Research Article

Risk Factor–tailored Small Group Education for Patients with First-time Acute Coronary Syndrome

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S U M M A R Y

Purpose: The purpose of this study was to evaluate the effects of a risk factor–tailored small group education on anxiety and depressive symptoms, self-efficacy and self-care compliance in patients with first-time acute coronary syndrome (ACS) for 12-month follow-up.
Methods: A quasi-experimental pretest and post-test design was used. Patients were recruited from a national university hospital from 2010 to 2011 in Korea. The group education consisted of a 60-minute long video developed using multimedia contents including voice-recorded texts, flash animation, and video clips, with nurses' dialogue. The intervention group ($n = 34$) participated in group education using the multimedia video in a small group of patients with similar risk factors, and received periodic telephone counseling and text messages. The control group ($n = 40$) received usual care and counseling upon request.
Results: Depressive symptoms decreased, and self-efficacy and self-care compliance in the areas of medication, exercise, and healthy diet practice significantly increased in patients in the intervention group, compared with those in the control group.
Conclusions: Risk factor–tailored small group education and periodic text message were an effective strategy for decreasing depression, and increasing self-efficacy and long-term compliance with lifestyle changes in patients with first-time ACS. We suggested that risk factor–tailored small group education need to be given for first-time ACS patients for psychological support and behavioral change in clinical practice. It is also comparable to individual approach to encourage psychological and behavioral change.
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Introduction

Acute coronary syndrome (ACS) is an increasingly used term that refers to patients with clinical symptoms associated with either acute myocardial infarction (AMI) or unstable angina [1]. The prevalence of ACS in Korea has increased more than 5-fold in the last 10 years, and the overall death rate from heart disease has increased more than 3-fold [2]. Prompt revascularization is the first-line treatment strategy for ACS in combination with optimal medical therapy. It is also critical to provide patients and their family members with informed support and strategies to increase lifelong compliance with self-care for secondary prevention [3,4].

Compliance with self-care regimens such as medication, exercise and smoking cessation is an important component of the treatment strategy for ACS patients to prevent a secondary attack or adverse events [5]. A previous study reported that low compliance with self-care was more common in patients whose first event of heart attack has lapsed for less than 12 months, compared with those who experienced it over 12 months ago [6]. In order to enhance self-care of patients with ACS, it is important to modify patients' psychological factors, such as anxiety, depressive symptoms, or self-efficacy. After treatment of ACS, depression was reported to adversely affect quality of recovery or prognostic health outcomes [7,8]. Anxiety also often occurred in hospitalized patients who experienced heart attack as a consequence of in-hospital complications, such as more frequent episodes of ventricular arrhythmia or recurrent ischemic events [9]. In addition, self-efficacy increased self-care compliance among ACS patients [10,11]. Intervention to prevent these psychological symptoms had a modest effect on the quality of life of patients who experience AMI [12].

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Many motivational support programs and nursing interventions for lifestyle changes have been developed for patients with ACS. These include frequent follow ups, group meetings, coaching, education on lifestyle and behavior modification, particular behavioral interventions such as diet or exercise, and cardiac rehabilitation programs [13]. Using these interventions, nurse-led educational group meetings and telephone follow up was shown to assist elderly patients with ACS to achieve lifestyle changes 12 months after disease onset, including healthy eating practices, regular physical activity, and smoking cessation [14]. For Korean patients with ACS, integrated symptom management [15] and motivational enhancement therapy [16] were identified as effective strategies for lifestyle modification. With the same vein, a structural modeling study for ACS patients who have undergone percutaneous coronary intervention (PCI) emphasized that social support indirectly influenced self-care compliance through enhancing self-efficacy, reducing anxiety and increasing perceived benefit [11]. Accordingly, social support from family and healthcare providers need to be emphasized in planning nursing education to enhance patients' perceived self-efficacy, thereby leading to higher self-care compliance.

To increase the effectiveness of previous interventions on lifestyle changes and cardiovascular risk factors, interventional approaches or programs need to focus on the motivation of individuals with the goal of modifying their behavioral barriers [8] and individualizing their treatment plan under consideration of similar risk factors and efficacy [13,17]. In addition, the intervention should use an efficient methodology taking into account the busy clinical environment of the hospital, and standardize the instructions.

