



Cardiovascular Health

Secondary Prevention Recommendation Attainment with Cardiac Rehabilitation: Is There a Gender Disparity?



Karam I. Turk-Adawi, PhD^{a,b,*}, Neil B. Oldridge, PhD^c, Mark J. Vitcenda, MS^d,
Sergey S. Tarima, PhD^e, Sherry L. Grace, PhD^{f,g}

^aSchool of Health Policy and Management, York University, Toronto, Ontario, Canada

^bThe Heller School for Social Policy and Management, Brandeis University, Boston, Massachusetts

^cCollege of Health Sciences, University of Wisconsin-Milwaukee, Milwaukee, Wisconsin

^dUniversity of Wisconsin Hospital and Clinics, Madison, Wisconsin

^eDivision of Biostatistics, Medical College of Wisconsin, Milwaukee, Wisconsin

^fFaculty of Health, York University, Toronto, Ontario, Canada

^gToronto Rehabilitation Institute, University Health Network, Toronto, Ontario, Canada

Article history: Received 31 July 2015; Received in revised form 24 December 2015; Accepted 8 March 2016

ABSTRACT

Background: Achievement of secondary prevention guideline recommendations (i.e., goals) with cardiac rehabilitation (CR) is not well-documented, especially for women. This study examined achievement of the American Heart Association/American College of Cardiology (AHA/ACC) goals before and after CR by gender.

Methods: Of 12,976 patients enrolled in the Wisconsin CR Outcomes Registry, 8,929 (68.8%) completed CR and were included in the sample. Attainment of 15 AHA/ACC goals before and after CR was examined by extracting corresponding data points in the registry as entered by CR program staff. Gender differences in achievement of these goals after CR were examined via generalized estimating equations technique.

Results: Attainment of AHA/ACC goals before CR ranged from 15.3% of patients (physical activity) to 98.1% (aspirin), and by 17.6% (physical activity) to 98.4% (diastolic blood pressure) by CR completion. Significant improvements were achieved for 8 goals (53.3%), ranging from 0.7% for body mass index (BMI) to 50.8% for physical activity. Women were significantly less likely than men to achieve the following goals by CR completion: triglycerides (adjusted odds ratio [AOR], 0.54; 95% confidence interval [CI], 0.45–0.66), physical activity (AOR, 0.66; 95% CI, 0.59–0.74), and hemoglobin A_{1c} (AOR, 0.50; 95% CI, 0.32–0.78). Women were significantly more likely than men to achieve the high-density lipoprotein goal (AOR, 1.39; 95% CI, 1.05–1.86). There were no gender differences in goal achievement for blood pressure, total cholesterol, low-density lipoprotein, BMI, smoking cessation, or medication use. More than 94% of patients were taking three of four recommended secondary prevention medications both before and after the program.

Conclusions: Men and women generally improved similarly in terms of AHA/ACC goal achievement. Quality improvement strategies need to focus on physical activity and blood glucose control in women.

© 2016 Jacobs Institute of Women's Health. Published by Elsevier Inc.

Despite the decrease in coronary heart disease (CHD)-related mortality over the past 2 decades in the developed world, CHD remains the leading cause of death in both men and women in the United States (Go et al., 2013). With such a high incidence and prevalence, CHD secondary prevention recommendations have been established by the American

Heart Association and the American College of Cardiology (AHA/ACC) to promote longevity in patients with CHD (Smith et al., 2006; Smith et al., 2011). The recommendations concern lipids, blood pressure, adiposity, diabetes mellitus, physical activity, and smoking cessation, as well as adherence to medications. Similar recommendations are forwarded for women (Mosca et al., 2011), and given there is some evidence suggesting women with CHD may have poorer short-term outcomes than men (Pancholy, Shantha, Patel, & Cheskin, 2014; Vaccarino, Krumholz, Yarzebski, Gore, & Goldberg, 2001), secondary prevention goal attainment may be even more crucial in this group.

Source of funding: None.

* Correspondence to: Karam I. Turk-Adawi, PhD, School of Health Policy and Management, York University, 4700 Keele Street, Toronto, Canada. Phone: 1-647-766-7711; fax: 1-734-274-8899.

E-mail address: Karamturk2000@yahoo.com (K.I. Turk-Adawi).

Cardiac rehabilitation (CR) is a chronic disease management model structured around assessment and management of CHD risk factors for secondary prevention. The programs offer structured exercise training, patient education, and risk reduction (American Association of Cardiovascular and Pulmonary Rehabilitation [AACVPR], 2013). Accordingly, the AACVPR forwarded CR performance measures, which are consistent with the AHA/ACC secondary prevention targets, in 2007 (Thomas et al., 2007). Indeed, meta-analyses have established that CR participation is associated with greater risk factor control, and subsequently lower mortality and morbidity (Clark, Hartling, Vandermeer, McAlister, 2005; Lawler, Filion, & Eisenberg, 2011; Oldridge, 2012).

