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A Study on Assessment and Management of Diabetic Gastropathy

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Abstract: To assess and manage Diabetic gastropathy. Diabetic gastropathy is least concern in developing countries but many patients receiving oral anti diabetics leads to serious gastric problems. This study involves identification of gastric problems and improves compliance, medication adherence among population and also determine the severity of gastric problems due to oral hypoglycemic drugs. In our study, women are more effected (54%) than men (46%). Most effected age group is 40-60 years age with 58% Mild (male-20.9%, female-22.27%) and moderate (male-37.9%, females-39.7%) conditions are the most effected in terms of severity. This is due to poor glycemic control and not using proper medication, diet. Treatment should be focused on improving gastric symptoms by controlling gastric emptying. Prevention of gastric symptoms by following some dietary changes, nutritional and physiological support is effective to patients.

Keywords: Gastric Emptying, Glycemic Control, Dietary Changes.

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I. INTRODUCTION

Diabetic gastropathy is defined as the abnormality of the stomach in diabetic patients. The contractile, electrical, sensory functions of stomach are altered. Diabetic gastropathy is produced due to hyperglycemic conditions. It is seen in diabetic patients. Gastric symptoms like nausea, vomiting, regurgitation, heartburn, early satiety, postprandial fullness, bloating and abdominal pain/discomfort are common.

Delayed gastric emptying time is key factor for occurrence of gastropathy. It impacts on nutrition, gastrointestinal symptoms, glycemic control, and drug absorption. Diet and glucose control are effective in management of gastropathy. Exact pathophysiology of diabetic gastropathy remains unclear. Treatment focuses on improving gastric emptying, controlling symptoms and glycemic control. Prokinetic drug therapy is also used in the management of gastric symptoms. Psychological support and nutrition are equally important in patient outcome. Glycemic control is foremost in the management.

Long standing, poorly controlled diabetes leads to diabetic gastropathy. Long term use of medications in diabetic patients results in delayed gastric emptying time which results in diabetic gastropathy. The common symptoms associated with gastropathy are nausea, vomiting, abdominal pain and bloating. Delay in gastric emptying time results in poor glycemic control, poor nutrition, and dehydration. Diabetic gastropathy can

be managed by maintaining gastric emptying time and good glycemic control with dietary modifications. Early modifications in glycemic control are effective in prevention of gastropathy. Prokinetic agents along with anti-emetics and antihistamines may be helpful to relieve the symptoms of gastropathy.

II. METHODOLOGY

It is a multi-centered prospective observational study designed to assess and manage Diabetic Gastropathy. The present study was conducted at tertiary care hospital in Hanamkonda, Warangal covering outpatients. This study was conducted for a period of 6 months involving around 1000 subjects. Male and female subjects of age group 20-80 with diabetes mellitus are taken for the study based on inclusion and exclusion criteria.

III. SELECTION CRITERIA:

A. Inclusion Criteria

- Patients from 20-80 years of age.
- Patients receiving hypoglycemic agents for at least 3 months and continuing treatment.
- Patients on treatment with single or multiple hypoglycemic agents.
- Patients are receiving only oral hypoglycemic agent therapy.

B. Exclusion Criteria

- Infants, neonates, adolescents.
- Noncompliance of disease
- Other pathological disease states
- Immunocompromised patients
- Pregnancy.

IV. TABLES

Table 1:
Gender Wise Distribution

Gender	No Of Patients
Male	456 (46%)
Female	4%

Table 2:
Based on Age

S. No	Age	Patients
1	20-40	278
2	41-60	582
3	61-80	140

Table 3:
Based on Severity Score

		Male	Female	Total
None	0	82 (17.9%)	97 (17.8%)	179
Very Mild	0-16	53 (11.6%)	62 (11.3%)	115
Mild	17-32	95 (20.9%)	121 (22.2%)	216
Moderate	33-48	173 (37.9%)	200 (39.7%)	373
Severe	49-64	53 (11.6%)	64 (11.7%)	117
		456	544	

Table 4:
Based on Duration

	Male	Female	Total
<1 Year	83(18.20%)	93(16.78%)	176
1-5 Years	217(47.58%)	260(46.93%)	477
06-10 Years	94(20.6%)	131(23.64%)	225
11-15 Years	31(6.79%)	34(6.13%)	65
16-20 Years	31(6.79%)	36(6.49%)	67
	456	554	

