

A retrospective study of cardiovascular risk factors compared to guidelines in a type 2 diabetes clinic

Crowley, Niamh¹. Birmingham, Clodagh¹. McMorran, James¹. O' Keffe, Derek¹. O' Brien, Tim¹

1-Division of Endocrinology, Department of Medicine, National University of Ireland Galway

BACKGROUND AND AIMS

Diabetes Mellitus (DM) is a chronic medical condition which is a growing global health burden¹.

Type 2 diabetes mellitus is associated with an increased cardiovascular morbidity and mortality.² It is widely accepted that by achieving optimal glycaemic control, we can improve patient outcomes and reduce cardiovascular morbidity and mortality.

Clinical practice guidelines, such as those from the American Diabetes Association, outline specific targets for glycaemic control and cardiovascular risk factors for type 2 diabetes.³ However, it is often challenging for physicians to achieve such targets.

Our audit sought to determine the characteristics of T2DM adults attending an Irish University teaching hospital and determine the prevalence of optimal glycaemic and vascular risk factor control according to internationally recognised standards of clinical practice

METHODS

We conducted a retrospective cross-sectional cohort study of all patients over 18 years of age with T2DM who attended our Diabetes Day Centre between September 2015 and September 2016.

Data from the patient's most recent visit were extracted using the Diamond™ electronic diabetes database system.

Specifically, anthropometric measures including age, gender, weight, height, body mass index (BMI), systolic and diastolic blood pressure and metabolic variables including HbA1c, triglycerides, total LDL and HDL cholesterol and patient's albumin-creatinine ratio were recorded.

We used the ADA Clinical Practice Guidelines to define thresholds for optimal control in T2DM.

Data was analysed in Microsoft Excel.

RESULTS

2058 patients with type 2 diabetes mellitus (mean age 64.9 ± 12.1 years, 38.9% females; 61.1% males) attended our clinic within the study period.

The average age of diagnosis was 63.2 ± 7 years.

42% of patients never smoked, 45% were ex-smokers and 13% were current smokers.

Diabetic Medication	Number (%)
Metformin	1579 (76.7)
Sulphonylureas	1046 (50.8)
Insulin	713 (34.6)
SGLT-2 inhibitors	236 (11.5)
DPP4 inhibitors	248 (12.1)
GLP-1 analogues	205 (9.96)
Thiazolidinediones	33 (1.6)
Acarbose	1 (0.05)
Vildagliptin/metformin	8 (0.4%)
Pioglitazone/metformin	1 (0.05)
Sitagliptin/metformin	747 (36.3)
Dapagliflozin/metformin	3 (0.15)
Linagliptin/metformin	1 (0.05)

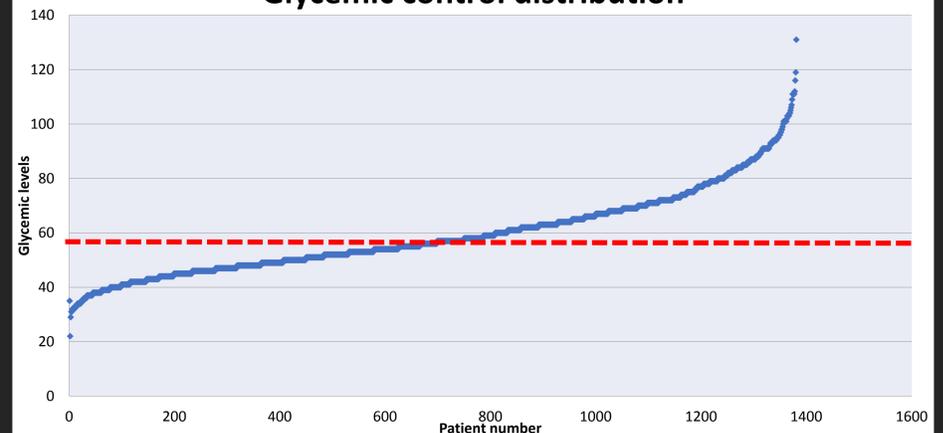
1071 (52.0%) of patients were on Aspirin for cardiovascular indications, 1612 (78.3%) were on lipid-lowering medications and 1885 (91.6%) were on anti-hypertensive's: 886 (47%) on monotherapy, 653 (36.6%) on dual therapy and 351 (18.6%) on three or more antihypertensive medications.

The prevalence of overweight and obesity was 31.2% and 58.6%, respectively.

Patient characteristics and the proportion achieving ADA treatment targets are shown in Table 1.

Variable	n	Mean	±SD	ADA target value	Prevalence of achieving ADA target value, n (%)
Body mass index (kg m ²)	1853	31.8	±5.9	<25	189 (10.2)
Systolic BP (mmHg)	1938	133.6	±17.0	<140	1273 (65.7)
Diastolic BP (mmHg)	1930	73.3	±10.2	<90	1826 (94.6)
HbA1C (%/mmol mol ⁻¹)	1944	58.5	±15.3	<53	791 (40.7)
Total Cholesterol (mmol l ⁻¹)	1851	4	±1	≤5	1575 (85)
LDL cholesterol (mmol l ⁻¹)	1715	2	±0.8	<2.6	1331 (77.6)
HDL cholesterol (mmol l ⁻¹)	1835	1.2	±0.4	>1 (males), >1.3 (females)	857 (76.5) 423 (59)
Triglycerides (mmol l ⁻¹)	1831	1.8	±1.2	<1.7	977 (53.4)
MACR (mg mmol ⁻¹)	1859	17.2	±65	≤2.5 (males), ≤3.5 (females)	673 (57.9) 493 (70.7)

Glycemic control distribution



CONCLUSION

Data demonstrates that glycemic control and BMI are largely outside ADA targets. However BP and Lipids are better controlled.

While not the primary endpoint, we discovered that the overwhelming majority of our patients have a BMI >25. This is likely the reason why HbA1c's are proving difficult to control. We therefore need to allocate more resources to weight loss management.

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