Z. Evid. Fortbild. Qual. Gesundh. wesen (ZEFQ) 118-119 (2016) 40–47

Contents lists available at ScienceDirect

Z. Evid. Fortbild. Qual. Gesundh. wesen (ZEFQ)

journal homepage: http://www.elsevier.com/locate/zefq

Versorgungsforschung / Health Services Research

Quality of secondary prevention of coronary heart disease in Swiss primary care: Lessons learned from a 6-year observational study

Qualität der Sekundärprävention bei koronarer Herzkrankheit: Ergebnisse einer Observationsstudie über sechs Jahre in der Schweizer Hausarztmedizin

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ARTICLE INFO

Article History:
Received: 19 April 2016
Received in revised form: 27 June 2016
Accepted: 28 June 2016
Available online: 3 August 2016

Keywords:
quality indicators
primary health care
secondary prevention
cardiovascular disease
electronic medical records
quality monitoring

ABSTRACT

Introduction: Across Europe, great variations have been identified in the quality of preventive healthcare services delivered in primary care (PC). We aimed to assess the quality of secondary prevention in Swiss PC patients with coronary heart disease (CHD) and its evolution over six years.
Methods: In the database of the Swiss «Family Medicine ICPC Research using Electronic Medical Records» (FIRE) project, we identified electronical record data of 2,807 patients with CHD treated for at least 15 months between 2009 and 2014. Primary outcome was the proportion of patients per year meeting four quality indicators of the British Quality and Outcome Framework (QOF): 1) blood pressure (BP) ≤ 150 mmHg, 2) total serum cholesterol ≤ 5 mmol/L, 3) prescription of anti-platelet therapy, 4) recommended drug prescriptions for patients with previous myocardial infarction (MI). Secondary outcome was the proportion of patients who were ineligible for indicator calculation because of incomplete record data.
Results: From 2009 to 2014, 85.9, 83.1, 82.0, 81.9, 81.5, and 81.0 % of the patients met BP targets and 73.6, 77.0, 69.2, 73.6, 69.4, and 69.1% met cholesterol targets. Anti-platelet therapy was prescribed to 74.8, 76.1, 73.9, 70.2, 72.2, and 72.5 % of the patients. Finally, 83.3, 84.4, 87.5, 75.6, 89.8, and 89.2 % of the patients with previous MI received the recommended drug therapy. Changes over time were not significant. Missing BP records concerned 12.4–15.9 % of the patients, and missing cholesterol records 69.0–75.6 %. Females and patients with less cardiovascular comorbidities were more likely to show missing records.
Conclusions: Quality of secondary prevention did not improve when measured against QOF indicators in the period under investigation. Missing data in electronic medical records inhibited full quality indicator assessment. Especially in female patients and those with less cardiovascular comorbidity, closer medical documentation should be encouraged in order to facilitate quality of care measurements.

ARTIKEL INFO

Artikel-Historie:
Eingegangen: 19. April 2016
Revision eingegangen: 27. Juni 2016
Akzeptiert: 28. Juni 2016
Online gestellt: 3. August 2016

Schlüsselwörter:
Qualitätsindikatoren
Hausarztmedizin
Sekundärprevention
Kardiovaskuläre Herzkrankheit
elektronische Krankengeschichte
Qualitätsmonitoring

ZUSAMMENFASSUNG

Hintergrund: Die Qualität von Präventionsleistungen in Hausarztpraxen in europäischen Ländern schwankt stark. Ziel dieser Arbeit war es, die Qualität der Sekundärprävention bei kardiovaskulärer Herzerkrankung (KHK) in Schweizer Hausarztpraxen und deren Entwicklung über sechs Jahre zu beurteilen.
Methoden: In der Datenbank des Schweizer «Family Medicine ICPC Research using Electronic Medical Records» (FIRE) Projekts identifizierten wir elektronische Krankengeschichtsdaten von 2807 Patienten mit KHK, die über einen Zeitraum von mindestens 15 Monaten zwischen 2009 und 2014 versorgt wurden. Primärer Endpunkt war der Anteil der Patienten pro Jahr, die vier Qualitätsindikatoren des britischen Quality and Outcome Framework (QOF) erfüllten: 1) Blutdruck (BD) ≤150 mmHg, 2) Serumcholesterin ≤5 mmol/L, 3) Therapie mit Plättchenhemmern, 4) medikamentöse Postinfarktprophylaxe bei Patienten nach Myocardinfarkt (MI). Sekundärer Endpunkt war der Anteil von Patienten, die je Jahr von der Indikatorenanalyse aufgrund fehlender Daten in den elektronischen Krankengeschichten ausgeschlossen werden mussten.

