Intervention in primary care to prevent vascular disease

Intervención en atención primaria para prevenir la enfermedad vascular

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Abstract

Introduction: Chronic diseases and their risk factors account for most global disease burdens. A health intervention could decrease the burden. 133
Objective: to evaluate an intervention to improve vascular disease care.
Methods: a cluster randomized controlled trial was conducted in general urban practices for 12 months. Practices were randomly assigned to intervention and control groups after stratification.
Results: the probability of change was significantly higher in the intervention group compared to the control group.
Conclusions: The intervention had a positive impact on supplier behavior, as evidenced by improved evaluation and record keeping
Keywords: vascular disease, morbidity, intervention, primary care. Source: DeCS
DOI Number: 10.14704/nq.2022.20.13.NQ88019 **NeuroQuantology 2022; 20(13): 133-139**

Resumen
Introducción:Las enfermedades crónicas y sus factores de riesgo representan la mayor parte de la carga mundial de morbilidad. Una intervención sanitaria podría disminuir la carga.
Objetivo: evaluar una intervención para mejorar la atención de la enfermedad vascular.
Método:se realizó un ensayo controlado aleatorio por grupos en prácticas generales urbanas durante 12 meses .Los consultorios se asignaron aleatoriamente a los grupos de intervención y control después de la estratificación.
Resultados: la probabilidad de cambio fue significativamente mayor en el grupo de intervención en comparación con el grupo de control.
Conclusiones:La intervención tuvo un impacto positivo en el comportamiento de los proveedores, como lo demuestra la mejora en la evaluación y el registro
Palabras clave: enfermedad vascular, morbilidad, intervención, atención primaria. Fuente: DeCS

Introduction

Chronic diseases and their risk factors account for the majority of the global burden of disease. Nine out of 10 adults have at least one physiological or behavioral risk factor for chronic disease, including smoking, poor nutrition, excessive alcohol consumption, physical inactivity, overweight or obesity, hypertension, or dyslipidemia[1]. General practitioners (GPs) are well positioned to work with patients to manage these risk factors because of their high population coverage (more than 80% of the population present in primary care at least once a year) and patient acceptance of their role in prevention. They are, therefore, ideally positioned to assess and provide counseling on lifestyle-related behavioral risk factors[2].

The roles of general practitioners in preventive care are reinforced in the recommendations of international clinical guidelines[3]. There is evidence that this approach improves patient motivation and behavior change. However, despite the wide dissemination of preventive guidelines, barriers to implementation exist in various patients (e.g., motivation and health literacy), professionals (e.g., beliefs about effectiveness), practice (e.g., time and organizational capacity), and systems (e.g., funding and workforce). These barriers contribute to low rates of clinical risk assessment, lifestyle counseling, and referral[4].

The authors conducted a multicenter cluster randomized controlled trial of practice facilitation and quality improvement intervention designed to support general practices to implement the recommendations of evidence-based clinical management guidelines for the prevention of cardiovascular disease (CVD) and type 2 diabetes. This research reports on the trial's primary outcome: clinical assessment and recording of patient risk factors from audited records. The hypothesiswas that, for patients aged 40-69 years, the intervention would improve patient risk factor recording by 20% over 12 months.

Method

A cluster randomized controlled trial was conducted in general practices for 12 months (2020-2021). Practices were randomly assigned to intervention and control groups after block stratification by state and practice size (the number of general practitioners in practice) using a computer-generated randomization list. Thirty-two practices were recruited. This study was approved by the Universidad Regional Autónoma de Los Andes (UNIANDES).

Inclusion criteria were the use of computerized medical records that could be audited and the use of a practice nurse. Anonymized data were extracted from medical records of patients between 40 and 69 years of age who had attended the practice in the previous 12 months. Records of patients with heart disease, stroke, diabetes or chronic kidney disease, cognitive impairment, or severe mental illness (psychosis) were excluded based on their need for specialized evaluation and management. The intervention was targeted at the practice level and aimed to improve the assessment and management of smoking, nutrition and weight; alcohol and physical activity (PA); cardiovascular risk and diabetes; blood pressure (BP) and lipids.

The intervention was conducted over six months and involved (1) small group training of practice staff; (2) feedback on audited performance; (3) a series of practice facilitation visits; and (4) provision of patient education resources and referral information. Facilitation was based on quality improvement whereby each practice reviewed its performance and set goals specific to its circumstances and resources.

