

Telenursing for Remote, Home-Based Cardiac Rehabilitation after Coronary Artery Bypass Graft Surgery

Abstract

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Coronary artery disease (CAD) continues to be one of the leading causes of death in the US. Despite recent advances in interventional cardiology techniques, coronary artery bypass graft (CABG) surgery remains a mainstream treatment modality for CAD. Following CABG surgery, and often despite an uneventful in-hospital post-operative course, patients remain at risk for cardiac arrhythmias, pulmonary complications, wound infections, decreased activity tolerance, social isolation, and depression. According to evidence examined by the Agency for Health Care Research and Quality, structured cardiac rehabilitation improves cardiac symptoms, exercise tolerance, psychosocial well-being and is associated with improvement in cardiac risk factors such as blood lipid levels. However, structured cardiac rehabilitation programs do not exist at all military treatment facilities (MTFs). Furthermore, military beneficiaries often live far from the MTF where the surgery was performed. Cardiac rehabilitation using telenursing may be an alternative.

This protocol will evaluate the feasibility and outcomes of a remote, home-based cardiac rehabilitation program for post-operative CABG surgery patients. In addition to monitored exercise, surgical incision assessments and brief educational interventions will be implemented during each remote visit. Because this protocol will augment standard care, we will compare the telenursing rehabilitation patients with a group of usual care patients on the following outcomes: health related quality of life (HRQOL) (includes functional ability, general health status, mental health, and pain); health care utilization (additional clinic visits, ER visits, and readmissions) and associated charges; patient satisfaction; incision infection; cardiovascular risk reduction knowledge and behavior; and exercise program adherence and tolerance.

A sample size of 40 (20 in each group) will provide enough power to detect statistically significant difference in the HRQOL variables. For example, a between-group difference of 20 on the subscale General Health Status (a scale score of 0 to 100), using a two-tailed t-test with an alpha of .05, and a power of 80% will require 17 patients per group (Ware, 1993). Over-sampling by 20% to account for attrition would put the total number of patients at 40, or 20 per group. This study will lay the groundwork for further developments in telerehabilitation services for post-discharge CABG patients.