Table 5:
Based on Co-Morbidity Conditions:

S. No	Disease	Male	Female	Total
1	Hypertension	141 (79.2%)	118(38.8%)	259
2	Hypothyroidism	21 (11.7%)	109(35.8%)	130
3	Hypertension & Hypothyroidism	14(7.86%)	68(22.3%)	82
4	Hyperthyroidism	2 (1.1%)	7(2.3%)	9
5	Hypertension Hyperthyroidism	0	2(0.65%)	1

V. CHARTS

Chart 1.
Gender Wise Distribution

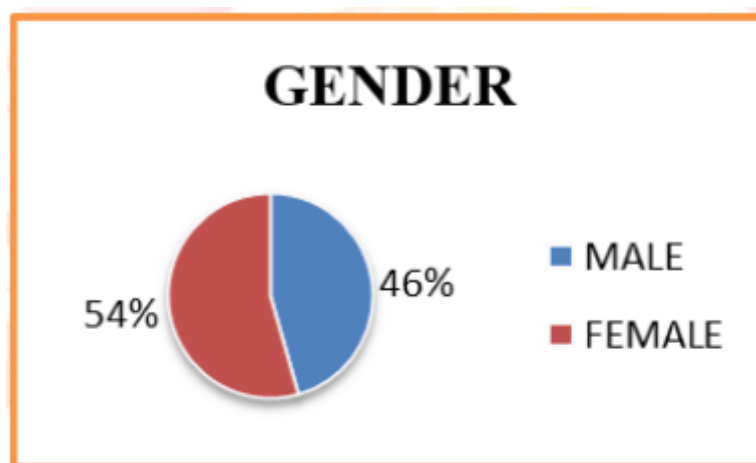


Chart 2.
Based On Age

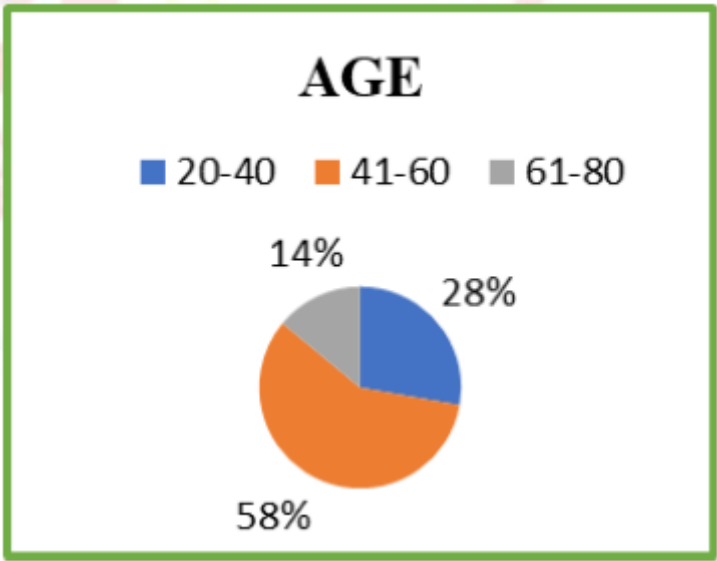


Chart 3.
Based On Severity Score

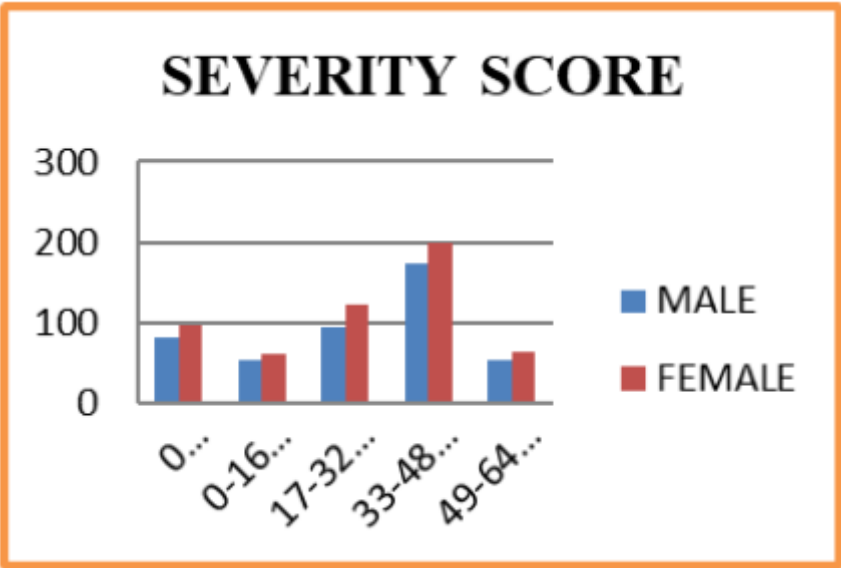


Chart 4.
Based On Duration

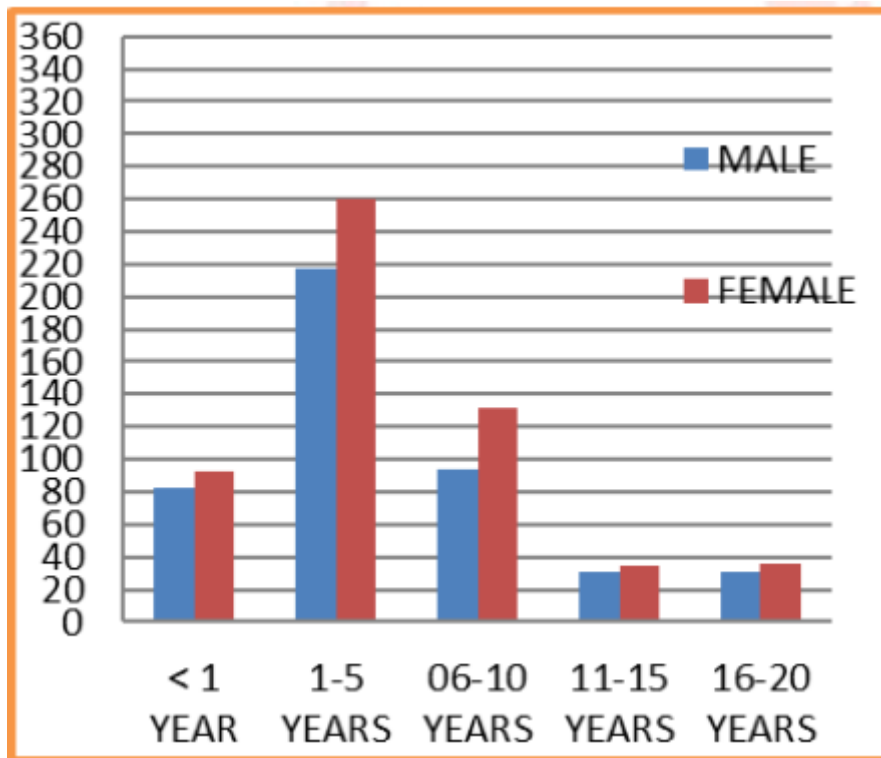
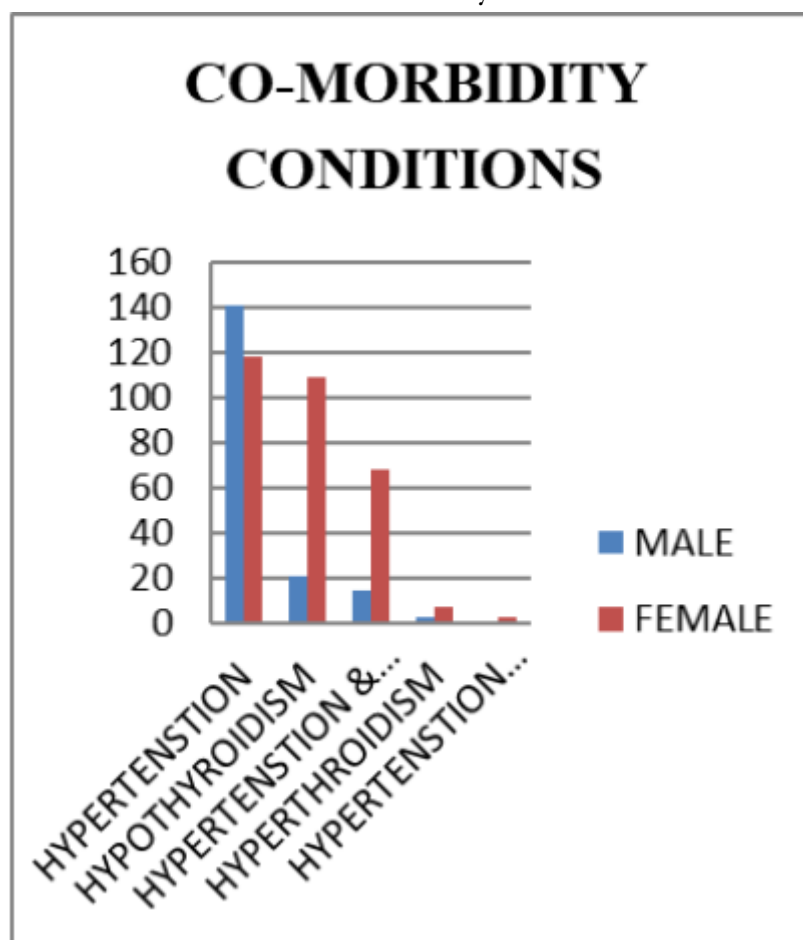


