Original Article

Gastrointestinal complications of diabetes mellitus in Jordan

Zuhair M. Shawagfeh, Ahmad Al-Omari

From Prince Rashed Hospital, Jordan.
Correspondence: Dr zuhair M Shawagfeh PO Box 394 Al-huson Irbid Jordan.
Email: ztakhshoon@yahoo.com.

Received: November 2, 2006 Accepted: February 16, 2007

Abstract

Objective: To evaluate the patterns of involvement of the gastrointestinal tract in patients with diabetes mellitus.
Methods: A total of 968 patients with diabetes mellitus were seen over a period of 3 years from July 2003 to July 2006 at the endocrine clinics of Prince Rashed Hospital, North of Jordan. Gastrointestinal symptoms were reviewed retrospectively along with metabolic control and other metabolic complications of diabetes.
Results: Seventy-four percent had type 2 diabetes mellitus and 63% had poorly controlled disease. Gastrointestinal symptoms were seen in 707 patients (73%). These were seen along with other diabetic complications mainly autonomic neuropathy.
Conclusion: Gastointestinal symptoms in diabetes mellitus are very common and they are related to the duration and the control of the disease. (Rawal Med J 2007;32:34-35)

Key Words: Diabetes, diarrhea, nausea, autonomic neuropathy

INTRODUCTION

Diabetes is a common and a challenging health problem in Jordan. The prevalence of the disease is 13.4%[1] Impaired function of the gastrointestinal tract related to diabetes mellitus results from diabetic autonomous neuropathy, impaired sensory innervation and a direct effect of hyperglycemia.[2]
Another possible connection between diabetes mellitus and gastrointestinal tract can be the infrequent auto immune disease associated with type 1 diabetes mellitus like celiac disease, autoimmune gastropathy, auto immune chronic pancreatitis.[2]
The aim of this study was to evaluate the patterns of involvement of the gastrointestinal tract in patients with diabetes mellitus in Jordan.

METHODS

A total of 968 patients with diabetes were seen over a period of 3 years from July 2003 to July 2006 at the medical and endocrine clinics of Prince Rashed Hospital, were studied. Gastrointestinal symptoms were reviewed retrospectively along with metabolic control and other metabolic complications.

Table 1. Basic Characteristics of the patients.

Age group	Number	%
14-20	39	4
21-50	407	42
>50	522	54
SEX		
Male	513	53
Female	455	47
Type of DM		
Type 2	716	74
Type 1	252	26
Quality of control		
Satisfactory	358	37
Poor	610	63

RESULTS

Demographic characteristics of the study population showed that most were between age 20-50 years (table 1). The majority had type 2 diabetes; only 37% had a good glycemic control. Thirty-six percent were either overweight or obese with BMI $\geq 25 kg/m^2$ (table 2).

Table 2. Body mass index of study population.

Body mass index	Number of patients	%
<19	145	15
19-24	474	49
>24	349	36

The most encountered diabetic complication was peripheral neuropathy (table 3) which was seen in 310 patients (32%). Seven hundreds and seven patients (73%) had a wide spectrum of gastrointestinal symptoms (table 4).

Table 3. Diabetic complication in study population.

Diabetic complication	Number of patients	%
Peripheral neuropathy	310	32
Vascular complications	227	23
Diabetic ketoacidosis	203	21
Autonomic neoropathy	136	14
Infections	97	10

Diabetic diarrhea, especially at night, was seen in 184 (19%) patients (table 5). It correlated well with poor glycemic control. Ninety-three percent of those with diarrhea had Hemoglobin A1c >7%.

DISCUSSION

Gastrointestinal symptoms are commonly encountered in diabetes; in our study 73% had gastrointestinal symptoms. The prevalence of symptoms in an Australian study was very high, and this was significantly associated with poorer control but not with the duration of diabetes or type of diabetic treatment.[3] Our findings were consistant with other studies.[4-6] In our cohort, gastrointestinal complications correlated not only with poor control of diabetes but also with the duration of the disease.

Table 4. Gastrointestinal symptoms in diabetes

G I symptom	Nu of patients	%
Nausea and vomiting	378	39
Abdominal distention	290	30
Diarrhea	184	19
Dysphagia	39	4
Hyperacidity	29	3
Constipation	29	3

Hyperacidity was noted in 3% of our patients. Some researchers reported a relationship between autonomic neuropathy and the clinical manifestations of reflux esophagitis.[7] Abdominal pain in diabetic keto acidosis that mimics acute abdomen as well as oral manifestations were not screened in our patients, as hyperglycemic crisis are related to metabolic acidosis and xerostomia predominate in diabetes mellitus.[8,9]

Table 5. Characteristics of patients with diabetic diarrhea.

Duration years	Number of patients	%
0-5	5	3
5-15	27	15
>10	152	82
Quality of control		
Satisfactory	12	7
Poor	172	93
Presence of neuropathy		
Yes	184	100
No	0	0

Diabetic diarrhea occurred in 19% of our patients, similar to other studies.[10] Upper gastrointestinal dysfunction occurs in diabetes and potentially contribute to both abdominal symptoms and impaired glycemic control.[11]

References

1. K.Ajlouni et al. Diabetes and impaired glucose tolerance in Jordan; prevalence and associated risk factors. J Int Med.1988:244:317-24.
2. Perusicova J. Gastrointestinal complications in diabetes mellitus. Vnitr Lek. 2004 ;50:338-43.
3. Bytzer P, Tally NJ, Leemon M, Young LJ, Jones MP, Horowitz M. Prevalence of gastrointestinal symptoms associated with diabetes mellitus: a population-based survey of 15000 adults. Arch Intern Med.2001;10:1989-96.
4. Bytzer P, Talley N, Hammer J,Young L, Jones M, Horowitz M.GI symptoms in diabetes are associated with both poor glycemic control and diabetic complications. Am J Gastroenterol 2002;97:604.
5. Kockar M, Kayahan I, Bavbek N. Diabetic Gastroparesis in association with autonomic neuropathy and microvasculopathy. Acta Medica Okayama.2002;56:237-243.
6. Chaikomin R, Rayner C, Jones K, Horowitz M. Upper gastrointestinal function and glycemic control in diabetes mellitus. World J Gastroenterol 2006;21:5611-5621.
7. Antwi Ch, Krahulec B, Michalko L, Strobova L, Hlinstakova S,Balazovjech I. Does diabetic autonomic neuropathy influence the clinical manifestations of reflux esophagitis? Bratisl Lek Listy. 2003;104(4-5):139-42.
8. Umpierrz G, Freire AX. Abdominal pain in patients with hyperglycemic crisis. J Crit.Care.2002;17:63-7.
9. Obradovic B, Cekic-Arambasin A. Oral manifestations in diabetes. Acta Stomatol Croat.1991;25:59-63.
10. Vinik A, Master R, Mitchell B, Freeman R. Diabetic Autonomic neuropathy. Diabetes Care 2003;26:1553-1579.
11. Rayner C, Horowitz M. Gastrointestinal motility and glycemic control in diabetes :the chicken and the egg revisited? J.Clin.Invest. 2006;116:299-302.