Original Article

Comparison of Achievement of NICE Targets in Type 2 Diabetes in Riyadh, Saudi Arabia and Grimsby, United Kingdom: An Audit

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Abstract

Objective: To compare the achievement of NICE guidelines for diabetic care at two hospitals in Riyadh, Saudi Arabia and Grimsby, United Kingdom.

Methods: Electronic records of type 2 diabetic patients followed up at internal medicine clinics at King Abdulaziz Medical City (KAMC), Riyadh, Saudi Arabia and Diana Princess of Wales Hospital (DPWH), Grimsby, United Kingdom were studied and compared for meeting the NICE standards of diabetic care regarding HbA1c, lipid profile, hypertension and urine dipstick testing and control.

Results: Out of 100 patients studied at each hospital, yearly blood pressure recording, HbA1c, lipid profile and urine dipstick testing were done in 95, 89, 84, 51 and 100, 81, 92, 95 percent at KAMC and DPWH, respectively. Patients achieving the NICE targets for overall, systolic, diastolic blood pressure and HbA1c screening at the two hospitals were 53, 55, 18 and 46, 39, 35 % respectively. For lipid profile, those who achieved the NICE targets for total cholesterol and LDL-C for two hospitals were 54, 51 and 71, 75 % respectively.

Conclusion: NICE standards of diabetic care are not met in many of the patients in Saudi Arabia as well as United Kingdom, indicating that these standards are easy to recommend than to achieve. There is a need to investigate the reasons for this failure so as to adopt realistic targets and better multidisciplinary approach to achieve them.

Keywords: Diabetes, NICE, Blood pressure, HbA1c, LDL-C (JPMA 62: 318; 2012).

Introduction

Diabetes mellitus (DM) is a common and potentially disabling chronic disease. The number of patients with DM in the world is predicted to increase from 171 million in 2000 to 366 million in 2030.[1] Most of this increase will be in the developing countries with prevalence of DM in the Middle East likely to escalate by 163% by the year 2030.[2] DM in Saudi Arabian adults is rapidly increasing with a prevalence of 23.7 % in the period between 1995 and 2000.[3] Similarly in U.K, more than 1.8 million are already diagnosed with diabetes while it is estimated that there are up to a million who have type 2 diabetes but have not yet been diagnosed.[4]

DM in adults is associated with an annual death rate of about 5% which is approximately double the rate for age and gender-matched control subjects without diabetes. Most of this excess mortality risk is attributable to macrovascular atherosclerotic disease.[5] Results from clinical trials over the past decade have led to national and international guidelines that advocate aggressive management of hyperglycaemia, hypertension, and dyslipidaemia for patients with DM.[7-10] In the United Kingdom, guidelines for the management of DM have been developed by National Institute of Clinical Excellence (NICE).[11] Although there is a lot of data on various aspects of DM in Saudi Arabia, knowledge of the extent of compliance to international guidelines in the management of DM is scarce. In this study we aimed to evaluate the implementation of NICE guidelines for DM at a tertiary care setting in Riyadh, Saudi Arabia in comparison to such implementation in the U.K.

Patients and Methods

These observational, cross-sectional, retrospective studies were done during March 2006 and February to March 2007 using the medical records of patients followed up at diabetes clinics at Diana Princess of Wales Hospital (DPOWH), Grimsby, United Kingdom and internal medicine clinics at King Fahad National Guard Hospital in King Abdulaziz Medical City (KAMC), Riyadh, Saudi Arabia respectively. KAMC is a tertiary care center serving mainly the Saudi national guards and their dependents, while DPOWH is a district general hospital serving a population of around 200,000. The studies were approved by the institutional research committees of the respective hospitals. NICE guidelines recommend that patients with type 2 DM have their blood pressure, HbA1c and lipid profile as well as urine dip-stick monitored annually and also to achieve the required targets of overall, systolic, diastolic BP, total cholesterol (TC), Low density lipoprotein cholesterol (LDL-C) and HbA1c in all patients (Table-1).[12]

Computerised records of all patients were accessed to retrieve the required information. DM was diagnosed according to the WHO guidelines.[13] Patients with dementia, bedridden status or ejection fraction <40% as well as all patients not for resuscitation were excluded from the study.

A list of patients with diabetes aged 30 years or above, who had visited the internal medicine clinics during the study periods was generated from the computerised records in the respective hospitals and a random sample of 100 patients who met the inclusion criteria were selected at each site.

