Intervention in obese patients in primary care and adherence to international guidelines

Intervención en pacientes obesos en atención primaria y adherencia a guías internacionales

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Abstract

Introduction: In Ecuador, 6 out of 10 people have presented problems of overweight and obesity. An intervention can increase the proportion of patients who are offered weight control.
Objective: To compare the proportion of patients offered intervention-based or guideline-based weight management.
Methods: A randomized cross-sectional cluster study was performed, in which two study arms were randomly assigned.
Results: An increase in BMI of 1 kg/m2 led to a 3.4% increase in the odds of being offered a weight management intervention.
Conclusions: Our personalized intervention failed to improve the implementation of the obesity guideline.
Keywords: obesity, primary care, intervention, weight control source: DeCS
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Resumen
Introducción: En Ecuador, 6 de cada 10 personas, han presentado problemas de sobrepeso y obesidad. Una intervención puede aumentar la proporción de pacientes a los que se les ofrece control de peso.
Objetivo: Comparar la proporción de pacientes a los que se les ofrece control de peso basado en intervención o en guías.
Método: Se realizó un estudio transversal aleatorizado por conglomerados, en el que se asignaron al azar a dos brazos de estudio.
Resultados: Un aumento en el IMC de 1 kg/m 2 condujo a un aumento del 3,4 % en las probabilidades de que se le ofreciera una intervención de control de peso.

Conclusiones: Nuestra intervención personalizada no logró mejorar la implementación de la guía sobre obesidad.
Palabras clave:obesidad, atención primaria, intervención, control de pesofuente: DeCS

Introduction

In Ecuador, 6 out of 10 people have presented problems of overweight and obesity (BMI>25), being more prevalent between 40 and 50 years of age. Women (65.5%) have the highest frequency compared to men (34.5%)[1]. International guidelines on obesity were published by the National Institute for Health and Care Excellence (NICE) in 2014, these included recommendations for primary care, but obesity care is often unsatisfactory[2].Most had no history of receiving a weight loss intervention for up to 6 years.

Dissemination of guidelines to health care professionals often has little effect on changing clinical practice. A review of trials of disseminating educational materials concluded that they might have a small effect on professional practice, although the effect on patient outcomes was uncertain[3]. Experimental studies have shown that the addition to guideline dissemination of strategies such as educational meetings, audits and feedback, or patient-mediated interventions can positively affect professional practice and patient outcomes. However, no consistently effective approach has been identified[4]. One possible explanation is that, in different settings, different factors limit what can be achieved. Such factors may be at the level of individual practitioners (e.g., lack of time, knowledge or skills), at the team level (e.g., poor leadership, lack of specific team members), or at the organizational level (e.g., structures, resources). They may also relate to patients, including their expectations or beliefs. Such factors have been referred to as barriers, obstacles or facilitators, but collectively refer to them as practice determinants. Many determinants can be identified, especially if multiple methods are used to investigate them[5]. It follows that if among the many determinants, those few with the greatest impact on performance can be selected, adherence to guidelines could be improved by devising strategies to address them. This approach is known as tailoring, and a recent systematic review of 32 randomized trials of tailored interventions concluded that it may be effective. However, the effect was variable and, as yet, the best methods for identifying determinants and choosing strategies to address them have not been identified. The studies included in the review used various methods to identify determinants and choose strategies but did not provide evidence on which tailoring methods were most effective, and most did not provide detailed descriptions of how tailoring was done[6].

The study reports a randomized controlled trial, and the research question was, in obese or overweight patients in primary care, does a tailored implementation intervention, compared to no intervention, increase the proportion of patients offered weight management as described in NICE guidelines?

Method

A cluster-randomized, cross-sectional study was conducted, in which general practices were randomized into two study arms: (1) the study group, in which practices were offered tailored interventions or (2) the control group, in which practices received no intervention (and thus provided usual care). Follow-up was nine months, from February to October 2020. Exclusion criteria for practices were (a) participation in another obesity study and evaluation of similar outcomes during the previous year and (b) whether the practice had recently changed or planned to change its computer system during the trial period. This study was approved by the Universidad Regional Autónoma de Los Andes (UNIANDES).

Practice recruitment ceased once the target sample size was reached. Patients were not randomized and did not participate directly in the study, although their anonymized data were extracted from their electronic medical records. Eligible patients were adults aged 16 years or older in participating practices who were overweight or obese at any time during the study period, whether or not they were registered in the practice's obesity registry.