Despite the benefits of cardiac rehabilitation, participation rates remain less than optimal because of many barriers such as limited availability and accessibility, program length, distance and transportation, time conflicts, or financial issues [18,19], and lack of support from family [20]. In Korea, many of the ACS patients are limited to participate in cardiac rehabilitation program for the above reasons.

We therefore designed a group education in a small group with similar risk factors based on self-reflection using multimedia educational video for ACS patients. The aim of this study was to evaluate the effects of small group education using multimedia educational video on anxiety and depressive symptoms, self-efficacy, and self-care compliance in patients with first-time ACS compared with those of patients receiving usual care over a 12-month period.

Methods

Study design

This study adopted a quasi-experimental nonequivalent pretest and post-test design to examine the effects of small group education in first-time ACS patients.

Setting and sample

Patients were eligible if they (a) were hospitalized adults and had undergone PCI or medication for their first episode of ACS, including unstable angina, ST-elevation myocardial infarction or non-ST elevation myocardial infarction; (b) had access to a cellular phone for receiving risk factor–tailored periodic text messages, and (c) were able to communicate. Patients were excluded if (a) they were unable to provide informed consent statements, (b) they were unable to understand educational materials, or (c) they had underlying diseases that may cause cognitive impairment such as dementia

that would preclude understanding of the study materials. Initially, 88 patients were enrolled, with baseline data being collected. However, 8 patients withdrew or were lost to follow up in the study at 6 months and an additional 6 patients were lost at 12-month follow up (8 patients in the intervention group and 6 patients in the control group). Seventy-four patients completed all three data collection points and were included in the final analysis (Figure 1).

Using a G*power computer program, sample size was estimated on the basis of a repeated measures analysis of variance, with a power $(1-\beta)$ of .80 and medium effect size (f) of .25 based on a previous study of psychological intervention [21]. A significance level was set at $p < .05$ for two-tailed tests. The estimated sample size to obtain sufficient statistical power was 28 patients in each group. Patients were then assigned to either the intervention or the control group according to the time at which they came to the hospital.

Ethical consideration

After obtaining approval for the study from the institutional review board (IRB) of the hospital (IRB No. 2009-07-068), patients who underwent PCI or medical therapy were recruited from a cardiovascular ward of a university-affiliated medical center in Korea. Written informed consent for participation in the study was obtained from the patients after explanation of the purpose of the study by the principal investigator.

Development of a multimedia educational video

Multimedia educational video with flash animation were developed for small group education. The multimedia contents comprised five learning components: understanding of coronary artery disease; management of hypertension, diabetes, and dyslipidemia; healthy diet; stress management and smoking cessation; and physical exercise. The contents of each component were produced after serial discussions by a panel of experts on cardiovascular care, including cardiologists and nurses. The experts were invited to discuss and reach consensus on the contents of each multimedia component and generate educational guidelines and booklets on lifestyle modification for patients with coronary artery disease. All educational contents were voice-recorded like a dialogue in which two male and female nurses had a discussion with their family members. Content revision and adjustments for consideration of the health literacy of the patients were made after several meetings of the experts. Finally, multimedia educational contents produced in movie file format were created with the assistance of a professional web design company (paid USD$12,000). Finally, a 60-minute long multimedia educational video was developed containing texts and voice-recorded texts, graphic images, sounds, flash animation, and video clips.

Measurements

Anxiety and depressive symptoms

Anxiety and depressive symptoms were measured using the Hospital Anxiety and Depression Scale [22]. This scale consists of 14 items divided evenly into anxiety and depression subscales. The response scales range from 0 (strongly disagree) to 3 (strongly agree), with possible scores for each subscale ranging from 0 to 21. Scores of 11 or higher on the anxiety subscale and 9 or higher on the depressive symptoms subscale indicate a high likelihood of anxiety or depressive symptoms, respectively [23]. Acceptable reliability and validity of the Korean translated version have been reported. In the current sample, Cronbach α for each subscale of anxiety and depressive symptoms were .86 and .75, respectively.