev Gastroenterol Hepatol*. 2013;10:134-141.
15. Consensus Recommendations for Gastric Emptying Scintigraphy A Joint Report of The Society of Nuclear Medicine and The American Neuro gastroenterology and Motility Society, April 23, 2007. Available at: [http://interactive.snm.org/docs/GES\\_Consensus\\_Manuscrypt\\_4-23a2007.pdf](http://interactive.snm.org/docs/GES_Consensus_Manuscrypt_4-23a2007.pdf).
16. Abell TL, Camilleri M, Donohoe K, Hasler WL, Lin HC, Maurer AH, et al. Consensus recommendations for gastric emptying scintigraphy: a joint report of the American neuro gastroenterology and motility society and the society of nuclear medicine. *J Nucl Med Technol*. 2008;36(1):44-54. doi: 10.2967/jnmt.107.048116.
17. Karamanolis G, Caenepeel P, Arts J, Tack J. Association of the predominant symptom with clinical characteristics and pathophysiological mechanisms in functional dyspepsia. *Gastroenterology*. 2006;130:296-303. doi: 10.1053/j.gastro.2005.10.019