The blood glucose and lipid profile in both the hospitals was tested using Abbott Architect c 8000 7M system, US. HbA1c in KAMC was tested using Bio-Rad variant II haemoglobin testing system, U.S. while in DPOWH it was tested using HPLC method on TOSOH G7 System.

All the data was collected and processed in a manner to secure and maintain patients' confidentiality and privacy. The data was collected manually on a specially designed form. Data included age, gender, blood pressure, HbA1c, lipid profile levels and screening for albuminuria within the year preceding the study. Excel program was used in data analysis and presentation.

Results

Out of 100 patients (%) studied at each hospital, annual blood pressure recording, HbA1c, lipid profile and urine dipstick testing were done in 95, 89, 84, 51 and 100, 81, 92, 95 % at KAMC and DPOWH, respectively (Table-2). Patients achieving the NICE targets for overall, systolic, diastolic blood pressure and HbA1c screening at the two hospitals were 53, 55, 18 and 46, 39, 35 % respectively. For lipid profile, those who achieved the NICE targets for total

Table-1: NICE Guidelines Targets.

No.	NICE Guidelines Target
1.	BP to be checked at least once a year
2.	Urine dipstick test at least once a year
3.	HbA1c to be checked at least once a year
4.	Plasma lipids to be checked at least once a year
5.	Systolic BP < 140 mm Hg
6.	Diastolic BP < 80 mm Hg
7.	Total Plasma Cholesterol < 5 mmol/l (195 mg/dl)
8.	Plasma LDL-C < 3.0 mmol/l (117 mg/dl)
9.	HbA1c < 7.5 %

Table-2: Comparison of Achievement of NICE Recommended Testing Between KAMC. Riyadh, Saudi Arabia and DPOWH, Grimsby, U.K. (n. 100 = %).

Recommended Test	KAMC, Riyadh	DPOWH, Grimsby
Annual BP check	95	100
Annual urine screen	51	81
Annual lipid profile check	84	92
Annual HbA1c check	89	95

Table-3: Comparison of Achievement of NICE Targets between KAMC. Riyadh, Saudi Arabia and DPWH, Grimsby, U.K. (n. 100= %).

Target Parameter	KAMC, Riyadh	DPOWH, Grimsby
SBP < 140 mm Hg	53	46
DBP < 80 mm Hg	55	39
TC < 5 m.mol/l (195 mg/dl)	54	71
LDL-C < 3 m.mol/l (117 mg/dl)	51	75
HbA1c ≤ 7.5%	18	35

cholesterol and LDL-C at the two hospitals were 54, 51 and 71 and 75 % respectively (Table-3).

Discussion

Although the achievement of clinical and biochemical targets was reasonable at both centers in Riyadh, Saudi Arabia and Grimsby, UK, urine testing for albuminuria at KAMC was only achieved in 18%. Achievement of NICE targets was better at DPOWH, UK compared to KAMC, Saudi Arabia.

The achievement of diabetes targets is a difficult task but may not be impossible. It requires a multidisciplinary approach. The importance of checking BP, HbA1c, lipid profile and dipstick of the urine, as predictors of outcome cannot be over-emphasised. For instance, one may need to target patients with an HbA1c above 10% as a priority. On the same basis, one may need to tackle those patients with elevated lipids and blood pressure. A good proportion of patients at KAMC, Riyadh, Saudi Arabia did not attend a dedicated diabetes clinics and this may explain the high percentage of patients with a high HbA1c. Despite the strong evidence that the intensive control of cardiovascular risk factors reduces morbidity and mortality in type 2 diabetes, this study showed that a large number of patients were not achieving the recommended NICE targets.

In a previously reported study in Saudi Arabia, the same treatment targets of overall BP and HbA1c were achieved in 32%, 24% patients[14] which highlights that these targets are increasingly difficult to achieve. Many regional studies from Bahrain, Lebanon and United Arab Emirate have shown similar shortcomings in achieving their targets.[15-17] This was attributed to the high prevalence of obesity, sedentary lifestyle, poor eating habits and low literacy rate. In the UK, the achievement of glycaemic targets has steadily improved with a new system of incentives.[18] However, in most of the international studies in Australia, US and Brazil, target achievement remains suboptimal,[19-21] indicating that these targets are easier to preach than to practice.

The results of these studies mandate realistic targets in effective management of diabetic patients.[22]

Conclusions

Achievement of the recommended international targets for management of type 2 diabetes mellitus is suboptimal in many hospitals. There is a need for further research to investigate the reasons for this shortcoming to enable adoption of realistic targets and to encourage practices leading to achievement of those targets.

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