Prevalence Of Gastrointestinal Symptoms In Diabetics In An Urban Hospital In Nigeria

C Onyekwere, A Ogbera

Citation

C Onyekwere, A Ogbera. *Prevalence Of Gastrointestinal Symptoms In Diabetics In An Urban Hospital In Nigeria*. The Internet Journal of Endocrinology. 2006 Volume 4 Number 1.

Abstract

Background/Objective
Diabetes mellitus is a common metabolic disorder with significant impact on morbidity and mortality. The various diabetic complications have been widely studied and documented. However reports of gastrointestinal (GI) dysfunction in diabetics are available only from the Western world. We set out to document features of gastrointestinal dysfunction in diabetics in an urban hospital in Nigeria.
Subjects and methods.
In a prospective case controlled questionnaire-based survey the prevalence of symptoms of GI dysfunction in a population of diabetics in a teaching hospital was evaluated. 153 previously diagnosed diabetics and another 153 non-diabetic patients were recruited.

Results.
The mean age (SD) of the diabetics and control subjects were 57.5(11) and 56.3(14) while the female: male ratio was 2:1 and 2:1 respectively. The prevalence of GI symptoms in the diabetic and control subjects was 42% and 18% respectively. The common symptoms were constipation, diarrhoea, heartburn, belching and epigastric pain.

Conclusion. This study is hoped will raise clinicians' awareness to

this entity (GI dysfunction in diabetics) and enable early recognition

when they occur.

INTRODUCTION

Diabetes Mellitus (DM) refers to a group of disorders in which hyperglycaemia is the common denominator and is associated with insulin deficiency which may be total or relative due to insulin resistance[1].

In general gastrointestinal (GI) symptoms and dysfunction caused by DM have been under recognised. The GI complications of DM often involve the esophagus, stomach, gallbladder, intestines, and the pancreas[2]. The symptoms include constipation, faecal incontinence, dysphagia, heartburn, abdominal pain, diarrhoea and nausea/vomiting[3]. These have been attributed to altered intestinal motility and augmented visceral sensitivity in different regions of the gastrointestinal tract (GIT) resulting from autoimmune neuropathy, neuroendocrine transmitter imbalance and microangiopathy[4, 5].

Reports of prevalence of G.I symptoms in diabetics have ranged from 19-76% [6,7,8] with consequent negative impact on health related quality of life in them[9]. Distribution of symptoms has been reported to be similar in type 1 and 11 diabetics but more frequent in poorly controlled diabetics[10]. Though symptoms may persist or fluctuate their prevalence is reported to be constant as symptom onset is balanced by disappearance[11].

Several studies in Diabetics from black Africa including Nigeria have addressed the morbidities associated with several complications of DM like DM foot, neuropathy, retinopathy and nephropathy without focussing on the G.I complications[12]. However, only few isolated descriptive

Nigerian reports on the G.I features of DM [13,14] exist.

We undertook to study the prevalence of G.I symptoms in a population of diabetic patients in an urban teaching hospital in Nigeria. This objective will be achieved by documenting the types of GI symptoms and noting any relation to type of treatment received, duration of DM and the degree of glycaemic control.

METHODOLOGY

This was a prospective questionnaire based case-control study conducted among previously diagnosed diabetic patients attending the outpatient department of the Lagos state university teaching hospital, Ikeja, Lagos Nigeria. Participation was voluntary and consent was sought and obtained before enrolment. Consecutive diabetic patients who presented from January to April 2006 and were on treatment with oral hypoglycaemic agents and or insulin were recruited into the study. Interviewer based questionnaires were administered to elicit presence or absence of ten listed G.I symptoms of sufficient severity to interfere with patients daily routine within the preceding 3 months. The duration of DM illness, the type of treatment and the degree of blood sugar control were noted. Fasting and 2hour postprandial blood glucose (FBS and 2HPPG) measurements were also done.

Operational definitions:

1. DM control was adjudged good if the mean FBS and 2HPPG over a period of 3-months were less than 110 and 160mg% respectively and poor if above this range.
2. Short term of DM referred to those who have had DM for less than 10 years duration and long term included those who have had DM for more than 10 years.
3. Anorectal dysfunction refers to symptoms of diarrhoea or constipation and combination of these two symptoms. Upper GI features refer to symptoms of belching, heartburn, and epigastric pain. Dysmotility symptoms are those of dysphagia, bloating, easy fullness and vomiting.

The subjects in the Control group were not known to have diabetes mellitus as this was confirmed by the findings of normoglycaemia in them. This group of patients were recruited from the medical outpatient department where they are being managed for hypertension (HBP). The statistical tests used included student's test and chi-square.

Data obtained were analysed using SPSS software version 11.

RESULTS

The subjects with DM were 153 in number and the controls were also 153 in number. The age range with mean age (SD) of the diabetics and control subjects were 25-85years {57.5(11)} and 20-80years {56.3(14)} respectively while the female: male ratio in diabetic and control subject was 2:1 and 1.5:1 respectively. The majority of the subjects fell within the middle age group.

