ORIGINAL RESEARCH

Quality of care for hypertensive patients with type 2 diabetes in a rural area of Southern Italy: is the recording of patient data and the achievement of quality indicators targets satisfactory?

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A B S T R A C T

Introduction: Type 2 diabetes mellitus and hypertension are commonly associated chronic conditions which require regular structured treatment. In the UK many quality markers have been improved through an incentivisation scheme. The aim of this study was to discover if there is potential for improving the quality of care for patients with type 2 diabetes and hypertension in rural Italy, through a quality and outcome incentivisation scheme.
Methods: The study was conducted in a rural practice context in Southern Italy and seven family doctors were involved. The main outcome measures were glycated haemoglobin A1c (HbA1c), LDL cholesterol, and systolic and diastolic blood pressure. The patient characteristics examined were age, sex, educational level, behaviour-related factors such as smoking and BMI, and the presence of comorbidities.

Results: A poor level of registration was found for important variables such as HBA1c (61.4% compared with the UK Quality Indicator of 90%). An adequate level of registration and control was found only for blood pressure (95.7% and 82.1%, respectively), while an acceptable but not optimal level of control for HBA1c was also achieved (88.4% ≤10%). In comparison with levels in UK practices, the Italian district studied performed much less favorably, especially regarding process indicators. Intermediate outcome and treatment indicators were slightly better for blood pressure control but slightly worse for HBA1c and cholesterol control.

Conclusion: The data confirm a poor registration level for important healthcare indicators in the study area, and that optimal levels are rarely reached for many quality indicators. A quality and outcome incentivisation scheme similar to the UK Quality and Outcomes Framework may offer a tool for achieving improvements.

Keywords: diabetes, HBA1c, hypertension, Italy.

Introduction

Previous observations have suggested a high prevalence of diabetes in the study area (District 32) in Italy at 6.5%, and poor control of type 2 diabetes mellitus with a mean HbA1c level of 7.5% ± 1.1 SD, with 62% of the population above 7.0%[1]. Inadequate blood pressure control and suboptimal management in both diagnosis and treatment of hypertensive type 2 diabetic patients has been described in several European countries[2]. To date there have been no substantial studies on quality indicators in rural areas of Southern Italy.

Research question

The research question for the present study was: 'Is the recording of patient data and the achievement of quality indicator targets satisfactory in rural Italy, or is there potential to improve the quality of care of patients with type 2 diabetes and hypertension through a quality and outcome incentivisation scheme?'

Methods

A subject information sheet with simple information about the research was given to all the patients and doctors involved. An informed consent form was signed by subjects who agreed to be involved.

This observational study was conducted in a rural practice context (in District 32) in the Province of Caserta, Campania, Southern Italy. Data were collected from the electronic files of patients with type 2 diabetes from the records of seven family doctors (GPs) in February 2008. Ten patients with type 2 diabetes and hypertension were randomly selected by each GP.

The exclusion criteria were chosen to minimize confounding factors:

1. Treatment with steroids or major surgery in the last 3 months.
2. Presence of dementia or other inability to give written, informed consent.
3. Treatment with insulin.

The inclusion criteria ensured that the data were from a single, public quality assured laboratory to avoid bias due to differing testing methods.

Main outcome measures

The main outcome measures were: HbA1c optimal target ≤7%; LDL cholesterol target ≤100 mg/dL (2.6 mmol/L); systolic blood pressure target ≤130 mmHg, and diastolic blood pressure ≤80 mmHg. Patient characteristics included in the analysis were age, sex, and educational level. Behaviour-related risk factors such as smoking and body

mass index, and presence or absence of comorbidities were also recorded. The comorbidities sought were cerebrovascular disease (stroke and transient ischemic attack), coronary artery disease (angina pectoris and myocardial infarction or equivalent such as coronary angioplasty or surgical revascularisation), and asthma or chronic obstructive pulmonary disease. Also examined were other relevant quality markers included in the Quality and Outcomes Framework[3] (QoF). The software Epi Info v3.3 (CDC, Atlanta, GA, USA) was used for statistical tests.

Ethical issues

According to Italian requirements for ethical research, the approval of an ethics committee was not required because this was not an interventional study. There was no potential disadvantage to the patients or doctors involved because this was an observational study of patients receiving their usual care. Subjects' anonymity was ensured. The local medical association approved the study.

Results

Patient characteristics are shown (Table 1). The sample was an older population with overweight and/or obesity problems and poor control of diabetes; however, the presence of comorbidity was not high.

District 32 patients' data were compared with UK quality indicators (Table 2) and a poor level of registration was found for several important variables. An adequate level of registration and control was found for blood pressure. An acceptable level of control for HBA1c was also achieved (but there were missing data for many patients).