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http://dx.doi.org/10.1016/j.zefq.2016.06.018
1865-9217/

Resultate: In den einzelnen Jahren von 2009 bis 2014 erreichten jeweils 85,9; 83,1; 82,0; 81,9; 81,5; und 81,0% der Patienten den vorgegebenen Blutdruckzielwert und 73,6; 77,0; 69,2; 73,6; 69,4; und 69,1% erreichten den Zielwert für Cholesterin. Eine Plättchenhemmertherapie erhielten jeweils 74,8; 76,1; 73,9; 70,2; 72,2; und 72,5% der Patienten. Von den Patienten nach MI erhielten 83,3; 84,4; 87,5; 75,6; 89,8; 89,2% die empfohlene Medikation. Unterschiede zwischen den untersuchten Jahren waren nicht signifikant. Fehlende BD-Daten betrafen pro Jahr 12,4–15,9% der Patienten, fehlende Cholesterin-Daten 69,0–75,6%. Bei Frauen und Patienten mit weniger kardiovaskulären Komorbiditäten lagen häufiger unvollständige Daten vor.

Schlussfolgerung: Gemessen an Indikatoren des QOF verbesserte sich die Qualität der Sekundärprävention in der Schweizer Hausarztmedizin im untersuchten Zeitraum nicht. Fehlende Daten in den elektronischen Krankengeschichten verhinderten eine Vollerhebung bei allen identifizierten Patienten. Besonders bei Frauen und Patienten mit weniger kardiovaskulären Komorbiditäten sollte auf eine engmaschigere elektronische medizinische Dokumentation geachtet werden, um die Qualitätsmessung zu vereinfachen.

Introduction

Although primary care plays a major role in the prevention of non-communicable diseases, great variations in quality of preventive healthcare services within and between European countries have been indicated, particularly in terms of cardiovascular risk management [1]. Previous cross-sectional studies addressing secondary prevention in patients with coronary heart disease (CHD) and diabetes in Swiss primary care (PC) showed room for improvement in the management of dyslipidemia, low prescription rates of beta-blockers and of Angiotensin-converting-enzyme-inhibitor-(ACE-I)-inhibitors as well as insufficient screening of long-term complications of diabetes [2–4]. However, the evolution of these observed quality flaws over time remains unknown. There is reason to believe that quality of care in PC settings can change over time even without incentives. For instance, in 2004, the United Kingdom (UK) National Health Service introduced the Quality and Outcome Framework (QOF) program for general practices to provide quality monitoring and to improve quality of care. Part of it was a pay-for-performance-system [5]. A study comparing the evolution before and after the introduction of the QOF showed that the quality increase began even before the introduction of the pay-for-performance-system, questioning its real inherent effect and suggesting the existence of independent time-related trends in quality of care improvement [6].

In comparison, Switzerland has a very stable healthcare system with no change in its fee-for-service-reimbursement-system for years. No system-wide policy measures fostering chronic care, promoting or monitoring quality have been undertaken to date.

In this observational study, we aim to assess the quality of secondary prevention for patients with CHD in the stable context of Swiss PC according to four of the QOF-indicators and describe its evolution over time by comparing indicator achievements per year from 2009 up to 2014.

Materials & Methods

We reviewed medical records of patients with CHD treated by Swiss General practitioners (GPs) between March 2009 and August 2015 and performed repeated cross-sectional measurements of quality of care quantifying the number of patients per year in whom quality indicators for secondary prevention in CHD in accordance to the UK QOF were achieved.

Outcomes

Primary outcome of our study was the proportion of patients with CHD meeting quality indicators for secondary prevention per year from 2009 up to 2014.

Secondary outcomes of our study served to evaluate potential selection biases, because patients with incomplete medical records were ineligible for quality indicator assessment. We assessed:

- the proportion of patients per year who were ineligible for quality indicator assessment because of incomplete electronic medical record data, and
- differences in patient characteristics between patients with and without incomplete medical records.

Quality indicators

We based our analyses on four quality indicators of the QOF-contract 2013/14 [7].

Two of them were outcome indicators:

- (CHD002) last blood pressure (measured in the preceding 15 months) ≤150/90 mmHg;
- (CHD003) total serum cholesterol (measured in the preceding 15 months) ≤5 mmol/l.

And two were process indicators:

- (CHD005) prescription of aspirin, an alternative anti-platelet therapy, or an anti-coagulant treatment;
- (CHD006) prescription of an ACE-I-inhibitor or Angiotensin-receptor-blocker (ARB) if ACE-I-intolerant, aspirin or an alternative anti-platelet therapy, beta-blocker and statin treatment in patients with previous myocardial infarction.

We had to exclude the indicator for influenza immunization (CHD004) because its coding was not applicable to our data.

Database

PC patients were identified from the «Family medicine ICPC-Research using Electronic medical records» (FIRE) project database. The FIRE-project is an ongoing research project at the Institute of Primary Care, University of Zurich, Switzerland. Since 2009, it provides the first and largest standardized collection of structured medical routine data from Swiss PC. Details about the database and its structure are reported elsewhere [8]. In a nutshell, the database covers diagnoses according to the International Classification of Primary Care classification 2 (ICPC-2) [9], patient demographics, vital signs, laboratory data and both type and dosage of prescribed medication according to Anatomical Therapeutic Chemical/Defined Daily Dose Classification (ATC/DDD) coding established by the WHO [10]. GPs participating in the FIRE-project extract these data from their electronic medical records (EMRs) used in daily practice. Up to August 2015 102 GPs from the German speaking part of