Sixty-five diabetics (42%) and 27 control subjects (18%) had one or more symptoms of GI dysfunction (P=0.09). The commonest gastrointestinal symptoms in the diabetics were constipation, belching, epigastric pain, and diarrhoea. Forty-three DM subjects (28%) had one or more features of upper GI dysfunction and similarly features of anorectal dysfunction were noted in 32diabetics (21%). The least observed features were those of dysmotility (N=4(2.6%)%). (table 1).

Among the diabetic patients the mean duration of the diabetic illness was 5.7 ± 6years. The presence of the gastrointestinal symptoms was not related to the degree of diabetic control or the type of treatment received but to the duration of the diabetic illness as shown in Table 2.

Figure 1

Table 1: GI symptoms in subjects with DM and the controls

Symptom Type	Diabetic no (%)	Control no (%)
Constipation	23(15%)	7(4.6%)
Diarrhoea	17(11%)	2(1.3%)
Alternating diarrhoea and constipation	6(3.9%)	0
Epigastric pain	18(11.8%)	6(3.9%)
Belching	17 (11%)	4(2.6%)
Heart burn	15 (9.8%)	8(5.2%)
Dysphagia	5(3.3%)	1(0.7%)
Vomiting	0(0%)	0(0%)
Abd bloating	4 (2.6%)	3(2%)
Jaundice	5(3.3%)	2(1.3%)
Total number with GI symptoms	65(43%)	27(17.8%)
" " " upper GI symptoms	43(28%)	13 (9%)
" " " anorectal symptoms	32(21%)	8(5%)

Figure 2

Table 2: GI symptoms in DM subjects and relationship to treatment, duration and glycaemic control using chi square

	Presence symptoms(no%.)	Absence(no.%)	Pvalue
Treatment Type			
Insulin treated	8(5.2%)	5(3.2%)	0.24
OHA	57(37.3%)	83(54.2%)	
Glycaemic control			
Good control	21(13.7%)	19 (12.4%)	0.09
Poor control	44(28.8%)	69(45%)	
Duration of DM			
Short Term	41(60%)	76(86%)	0.001
Long term	24(40%)	12(14%)	

DISCUSSION

Diabetes mellitus is often associated with gastrointestinal (GI) symptoms, but the exact pathogenesis remains unresolved. The scope of reported GI features in DM range from upper gastrointestinal symptoms, dysmotility to symptoms of anorectal dysfunction[11]. Reports of the GI features of DM is available from the Western world with only isolated case reports[13, 14] from sub-Saharan Africa.

The diabetics and the control subjects in this study are fairly matched in their age and sex distribution. The prevalence of features of GI dysfunction in DM as evidenced by number of diabetics with one or more GI symptoms (43%) in this report is within the 19-76% reported from the Western World[6,7,8]. Though these features may reflect sensori-motor abnormalities of the GI tract which are common in DM, the symptoms are however non-specific and may relate to other GI disorders not necessarily DM-related[5]. However the severity of these sensori-motor disturbances when they occur has been reported to correlate with symptoms manifestations[15] though to lesser extent in DM gastroparesis.

The upper GI symptoms predominate in this study and were noted in 28% of the study population with DM versus 9% in non-DM. These features could be manifestations of dyspepsia or reflux disease in the subjects. Lluch[16] et al had reported a gastroesophageal reflux disease (GERD) prevalence of 28% in diabetics using 24hour ambulatory Ph monitor in assessing GERD as opposed to symptom manifestation used in the present study. Features of anorectal dysfunction (21%) in this report is comparable to those from the Western World [8]. In this report, dysphagia was notably higher in subjects with DM than those without DM. The figures for DM is similar to earlier Nigerian reports[14]but differ from those reported for Caucasians (27%)[17].The low prevalence of dysmotility features (abdominal fullness/bloating) 2.6% is also in keeping with previous Nigerian reports [13]. A possible explanation for the low dysmotility features in Nigerians may be the high fibre diet, which promotes intestinal motility.

The mean (SD) age of the DM subjects with GI dysfunction was 57.6(12) and those without symptoms were 57.4 (10). The mean duration of diabetic illness among the DM subjects was 5.7 ± 6. Contrary to previous reports[10], the prevalence of the GI symptoms were not related to degree of glycaemic control. This study showed that GI features were more commonly documented in DM subjects with short duration of DM. Theunderlying reasons for this may relate to the underlying mechanism of the observed symptoms. Some reasons posited for the GI complications of DM, range from psychological stress to psychiatric illness associated with DM [18]. However some researchers[7] differ in their views regarding this and have suggested that these GI symptoms in DM may actually relate to DM neuropathy. DM Neuropathic complications tend to occur after several years of the DM illness (mean=8yrs.) [19].

Though reports of DM Neuropathy occurring within a short onset of DM exist[20]. It is also possible that the observed

features in this study may not reflect DM neuropathy.

CONCLUSION

This study is hoped will raise the awareness of clinicians to this entity (GI dysfunction in diabetics) and enable early recognition when they occur. Given the background of poor diagnostic facilities in our setting, the recognition of the association of DM with the aforementioned GI symptoms may put these features in a balanced perspective.