Recently, however, findings from “Rehabilitation After Myocardial Infarction Trial” (West, Jones, & Henderson, 2012), one of the largest studies of CR in the real-world setting, were published from the United Kingdom, suggesting no benefit of CR on outcomes from mortality to lifestyle risk factors. These findings have been controversial, with suggestion that the dose of CR was insufficient (i.e., approximately 8 sessions vs. 36 in the United States; Doherty & Lewin, 2012). Hence, there is a need to better understand what is being achieved with CR in the United States in a “real-world” sample. Moreover, given that fewer women gain access to CR than men (Samayoa et al., 2014), comparison of outcomes between men and women participating in CR programs is limited (O’Farrell, Murray, Huston, LeGrand, & Adamo, 2000; Sanderson, Mirza, Fry, Allison, & Bittner, 2007; Sarrafzadegan et al., 2008).

To the best of our knowledge, only one study (Vogel et al., 2005) has compared gender differences in achievement of secondary prevention goals recommended by national clinical guidelines, namely the National Cholesterol Education Program Adult Treatment Panel III Guidelines issued in 2001 (Expert Panel on Detection, Evaluation and Treatment, 2001), among CR attendees. Only an abstract is available, reporting that more than 30% of patients were not at the guideline-based goal for six of nine recommendations upon CR completion, and significant gender differences existed in achievement of seven of these nine goals. Accordingly, the objectives of this study were to examine a) changes in secondary prevention measures from before to after CR, namely CHD risk factors, physical activity levels, and medication use; b) achievement of AHA/ACC guideline-based secondary prevention goals at CR completion (presented in Table 1); and c) whether achievement of these AHA/ACC guidelines varied by patient gender in a population-based sample.

Methods

Study Design and Data Source

Institutional review board approval for the study was obtained from Brandeis University. This retrospective cohort study, used data extracted from the Wisconsin Cardiac Rehabilitation Outcomes Registry (WiCORE; Wisconsin Cardiac Rehabilitation Outcomes Registry, 2014). Data were contributed to the registry by 79 of an estimated 120 CR programs (65.8%) in the state.

CR programs in Wisconsin generally offer 36 sessions. CR staff will titrate medications to achieve secondary prevention targets or communicate with patients’ other health care providers to recommend evidence-based medication changes. Each CR program offered is based on the AHA/ACC guidelines for secondary prevention issued in 2006 (Smith et al., 2006).

Table 1
AHA/ACC Secondary Prevention Goals

Factor	Goal
Total cholesterol	<200 mg/dL
Low-density lipoprotein	<100 mg/dL
High-density lipoprotein	>40 mg/dL
Triglycerides	<150 mg/dL
Body mass index	18.5–24.9 kg/m ²
Systolic blood pressure	<140 mm Hg
Diastolic blood pressure	<90 mm Hg
Systolic blood pressure (patient has diabetes or chronic kidney disease)	<130 mm Hg
Diastolic blood pressure (patient has diabetes or chronic kidney disease)	<80 mm Hg
HbA _{1c} (patient has diabetes)	<7%
Physical activity	≥150 min/wk
Smoking cessation	Complete cessation
Medication (if no contraindication)	
β-Blocker	Compliance
ACE-I/ARB	Compliance
Aspirin	Compliance
Lipid lowering	Compliance

Abbreviations: ACC, American College of Cardiology; ACE-I, angiotensin-converting enzyme inhibitor; AHA, American Heart Association; ARB, angiotensin II receptor blocker.

Source: Smith et al., 2006; American Association of Cardiovascular and Pulmonary Rehabilitation (2013).

Patient data were collected by CR staff at each program using the WiCORE web-based interface. To optimize accuracy of data entry, CR staff were provided with a manual of how to navigate the interface and given a data dictionary (see relevant excerpts in the Supplementary File). Additionally, the WiCORE incorporates data validation rules for each field to decrease input errors (e.g., out of range values). The WiCORE database is compliant with Health Insurance Portability and Accountability Act and included only de-identified patient information that can be transmitted without prior agreements (Wisconsin Cardiac Rehabilitation Outcomes Registry, 2014).

Participants

CR programs in Wisconsin generally provide care to patients with CR indications recognized by national organizations (Leon et al., 2005) or patients with Centers for Medicare and Medicaid Services–reimbursed indications such as acute coronary syndrome, revascularization, stable heart failure, and heart valve repair or replacement (Centers for Medicare & Medicaid Services, 2015). From July 2008 (registry inception) to January 2010, 17,000 patients’ referral requests were entered in the registry; of these, 8,929 patients completed CR and comprised the sample of this study. Completion of CR was defined in WiCORE as one or more of the following: a) the patient completed the number of prescribed sessions or prescribed duration, b) the patient completed the maximal number of sessions or duration allowed by insurance coverage, or c) the patient met the exercise and education goals before the typical 3 months or insurance coverage limit was reached (Wisconsin Society for Cardiovascular and Pulmonary Health and Rehabilitation, 2008). There were no exclusion criteria.

Measures

Sociodemographic and clinical characteristics

Data fields can be accessed at <https://wicore.wisc.edu/DemographicsDemo.aspx>. The WiCORE data set included

Download English Version:

<https://daneshyari.com/en/article/1092909>

Download Persian Version:

<https://daneshyari.com/article/1092909>

[Daneshyari.com](https://daneshyari.com)