Intensive Smoking Cessation Programs for Hospitalized Coronary Patients: A Proven Intervention in Need of Implementation

Smith PM, Burgess E. Smoking cessation initiated during hospital stay for patients with coronary artery disease: a randomized controlled trial. CMAJ 2009;180:1297–303.

Study Overview

Objective. To evaluate the efficacy of a smoking cessation program for patients hospitalized for myocardial infarction (MI) or coronary artery bypass graft (CABG) surgery.

Design. Randomized controlled trial.

Setting and participants. The study took place in 4 cardiac units in western Canada between December 1999 and February 2001. The investigators recruited patients over age 18 years who were projected to stay more than 36 hours, had used tobacco in the month prior to admission, and had telephone access. Patients were excluded if they were medically unstable, pregnant, enrolled in a concurrent tobacco cessation trial, could not speak English, had trouble communicating, had a history of psychiatric disorder or substance abuse, or if their physicians refused to allow participation. The evaluators identified a total of 885 smokers (26% of the total number of patients) admitted for acute MI or CABG during the study period. Of these patients, 276 were enrolled in the study. Randomization resulted in equal numbers of patients with MI and CABG in each group as well as balanced demographic characteristics.

Intervention. A study nurse randomized patients to receive either an intensive (n = 137) or minimal (n = 139) smoking cessation intervention. The intensive intervention consisted of advice from nurses and physicians to quit, 2 pamphlets, 60 minutes of nurse bedside counseling, take-home materials, and 7 nurse-initiated counseling calls focused on relapse prevention in the 2 months after discharge. The minimal intervention included physician and nurse advice along with 2 pamphlets. Pharmacotherapy for smoking cessation was not formally included in this study. If a patient in either intervention group requested it and it was ordered by a physician, it was available during the hospital stay. After discharge, patients were free to use pharmacotherapy on an over-the-counter or prescription basis.

Main outcome measures. The primary outcome was self-reported 7-day point prevalence of smoking abstinence at 3, 6, and 12 months after discharge. The investigators used proxy corroboration (family member or friend) to check on subject abstinence at 12 months. The study team also collected baseline sociodemographic data, medical information on patients' cardiac conditions and comorbidities from their hospital charts, and detailed tobacco use data. Drop-out rates were similar in each group (10.8% vs. 10.2%).

Main results. The 12-month point prevalence of smoking abstinence was 62% among patients in the intensive intervention compared with 46% in the minimal intervention (odds ratio [OR], 2.0 [95% confidence interval {CI}, 1.2–3.1]). Abstinence was confirmed by proxy for 54% of patients in the intensive group and 35% in the minimal group (OR, 2.0 [95% CI, 1.3–3.6]). Continuous 12-month abstinence was 57% in the intensive group and 39% in the minimal group (OR, 2.1 [95% CI, 1.3–3.4]; P = 0.003). Patients admitted for CABG had significantly higher rates of continuous abstinence than those admitted for acute MI (57% vs. 44%; OR, 1.7 [95% CI, 1.0–2.9]; P = 0.038). Overall, 34% of patients in both groups used pharmacotherapy. Abstinence was lower among those who used pharmacotherapy than among those who did not (39% vs. 68%; OR, 0.3 [95% CI, 0.2–0.5]; P < 0.001). In logistic regression analyses, significant predictors of 12-month point prevalence of smoking abstinence included intensive intervention, no history of MI prior to admission, postsecondary education, and smoking restrictions at home.

Conclusion. This well-conducted randomized controlled trial provides evidence that intensive hospital and posthospital interventions for smokers with recent MI or CABG can significantly increase short- and long-term smoking abstinence.

Commentary

Smoking cessation is more effective than any other medication or modality for secondary prevention of coronary artery disease [1]. Smoking cessation decreases mortality by 36% [2], nonfatal reinfarction by 32% [2], reduces repeat CABG

rates by over half [3], and is cost-effective compared with other interventions [4]. Previous trials in the United States have established the efficacy of intensive smoking cessation efforts targeting patients with MI or CABG, with 1-year biologically confirmed cessation rates of over 60% [5]. A recent meta-analysis of smoking cessation efforts offered to hospitalized patients found that only those programs that offered postdischarge counseling and support for greater than 1 month after discharge had a significant increase in smoking abstinence [6].

This study sought to evaluate the efficacy of an intensive smoking cessation intervention in Canada for hospitalized patients with MI or CABG. The investigators showed that an intensive 2-month postdischarge program was able to achieve confirmed smoking abstinence rates of nearly 60%, double the odds compared with patients receiving the minimal intervention. These rates of confirmed long-term abstinence are among the highest reported in the literature and are in line with similarly intensive U.S. studies. In addition, this study extends the literature by showing these impressive results for the first time in a population of patients undergoing CABG. The trial was well conducted with minimal numbers of patients lost to follow-up. In addition, self-reported smoking status was verified using family or friend proxy confirmation.

A few key limitations deserve mention. First, the investigators did not aim to study the efficacy of pharmacotherapy combined with counseling (currently the gold standard for tobacco cessation treatment). As such, patients were allowed to use medications in either groups (of which about one third of each group did). While we do not know the characteristics of the smokers who chose to use medications, the investigators do report that those patients who used pharmacotherapy were nearly half as likely to quit as those who did not. At first this fact might seem counterintuitive given the evidence for the efficacy of smoking cessation medications. However, this phenomenon has been observed in other studies where smokers were allowed to choose medications, and likely reflects a selection bias toward smokers with higher nicotine dependence who are less likely to maintain smoking abstinence in the long term [7]. Second, the investigators confined the analysis to smokers without comorbid substance abuse or psychiatric disorders. This exclusion limits the generalizability of this study, as nearly half of smokers in the United States have one of these comorbid conditions [8]. Finally, note is made of the fact that the trial was conducted nearly 8 years prior to its publication. While the significance of this publication delay is debatable, the impressive findings of the study and great effort expended to carry it out are somewhat incongruent with the long lag time to publication.

Applications for Clinical Practice

This successful trial of an intensive counseling intervention for smoking cessation among patients hospitalized for MI or CABG adds to the powerful evidence base suggesting that helping hospitalized smokers quit reduces mortality, readmissions, and costs. In the 20 years since the first randomized trial of intensive smoking cessation for hospitalized patients [6], the increase in knowledge about efficacious ways to help hospitalized smokers quit has not been translated into effective clinical practice on a population basis. Comparative effectiveness studies show that there is no more effective intervention for secondary prevention of coronary disease than smoking cessation. The challenge for clinicians and policymakers alike is translating this evidence into existing delivery systems that currently integrate poorly the transition of care from inpatient to outpatient settings [9]. One possibility for improving care would be to upgrade existing Joint Commission standards for hospitalized smokers from merely offering counseling during hospitalization to making sure that cessation counseling is provided postdischarge for greater than 1 month, possibly through the use of existing nationwide telephone quitlines. These changes would better conform with the evidence for current best practices for smoking cessation and might help to cross the delivery gap between what is known and what is actually done.

—Review by Asaf Bitton, MD

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