The physicians completed a questionnaire at baseline and 12 months. This questionnaire was based on work previously conducted by the investigators with questions adapted from the Questionnaire of Attitudes and Activities in Preventive Medicine (CAAMP)[5]. The instrument collected the self-reported frequency of risk factor assessment during clinical encounters, counseling provided, and referral of patients identified at risk.

The database and statistical processing of the data were performed and analyzed in the statistical program SPSS 26 (SPSS Inc., Chicago, IL, USA). Descriptive statistics were used for the results collection, presentation and interpretation.

The primary analysis assessed changes in risk factor registration and risk factor levels. Levels were defined as elevated for body mass index (BMI) (>25), waist circumference (male ≥94 cm, female ≥80 cm), BP (> 140/90 mmHg), alcohol (>2 standard drinks/day), smoking (current), blood glucose (> 5.5 mmol/L), total cholesterol (> 4), and cardiovascular disease (CVD) risk (> 10 % over 5 years) according to evidence-based guidelines. The secondary analysis assessed change in self-reported assessment and confidence in assessment by participating physicians and nurses.

Univariate statistical tests (χ^2 and t-tests) were performed to examine the difference between baseline and follow-up and between intervention and control participants for outcome variables at the $p<0.05$ level.Multilevel logistic regression models were used to examine those outcomes that were significant in the univariate analysis.

Results

Of the 32 practices recruited, 16 were assigned to intervention and 16 to usual care. Before baseline data collection, one intervention practice was excluded due to incompatibility between the electronic medical record and the data extraction program and one control practice withdrew, citing a lack of capacity to continue participating in the study. Three other control practices were excluded later in the study when technical difficulties prevented audit data collection. The resulting sample comprised 15 intervention and 12 control practices.

There were no significant differences between the intervention and control groups for gender, the number of practices that had staff aged 55 years or older or those who had been working in general practice for 10 years or more.

From the audit of the medical records, 21 848 patients aged 40 to 69 had both baseline and follow-up audit data (73% of the total; 13 815 intervention and 8033 control). Of these, 17 565 were aged 45 to 69 years (10 985 and 6 580, respectively). Sixty-one percent were women with similar proportions in the intervention and control groups (χ^2 = 2.7, p = 0.1). At baseline, the overall mean age was 52.9 years, 52.7 years in the intervention group compared to 53.2 years in the control group (t=4.28, p<0.001).

Baseline audits of all practices identified room for at least a 10% improvement in the assessment and recording of all risk factors except smoking, which was also significantly higher for the control group than the intervention group at baseline (χ^2 =641, p<0.0001).

Multivariate and multilevel analyses were performed to compare the probability of a change in the recording of risk factors (i.e., when risk factors were not recorded at baseline but were recorded later in follow-up). After adjusting for age group and sex of patients, the number of GPs and nurses in practice, and proportion working in practice for ten years or more, the probability of change was significantly higher in the intervention group compared with the control group for waist circumference (WC) (OR (odds ratio), 2.52 (95% CI 1.30 to 4.91)) alcohol consumption (OR, 2.19 (CI 1.04 to 4.64)), smoking (OR, 2.24 (1.17 to 4.29)), and absolute cardiovascular risk (OR, 1.50 (1.04 to 2.18)).

Patient age increased the likelihood of an improvement in recorded CVD risk and cholesterol. Younger patients were more likely to have waist circumference and BP recorded. Smaller practices and practices with two or more nurses were more likely to improve BP assessment and recording during the 12 months. However, significant variation between practices remained unexplained by the variables included in the regression analysis (Table 1).

Table 1. The proportion of patients at risk at baseline and during follow-up in the intervention compared to the control group.

