RETROSPECTIVE ANALYSIS OF COMMON CAUSES FOR ADMISSIONS OF DIABETIC PATIENTS TO INTERNAL MEDICINE DEPARTMENT OF ALEXANDRIA MAIN UNIVERSITY HOSPITAL

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INTRODUCTION

DM and its complications are the most common conditions to require hospitalization than any other medical condition globally and require a longer period of hospital stay. Type 2DM patients have a higher frequency of admissions than type 1DM. Globally, the most common cause of admissions and mortality in DM patients, especially in type 2 DM was cardiovascular complications.

Diabetic patients are predisposed to acute and chronic complications which are the main drivers of hospital admission than diabetes itself. Acute complications include; DKA, HHS, infections, and normo-osmolar nonketotic hyperglycemic state. Chronic complications are further classified into microvascular and macrovascular complications. Macrovascular complications are divided into: coronary artery disease, cerebrovascular disease, and peripheral artery disease. Microvascular complications include: diabetic nephropathy, retinopathy, and neuropathy.

Knowing the common causes for hospital admissions in diabetic patients will enable us to plan resources effectively and address the important risk factors that contribute to the increase in hospitalization among diabetic patients. Reduction of hospitalization among diabetic patients will tremendously reduce the high admission costs incurred and reduce the overstretch of health facilities.

AIM OF THE WORK

This study aimed to find out the common causes for admissions of diabetic patients to the Medical Unit of Alexandria Main University Hospital from 1st January 2019 to 1st January 2021, their risk factors, and mortality rates.

PATIENTS AND METHODS

This was a retrospective case series study design where the medical records of diabetic patients admitted to the Medical Unit of the Main Alexandria University Hospital, from 1st January 2019 to 1st January 2021 were reviewed.1004 files of diabetic patients were reviewed. The following data was recorded from patients records; bio-demographic data, past medical history of hypertension, dyslipidemia, smoking, common causes for admissions, BP on admission mm Hg, Hba1c%, RBS mg/dl, TG mg/dl, total cholesterol mg/dl, type of diabetes, period of diabetes, treatment given, duration of hospital stay and admission outcomes (died, or discharged with improvement, or discharged with sequelae of the cause).

RESULTS

Table : Multivariate logistic regression analysis for different factors causing the death of admitted diabetic patients

	Died		Multivariate#	
	No (n = 939)	Yes (n = 65)	OR (95%C.I)	p
DKA	230 (24.5%)	3 (4.6%)	1.001 (0.250 – 4.018)	0.998
HHS/NKHH	24 (2.6%)	4 (6.2%)		
Hypoglycemia	41 (4.4%)	0 (0.0%)		
Infection	246 (26.2%)	29 (44.6%)	2.240 (1.283 – 3.913)	0.005*
Cardiovascular diseases	74 (7.9%)	18 (27.7%)	2.935 (1.525 – 5.647)	0.001*
Cerebrovascular diseases	11 (1.2%)	1 (1.5%)		
Peripheral artery disease	41 (4.4%)	2 (3.1%)		
Peripheral neuropathy	11 (1.2%)	0 (0.0%)		
Retinopathy	5 (0.5%)	1 (1.5%)		
AKI	152 (16.2%)	26 (40.0%)	2.829 (1.336 – 5.989)	0.007*
Diabetic nephropathy (CKD)	121 (12.9%)	16 (24.6%)	0.689 (0.297 – 1.599)	0.386
Diabetic nephropathy (ESRD)	25 (2.7%)	3 (4.6%)		
Female	508 (54.1%)	43 (66.2%)		
Age (>30 years)	670 (71.4%)	64 (98.5%)	4.063 (0.421 – 39.247)	0.226
Obesity	187 (19.9%)	32 (49.2%)	1.858 (1.050 – 3.287)	0.033*
Type II DM	575 (61.2%)	61 (93.8%)	2.348 (0.623 – 8.847)	0.207
Duration of DM (>10years)	402 (42.8%)	53 (81.5%)	3.488 (1.776 – 6.851)	<0.001*
Oral only	294 (31.3%)	30 (46.2%)	1.181 (0.664 – 2.100)	0.571
HbA1c% (≥7)	651 (69.3%)	45 (69.2%)		
Random blood glucose (mg/dl) (≥180)	751 (80.0%)	46 (70.8%)		
Total cholesterol (mg/dl) (≥200)	228 (24.3%)	19 (29.2%)		
TG (mg/dl) (≥150)	127 (13.5%)	8 (12.3%)		
Blood pressure (mm hg) (≥140/90)	125 (13.3%)	5 (7.7%)		

Qualitative data were expressed using Number (%)
OR: **Odd`s ratio** C.I: Confidence interval for comparing between DKA and non-DKA
*: Statistically significant at p ≤ 0.05
LL: Lower limit UL: Upper Limit p: p-value for **Odd`s ratio**
#: All variables with p<0.05 was included in the multivariate
AKI: Acute kidney injury

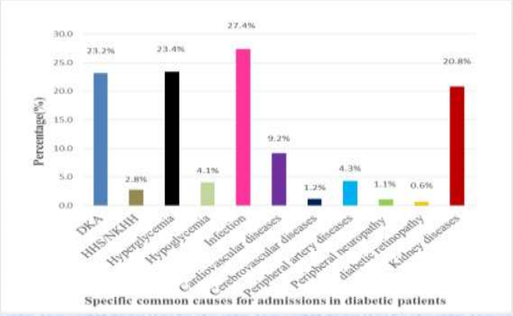

Figure 1: **Percentage of specific common causes for admissions among diabetic patients**

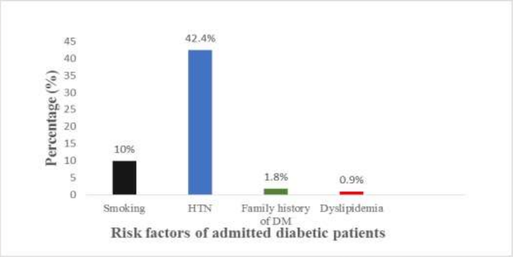

Figure 2: **Percentage of main risk factors of studied diabetic patients**

CONCLUSION

1- The most common primary reasons for a diabetes-related admission are associated with infections, DKA, diabetic kidney diseases, cardiovascular diseases, and peripheral arterial disease.
2- This study investigated risk factors for inpatient admissions amongst patients with DM, adding important knowledge of risk factors associated with these events in the community. The most common reported risk factors were hypertension and smoking.
3- Infection, cardiovascular diseases, acute kidney injury (AKI), Obesity, and duration of DM more than 10 years are significantly independent risk factors that causing death of admitted diabetic patients.