The key determinants of practice for each of the four specific guideline recommendations had been identified in a study involving different practices than those included in the trial, although they were in the same region. Authors did not rely on behavioral theory but on their ideas about the most appropriate strategies for addressing the determinants, a process informed by developing the TICD checklist[7]. The checklist included examples of determinants with suggested strategies. For example, practitioners did not rely on correctly measuring waist circumference. The TICD checklist advised educational strategies with opportunities to practice the skills needed for the determinants related to the skills, and this was provided in one session at each practice[7,8].

The training session discussed how the practice managed overweight and obese patients and considered alternative approaches. Each practice team designated a professional to lead their management of overweight and obesity.

Process evaluation was conducted after the intervention's implementation and the follow-up period's completion and a purposive sample of professionals was recruitedfrom the intervention arm of the trial and conducted semi-structured interviews with an independent investigator who was not directly involved in the trial. The interviews were conducted by telephone, recorded after the respondents' informed consent, and then transcribed. The interviews lasted 30-40 minutes and examined the experiences of intervention practitioners. They did not ask directly about the harms of the intervention, although the interview allowed respondents to report difficulties or disadvantages. Interviews were analyzed using qualitative content analysis following a mixed deductive-inductive coding approach. The authors used a framework of the main categories of analysis that reflected the process evaluation questions.

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 main analysis was performed at the patient level, using generalized estimating equations with an exchangeable correlation matrix to account for clustering. The primary outcome was the proportion of patients offered a weight loss intervention, a binary variable, a logit link function used so that odds ratios could compare treatments. The model was adjusted for stratification variables (list size, deprivation score). Finally, practices were assigned to treatment groups according to the intention-to-treat principle.

Imputation was done by scaling the proportion up to 9 months (e.g., if the proportion of outcomes was 4% collected over two months, then the imputed outcome at baseline was 4% × 9/2 = 18%. Then, the outcome was treated as a continuous variable and analyzed in a cluster-level analysis using a general linear model, adjusted for stratification variables and the imputed outcome at baseline.

Descriptive characteristics of practices and patients at baseline and follow-up were summarized by treatment arm, using mean (standard deviation) or median (interquartile range) for continuous variables, as appropriate, and count (percentage) for categorical variables.

It was assumed that, in the control arm, the adherence to the guideline recommendation on offering a weight loss intervention would be 46%. This estimate was based on a pilot study on obesity management in primary care and was measured at the practice level[9]. The study aimed to detect an increase in adherence to 60 % in the intervention arm with a power of 80 %, using a bilateral test with an alpha of 0.05. Therefore, the ICC was assumed to be 0.05.

Results

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Thirty practices were recruited, 16 in control and 14 in the intervention group. Two practices withdrew from the intervention group between randomization and receiving the intervention because they could not devote time to the study. There were some differences between the intervention and control groups in terms of location, practice size, and ethnicity of the patient population. The mean BMI in both treatment arms fell into the obese category, 30.2 kg/m for the control practices and 30.5 kg/m^2 for the intervention practices.

There was no significant difference in the proportion of patients offered a weight management program between control and intervention practices (15.1 % in control practices, 13.2 % in intervention practices, p = 0.53). This result was replicated in the unplanned sensitivity analysis.

There was no significant difference between the number of patients in the control and intervention practices who had their BMI or waist circumference measured (control 42.7 %, intervention 39.6 %, p = 0.28), were referred to external weight loss services (control 5.1 %, intervention 3,7 %, p = 0.21), received an in-house weight management program (control 9.6 %, intervention 8.7 %, p = 0.81), had a lifestyle assessment (control 23.1 %, intervention 23.9 %, p = 0.88) or lost at least 1 kg of body weight (control 42.2 %, intervention 41.7 %, p = 0.67). Adjusted means for changes in BMI and weight slightly favored the intervention group, although there were no significant differences between the control and intervention groups. These results were replicated in unplanned sensitivity analyses of binary outcomes.

Table 1 shows the change from baseline for weight management and lifestyle counseling after adjusting for imputed baseline characteristics. There was no significant change from baseline for the proportion of patients offered a weight loss intervention (primary outcome). The adjusted mean suggested a greater improvement from baseline for the intervention group than for the control group, which was predominantly due to increased internal weight control. There was also no significant change in the proportion of patients with a lifestyle assessment or referred to external weight loss services. The proportion of patients with a lifestyle assessment during the study was much higher than at baseline in both control and intervention practices.

Table 1. Cluster-level analysis of weight control variables and lifestyle advice with imputed outcomes at baseline.

