INCIDENCE OF GASTRO-ESOPHAGEAL REFLUX DISEASE ASSOCIATED WITH TYPE 2 DIABETES

Sudarshan Tandukar[1], Ansu Mali Joshi[1]

ABSTRACT

BACKGROUND: Gastro-Esophageal Reflux Disease is a growing problem with a reportedly increasing prevalence in type 2 diabetes patients. Despite this, study on the prevalence of Gastro-Esophageal Reflux Disease in Nepalese patients with type 2 diabetes is not available. The objective of this study is to determine the incidence of Gastro-Esophageal Reflux Disease in Nepalese patients with type 2 diabetes.

MATERIAL AND METHODS: This cross-sectional study was carried out for a period of three months in patients with type 2 diabetes. A structured questionnaire "Frequency Scale for the Symptoms of GERD (FSSG)" was used for the evaluation of Gastro-Esophageal Reflux Disease in a total of Ninety Six (96) patients.

RESULTS: The incidence of Gastro-Esophageal Reflux Disease was observed in 22% of the patients with type 2 diabetes. The mean FSSG score in patients with Gastro-Esophageal Reflux Disease was 15.2 ± 9.3.

CONCLUSION: Gastro-Esophageal Reflux Disease is a common phenomenon in type 2 diabetes. Effective treatment along with proper glycemic control is essential so as to promote the Quality of Life of individuals.

KEY WORDS: Gastro-Esophageal Reflux Disease (GERD); Nepal; Type 2 diabetes

1. Department of Endocrinology, Alka Hospital Pvt. Ltd., Lalitpur, Nepal

For Correspondence
Mr. Sudarshan Tandukar, B.Pharm,
Department of Endocrinology,
Alka Hospital Pvt. Ltd.,
Lalitpur, Nepal
E-mail: sudarshantandukar@hotmail.com

INTRODUCTION

Type 2 Diabetes (T2DM) is a chronic illness with numerous complications and the incidence of Gastro-Esophageal Reflux Disease (GERD) is common in diabetes.[1] GERD, even though, does not result in significant morbidity or mortality, yet can substantially affect the Quality of Life (QOL) in diabetic patients.[2]

Overall, numerous aspects can influence the occurrence of GERD in T2DM. A poor glycemic control itself has been associated with the presence of GI symptoms in T2DM.[3] Similarly, a higher BMI is a significant risk factor for GERD.[4] The association between the duration of diabetes and GERD, however, is still not clear.[1,5]

A study has reported that nearly 25% of patients with T2DM experienced GERD related symptoms.[6] Another study conducted in Japanese population also showed similar results with a prevalence rate of 23%. [7] As such, studies on the incidence of GERD in T2DM in the context of Nepalese diabetic population are absent. This study was thus conducted to determine the incidence of GERD in T2DM in Nepalese context.

MATERIAL AND METHODS

The study was a hospital based cross sectional study, carried out in the Endocrine Unit of Alka Hospital, Nepal, for a period of three months from August to October, 2013. A total of 96 patients were enrolled in the study via a non-probability simple purposive sampling technique. Frequency Scale for the Symptoms of GERD (FSSG), a questionnaire specific to GERD, was used in order to diagnose GERD.

A written consent of each patient was obtained prior to the investigation. The T2DM patients visiting the Out-Patient Department, in the Endocrine Unit of Alka Hospital, Nepal were enrolled in this study. Exclusion criteria included patients with Type 1 diabetes, pregnant women or patients receiving acid suppression drugs (such as anti-histamines, proton pump inhibitors). Patients were also excluded if they had a history of esophageal or gastric surgery. The values are expressed as mean ± SD. The data was analyzed using Statistical Package for Social Sciences (SPSS), version 20.0.

The FSSG Questionnaire incorporated 12 questions, which were scored to specify the frequency of GI symptoms as: never= 0; occasionally = 1; sometimes = 2; often=3; always = 4. Patients with FSSG score greater than seven was considered positive to GERD. (When the cut-off point was set at eight, this test shows a sensitivity of 62%, a specificity of 59% and an accuracy of 60%).[8]

RESULTS

Characteristics of the patients enrolled in the study

The highest number of patients (n=96) was in the age-group 40 to 60 years, with a male/female ratio of sample population being 59/37. Body Mass Index (BMI) of 47% patients was in the normal range (18.5 to 24.9 kg/m^2), followed by overweight group (37%). The baseline characteristic of the study population is shown in Table 1.

Table 1: Baseline characteristics of study population

Gender (Male/Female)	**59/37**
Mean Age (± S.D.) years	49.4 ± 13.1
Mean Duration of Onset of T2DM (years)	4.7 ± 6.2
Mean BMI (kg/m^2) Underweight BMI (<18.5 kg/m^2) Normal BMI (18.5 to 24.9 kg/m^2) Overweight (25.0 to 29.9 kg/m^2) Obese (>30 kg/m^2)	26.1 ± 5.4 2 (2%) 46 (44%) 36 (35%) 15 (16%)
Dyslipidemia*	28
Hypertension**	7
Hypertension and Dyslipidemia	17
Mean Fasting Plasma Glucose level (mg/dL)	142.8 ± 64.1
Mean Post Prandial Glucose level (mg/dL)	203.9 ± 85.7
Medications for diabetes (Met/SU/αGI/DPP4I/Insulin)	(85/51/12/9/14)

*Dyslipidemia was defined as a LDL-C >100 mg/dL, or patient on anti-hyperlipidemic medication

** Hypertension was defined as a Blood Pressure >140/90 mmHg or patient on anti-hypertensive medication

FSSG Score

Out of the total 96 patients with T2DM, the incidence of GERD (FSSG score ≥8) was observed in 22% patients, with a mean FSSG score of 15.2 ± 9.3 (among the patients with GERD). The mean of dyspeptic symptoms and acid-reflux related symptoms in patients with GERD was observed to be 7.9 ± 4.4 and 7.2 ± 8.8.

DISCUSSION

This study has for the first time shown that the incidence of GERD in Nepalese with T2DM was 22%. The incidence of GERD in Nepalese T2DM patients has been observed to be comparable with those in Japanese population where a prevalence of 23 to 25% was reported.[6,7] However, a study in China reported that the prevalence of GERD in T2DM was approximately 16%, which is lower than that in our study.[9]
The overall prevalence of GERD is relatively low in general Asian population (approximately 3 to 7%).[10] All previous studies have indicated T2DM as a possible risk factor for

GERD.[11, 12] Factors such as obesity, poor glucose control, dyslipidemia and peripheral neuropathy may all influence for the higher prevalence of GERD in T2DM patients.[1, 13, 14] Psychological distress could also be a cause of gastrointestinal symptoms in T2DM.[15] Irrespective of the cause, the incidence of GERD has been observed to be rather high and requires attention.

There were few limitations in this study. Diagnosis of GERD was based on a simple questionnaire, while an endoscopic examination would have been more reliable for the purpose. A random sampling technique would have been more unbiased.

CONCLUSION

GERD is quiet common in Nepalese T2DM patients. Such a study had never before been conducted in Nepal. However, studies on a larger population are still more desirable. Nonetheless, an effective treatment of GERD along with adequate glycemic control is essential in order to improve the QOL of patients.

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