Discussion

A strategy that could be introduced easily to this rural area in Italy is the incentive scheme developed as part of the new General Medical Services contract in the UK[4]. After the introduction of this new system, the achievement of target levels in the UK has been universally high[5]. Khunti et al conducted a systematic review of published observational studies of quality in diabetes primary care in the UK, and compared the results with data from the QoF of the new General Practice Contract[6]. They found that the quality of care achieved by the QoF was highest.

Few indicators in the present study reached international standards. The target QoF threshold for HbA1c (50% diabetics at <7%) was not achieved (39.5% below target in the present study). However, the level of blood pressure registration was high (95.7%) and this may be due to the District's easy-to-use electronic medical records.

Tables 3 and 4 provide a comparison of the District 32 achievements with those of UK practices (according to McLean et al who studied primary medical care quality differences for cardiovascular disease and diabetes across the NHS after the new contract of 2005[7]). District 32 performed comparatively poorly, particularly in process indicators; however, comparisons of intermediate outcome and treatment indicators were more favorable.

Strengths and limitations of the study

This study provides data on the level of care in a rural area of Italy. It may contribute to a government assessment of the need to incentivise doctors to improve care (as in the example of the QoF in the UK), and the possible costs of doing so. However, it should be borne in mind that this was a small study that involved a small number of motivated family doctors.

Conclusion

The quality of care and level of control among patients with type 2 diabetes in the rural Italian area studied is not optimal and could be improved; this is especially so in terms of data registration. In the UK, many quality markers have been improved by an incentivisation scheme. Such a scheme may also improve the quality of care provided in rural Italy.

Table 1: Patients' characteristics

Patient characteristic	Data
Age (years) – Mean ± SD	70.9 ±10.8
Sex – *n* (%)	
Male	38 (54.2)
Female	32 (45.8)
BMI – Mean ± SD	31.2 ± 4,5
Education (Years) – Mean ± SD	7 ± 2.9
HBA1c Mean ±SD	7.6 ± 1.5
Blood Pressure	
Systolic – Mean ± SD	138.6 ± 13.3
Diastolic – Mean ± SD	79.0 ± 5.6
Comorbidity – *n* (%)	
Myocardial infarction or equivalent†	12 (17.1%)
Chronic obstructive pulmonary disease	15 (21.4%)

† Equivalent = unstable angina or myocardial re-vascularisation
and/or stroke or transient ischemic attack.

Table 2: Average achievement for each indicator in District 32

Indicators	Maximum threshold [QoF] (Quality Indicator) (%)
BMI registration	87.1 (90)
HBA1c	
Registration	61.4 (90)
$\leq 7\%$	39.5 (50)
$\leq 10\%$	88.4 (85)
Blood pressure	
Registration	95.7 (90)
$\leq 145/85$ (UK quality indicators)	82.1 (55)
$\leq 130/80$ (ESH/ESC guidelines)	40.3
Cholesterol	
Registration	78.6 (90)
Ldl ≤ 2.6 mmol/L (NCEP ATP III)	40
≤ 5 mmol/L	50.2 (60)
Smoking status registration	87.1 (90)
Creatinine registration	85.7 (90)
Micro-albuminuria registration	17.1 (90)
Peripheral pulses presence registration	24.3 (90)
Screening	
Retinal	30 (90)
Neuropathy	27.1 (90)
Influenza immunisation	70 (85)
Diabetes with proteinuria or micro-albuminuria treated with ACE inhibitors (or A2 antagonists)	80 (70)

ESC, European Socity of Cardiology; ESH, European Society of Hypertension; NCEP,
National Cholesterol Education Program; QoF, Quality and Outcomes Framework.

Table 3: Average achievement on each process indicator for UK vesus District 32 (Italy)

Process indicator (diabetes)	Country %	
	UK	**Italy**[†]
Simple process measures		
Smoking status recorded	96.0	7.1
Blood pressure recorded	97.1	95.7
Cholesterol recorded	92.9	78.6
Record of BMI	90.8	7.1
Record of HbA1c	94.6	61.4
Creatinine recorded	93.2	85.7
Complex process measures		
Retinal screening recorded	83.8	30
Peripheral pulses recorded	79.4	24.3
Neuropathy testing recorded	78.1	27.1

† District 32.

Table 4: Average achievement on each outcome and treatment indicator for UK versus District 32 (Italy)

Indicator (diabetes)	Country %	
	UK	**Italy**[†]
Intermediate outcome		
Blood pressure $\leq$145/85	70.4	82.1
Cholesterol $\leq$5mmol/L	72.0	50.2
HBA1c $\leq$7.4%	59.0	39.5[¶]
HBA1c $\leq$10%	89.5	88.4
Treatment		
Influenza vaccination	74.4	70.0

† District 32; ¶In District 32 the target for HBA1c was $\leq$7%.

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