	Control (n = 16)		Intervention (n = 14)		Significant difference	
	Baseline (imputed)	Follow-up	Baseline (imputed)	Follow-up	Mean (95 % CI)	p-value
Weight control	8,8 % (8,5 %)	14,7 % (11,9 %)	5,1 % (2,8 %)	13,6 % (6,4 %)	3,7 (-2,5, 9,9)	0.23
Referral to external weight loss services.	4,5 % (5,8 %)	4,3 % (3,0 %)	2,8 % (3,0 %)	3,8 % (3,6 %)	0,5 (-2,2, 3,1)	0.73
Internal weight control	4,2 % (4,0 %)	9,9 % (10,1 %)	2,3 % (2,0 %)	9,0 % (7,1 %)	3,3 (-1,7, 8,3)	0.18
Lifestyle assessment	0,0 % (0,0 %)	23,4 % (8,2 %)	0,9 % (2,1 %)	24,3 % (5,8 %)	-0,2 (-6,9, 6,5)	0,95

Source: statistical analysis, Results here are continuous cluster summary variables (percentage of patients with the outcome) rather than binary patient-level variables. xx ,x % (xx ,x %) =

mean (SD). A mean difference >0 favors the intervention group, ≤ 0.05, n =30 primary care practices.

Some predictor variables significantly impacted the primary and secondary outcomes and were included in statistical models when appropriate. These were selected through a model selection procedure. The primary outcome was the proportion of patients practitioners had offered a weight loss intervention. An increase in baseline BMI of 1 kg/m^2 led to a 3.4% increase in the odds of being offered a weight management intervention. Similarly, a 1-year increase in age led to a 1.7% increase in the odds of being offered a weight management intervention.

The predictor variables also had a significant impact on secondary outcomes. Patients were 29.7% more likely to measure BMI or waist circumference if they were female than male. The odds of patients being referred or offered an in-house weight management program were 9.3% higher for men than women and 28.9% lower for patients of mixed ethnicity compared with white European patients. A BMI of 1 was associated with a 2.3 % increase in patients who received a lifestyle assessment. An increase in BMI at a baseline of 1 was associated with an increase in BMI at a follow-up of 0.740.

A total of 78 professionals attended the practice intervention sessions (mean 6.5/practice, range 2-12). In the process evaluation, 11 professionals were interviewed (1 general practitioner, 7 nurses and 3 health assistants). Two findings emerged from the interviews, an increase in confidence in obesity management and appreciation of the resources provided to the teams.The interviews did not reveal harms of the intervention. Some practices reviewed their systems for managing obesity.

Discussion

The data presented in indicate that there was no improvement in adherence to the guidelines in the intervention group compared to the control group. This finding applies to all study outcomes. Our process evaluation, on the contrary, suggested that practitioners felt more confident in their ability to manage obesity and found the resources practical[10].

For the primary analysis, our assumption that 46% of overweight/obese patients would have been offered a weight management intervention at baseline was a large overestimate; the proportion observed in the study was only 7%. This would have allowed us to detect a smaller percentage difference than the 14% specified in the protocol.

Given that the study design and conduct limitation is unlikely to explain the negative outcome, other explanations need to be considered. Obesity and overweight can be particularly challenging for primary care teams[11,12]. The problem is extremely common and is not always perceived by patients as a priority. The easy steps patients can take are limited; changing personal lifestyles and dietary habits can be difficult. Services to help obese and overweight people are limited, and weight reduction and exercise services often require a financial contribution from patients. Therefore, patient motivation and access barriers present practitioners with additional difficulties that must be overcome.

General practice is under great pressure due to an aging population and increasing levels of multiple morbidities [13]. As a result, primary care teams may be forced to prioritize their activities and be too busy caring for those who, for example, already have type 2 diabetes to be able to devote much time to those who are overweight or obese[14].

Another possible explanation for our finding is that our intervention did not identify important determinants of practice among the many detected[15]. For example, the educational components of the intervention may have had little effect. One trial of educational interventions concluded that their effect is likely to be small[16]. However, other studies have shown that customized implementation can improve performance. For example, personalized patient education materials

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plus decision support and physician reminders improved antibiotic use for sore throat, and personalized educational outreach plus audit and feedback led to improvements in antihypertensive medication prescribing(17).

The findings should not be generalized to all personalized implementation methods(18), but they indicate that they have a way to go before turning to reliably effective approaches. Researchers should be encouraged to use systematic approaches to identify determinants and design interventions, and the rationale for the interventions chosen should be informed. A particular problem is how the most important determinants among the many discovered should be identified. In addition, ways should be explored to broaden the range of interventions that can be used; for example, interventions that address time pressures, financial disincentives, and administrative constraints should be explored, perhaps in partnership with health service managers and policymakers(19,20).

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