CORRESPONDENCE TO

DR Onyekwere Charles .A P.O BOX 203,Satelitte Town, Lagos Nigeria Email ifymobi@yahoo.com

References

1. World Health Organisation. Definition, Diagnosis and Classification of Diabetes and its complications. Report of a WHO Consultation WHO Geneva 1999
2. Vogt M, Adamek HE, Arnold JC, Schilling D, Schieffer T, Riemann JF. Gastrointestinal complications of Diabetes mellitus. Med Klin (Munich) 1999; 94(6): 329-337.
3. Hammer J, Howell S, Bytzer P, Horowitz M, Talley. Symptom clustering in subjects with and without diabetes mellitus: a population-based study of 15,000 Australian adults. American L Gast 2003; 98 (2): 391-398
4. Rothstein RD Gastrointestinal motility disorders in diabetes mellitus. Am J Gastroenterol 1990; 85 (7): 782-785.
5. Jing B Z, Jens B F, Asbjorn M D. Upper gastrointestinal sensory-motor dysfunction in diabetes mellitus. World J gastroenterology 2006; 12(18): 2846-2857.
6. Folwaczny C, Riepl R, Tschop M, Landgraf R. Gastrointestinal involvement in patients with diabetes mellitus. Epidemiology, pathophysiology, clinical findings .Z Gastroenterol. 1999; 37:803-815
7. Clouse RE, Lustman PJ. Gastrointestinal symptoms in diabetic patients: lack of association with neuropathy Am J Gastroenterol 1989; 89(8): 868-872
8. Bytzer P, Talley NJ, Leemon M, Young LJ, Jones MP, Horowitz M. Prevalence of gastrointestinal symptoms associated with diabetes mellitus: a population based study of 15,000 adults. Arch Intern Med.2002; 162(16): 1989-1996.
9. Talley NJ, Young L, Bytzer P, Hammer J, Leemon M, Jones M, Horowitz M. Impact of chronic gastrointestinal symptoms in diabetes mellitus on health related quality of life. Am J Gastroent 2001; 96(1) 71-76
10. Bytzer P, Talley NJ, Hammer J, Young LJ, Jones MP, Horowitz M. GI symptoms in diabetes mellitus are associated with both poor glycaemic control and diabetic complications. Am J Gastroenterol 2002; 97(3): 604-611
11. Talley NJ, Howell S, Jones MP, Horowitz M. Predictors of turnover of lower gastrointestinal symptoms in diabetes mellitus. Am J Gastroenterol. 2002; 97(12): 2944-2945
12. Ogbera AO, Adedokun A, Fasanmade O, Ajani M, Ohwovoriole AE. The foot at risk in Nigerians with DM: The Nigerian scenario. International journal of Endocrinology and Metabolism 2005; 3(4): 165-173
13. Ele UP, Obiekwe OM. Fatal gastroparesis in female type 2
Diabetic patient. Nig J Int Med .1999; 2(1): 23-25.
14. Fasanmade AO, Ohwovoriole AE, Johnson TO. Dysphagia due to diabetic autonomic neuropathy. Niger Med J. 1994; 27(2&3): 65-67.
15. Rosztoczy A, Roka R, Varkonyi TT, Lengyel C, Izbeki F, et al.
Regional differences in the manifestation of gastrointestinal motor
disorders in Type 1diabetic patients with autonomic neuropathy. Z Gastroenterology 2004; 42(11): 1295-1300
16. Lluch I, Ascaso JF, Mora F, Minguez M, Pena A, et al. Gastroesophageal reflux in diabetes mellitus. Am J Gastroenterol
1999; 94(4): 919-924
17. Feldman M, Schiller. Disorders of the gastrointestinal motility associated with diabetes mellitus. Ann intern Med 1983; 98:378-384
18. Talley SJ, Bytzer P, Hammer J, Young L, Jones M, Horowitz M. Psychological distress is linked to gastrointestinal symptoms in diabetes mellitus. Am J Gastroenterology 2001; 94(4): 1033-1038.
19. Savettieri G, Rocca WA, Salemi G, Meneghini F et al. Prevalence of diabetic neuropathy with somatic symptoms: a door to door survey in two Sicilian municipalities. Sicilian Neuro-epidemiology study (SNES) Group. Neurology 1993; 43:1115-1120.
20. Okubadejo NU, Ohwovoriole AE. Prevalence and correlates of symptomatic somatic Neuropathy in Nigerians with type 2 Diabetes Mellitus.Nig J Int Med. 2004; 7(1/2): 4-8

Author Information

Charles A. Onyekwere, MBBS, FMCP, MEMBER ASGE
Consultant Physician/Gastroenterologist, Dept Of Internal Medicine, Lagos State University Teaching Hospital

Anthonia O. Ogbera, MBBS, FMCP MPH, FACE
Consultant Physician/Endocrinologist, Dept Of Internal Medicine, Lagos State University Teaching Hospital