	Interventionbaseline (95 % CI)		Interventionfollow-up (95% CI)		Baseline control (95 % CI)		Control Follow-up (95% CI)	
Risk	N	% (95% CI)	n	% (95% CI)	n	% (95% CI)	n	% (95% CI)
Bodymassindex (>25)	2296	73,5 (72,0 a 75,1)	2635	73,6 (72,2 a 75,0)	1855	75,4 (73,7 a 77,1)	1865	74,0 (72,3 a 75,7)
Waist circumference Male ≥94 cm Female ≥80 cm	752	81,7 (79,2 a 84,2)	1017	81,8 (79,7 a 84,0)		80,4 (76,4 a 84,3)	389	80,7 (77,2 a 84,2)
Bloodpressure (>140/90)	2807	27,2 (26,3 a 28,1)	2979	27,9 (27,1 a 28,8)	1542	27,5 (26,4 a 28,7)	1703	28,9 (27,7 a 30,0)
Alcohol (>2 standard drinks/day)	374	20,3 (18,5 a 22,1)	417	19,6 (17,9 a 21,3)	344	24,6 (22,3 a 26,9)	327	25,0 (22,7 a 27,4)
Smoking (current)	1358	14,3 (13,6 a 15,0)	1436	13,8 (13,1 a 14,4)	1105	16,3 (15,5 a 17,2)	1093	15,7 (14,8 a 16,5)
Diabetes (NAS) > 5.5)	471	28,5 (26,4 a 30,7)	528	32,0 (29,8 a 34,3)	410	36,5 (33,7 a 39,4)	423	36,0 (33,2 a 38,7)
Cholesterol (TC > 4)	6285	96,3 (95,9 a 96,8)	5849	95,1 (94,6 a 95,6)	4194	95,0 (94,4 a 95,7)	4213	95,3 (94,6 a 95,9)
Cardiovascular risk (10% or more)	458	10,0 (9,2 a 10,9)	654	10,8 (10,0 a 11,6)	398	10,3 (9,4 a 11,3)	457	11,6 (10,6 a 12,5)

Source: statistical analysis, $p \leq 0.05$, TC (total cholesterol), NAS (blood sugar level).

While there was a significant burden of "risk" across the audited population, when data were recorded, no significant changes were found in the proportion of patients at increased risk between baseline and follow-up in either the intervention or control group.

Discussion

In this multicenter cluster randomized controlled trial, the intervention was associated with the improved recording of CVD risk, CHD, alcohol consumption, and smoking compared with the control group (by 2% to 6% for individual risk factors). The small improvements in preventive care recording are consistent with previous evaluations of the facilitation of preventive care practice[6], underscoring the challenge of achieving systemic quality improvement. While not specifically assessed in this trial, failure to achieve better outcomes with facilitation may also reflect the variable ability of practices to alter their systems and routines[7,8] or the perceived importance of preventive care. Achieving greater improvements may also require a greater intervention effort or a different approach more tailored to individual practice needs[9,10].

Those older patients, who are at higher risk, were more likely to have their CVD risk recorded. However, they were less likely to have documented BP and CC, which can be easily assessed during clinical encounters. Periodic BP assessment is no less important in older adults(11) and waist circumference is associated with significantly higher mortality in the elderly after adjusting for BMI(12).

A disparity was found between a high reported frequency of assessments by primary care physicians and nurses with a much lower frequency of recording in the medical record. This is consistent with previous research demonstrating inconsistency between the frequency of self-reported assessment and more objective measures(13,14).

The intervention focused on preventive care provided by clinics and professionals for their patients rather than providing new services directly to patients. The intervention period was also relatively short, lasting only six months, andpractical lifestyle interventions can be time-consuming(15). In addition, system barriers can reduce the ability of practices to improve referral frequency. Barriers to referral include patient (health literacy), practice (team roles and time) and system level (cost and funding, information and communication systems) factors(16,17). The implication may be that more direct services must be provided to patients in addition to practice improvement strategies to achieve changes in health outcomes.

There were differences at baseline in the recorded smoking frequency, which made it more difficult to show improvement in this risk factor in the control group. In addition, the provider questionnaire was based on self-report and, as such, was subject to recall bias and social desirability(18).

The sample size was smaller in the control practices due to the smaller number of practices and practitioners and, therefore, was underpowered to show a 10% or less difference in BP and cholesterol recording between intervention and control practices. In addition, only a minority of the between-practice variation in CVD risk, BMI, and BP recording was explained by variables included in the regression model, suggesting that other factors must be explored(19,20).

Conclusions

The intervention involved clinical audits, provider training, practice facilitation visits, and linkage with other services. It positively impacted provider behavior, as evidenced by improved assessment and recording of smoking, CC, alcohol, and absolute CVD risk. However, effective implementation of preventive care in primary health care is a complex iterative process that requires ongoing support and follow-up at the patient, provider, practice, and system levels.

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