Chart 5.
Based On Co-Morbidity Conditions



VI. DISCUSSION

Diabetic gastropathy is the stomach abnormality due to hyperglycemic condition. In this study assessment and management of diabetic gastropathy is focused. This is a prospective observational study. It includes 1000 patients with age group between 20-80 years. Diabetic patients (Type-II) who are suffering with at least 2-3 gastric symptoms for few weeks are considered. In six months, study parameters like age, gender, co-morbid conditions, duration of diabetes, severity of symptoms are analyzed based on patient response. The most common co-morbid conditions included in this study are hypertension, hypothyroidism, and hyperthyroidism. Laboratory parameters like blood glucose levels (fasting, postprandial and random) are analyzed. Other parameters like social history, past medical history, family history, previous illness and current medication are also recorded. A questionnaire was answered by the patients regarding severity of symptoms and values/scores are noted. The PAGI-SYM scale is a symptom severity instrument which consists of a questionnaire (i.e,16 questions and 5 subscales) to measure the gastrointestinal symptoms severity in diabetic patients. Based on severity

score from PAGI-SYM scale severity is concluded and presented as very mild, mild, moderate, and severe subscales.

Symptoms	None 0	Very mild 1	Mild 2	Moderate 3	Severe 4	Very Severe 5
Heart burn (burning pain in chest or throat during the day)						
Heart burn (while lying down)						
Regurgitation or reflux (during the day)						
Regurgitation (while lying down)						
Nausea						
Vomiting						
Upper abdominal pain/discomfort						
Stomach fullness						
Loss of appetite						
Lower abdominal pain/discomfort						
Feeling discomfort in chest						
Bitter or acid/sour taste in your mouth						
Bloating						
Not able to finish a normal sized meal						
Feeling excessive after meals						
Other problems explained						

VII. Results

Table 1. Shows out of 1000 patients 460 (46%) are males and 540 (54%) are females.

Table 2. Indicates the patients, we considered of age groups between 20-80 years. In this 28% are affected at the age group of 20-40 years, 58% are affected at the age group of 40-60 years and 14% are affected at the age group of 60-80 years.

Table 3. Reveals the information based on severity scores. In very mild condition – 11.6% males and 11.3% females are affected. In mild condition – 20.9% males and 22.2% females are affected. In moderate condition – 37.9% males and 39.7% females are affected. In severe condition – 11.6% males and 11.7 % females are affected.

Table 4. Explains the information based on duration of diabetes. In patients with duration less than 1 year 18.20% males and 16.78% females are affected with total of 34.98%. In 1 to 5 years of duration, 47.58% males and 46.93% females with a total of 94.5% are affected. In 6 to 10 years of duration, 20.6% males and 23.64% females with a total of 44.24% are affected. In 11 to 15 years of duration, 6.79% males and 6.13% females with a total of 12.92% are affected. In 16 to 20 years of duration, 6.79% males and 6.49% females with a total of 13.28% are affected.

Table 5. Gives the information on co-morbid conditions, 79.2% males and 38.8% females with hypertension is affected. 11.7% males and 35.8% females with hypothyroidism. 1.1% males and 2.3% females with hyperthyroidism. 7.86% males, 22.3% females have both hypertension and hypothyroidism.

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