



Intervention

Improving knowledge, attitudes and beliefs about acute coronary syndrome through an individualized educational intervention: A randomized controlled trial



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ABSTRACT

Objective: To test the effectiveness of an individualized educational intervention on knowledge, attitudes and beliefs about acute coronary syndrome (ACS).

Methods: This multi-site, randomized controlled trial was conducted on 1947 patients with a diagnosis of ACS. Both groups received usual in-hospital education. Participants randomized to the intervention group received a 40-min one to one individualized education session, delivered using motivational interviewing techniques. The intervention was reinforced 1 month and 6 months later. Knowledge, attitudes and beliefs were measured using the ACS Response Index. A total of 1136 patients (control, $n = 551$; intervention, $n = 585$) completed the questionnaire at baseline, 3 and 12 months. Data were analyzed using repeated measures analysis of variance. Ethical approval was obtained.

Results: There was a significant effect of the intervention on mean knowledge ($p < 0.001$), attitude ($p = 0.003$) and belief ($p < 0.001$) scores at 3 and 12 months.

Conclusion: Ensuring patients retain information post education has always been difficult to attain. This study demonstrated that patient education using motivational interviewing techniques and an individualized approach has the potential to alter knowledge, attitudes and beliefs about ACS among a high risk population.

Practice implications: This relatively short, simple and effective educational intervention could be delivered by nurses in multiple settings.

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1. Introduction

Acute coronary syndrome (ACS) is an umbrella term for a range of clinical symptoms associated with myocardial hypo-perfusion as a consequence of pathological mechanisms [1,2]. Patients with ACS are classified as ST-elevation myocardial infarction (STEMI), non-ST-elevation myocardial infarction (NSTEMI) or unstable angina [2]. The adverse effects of ACS include fatal arrhythmias, heart failure and cardiogenic shock [1,3,4]. Efficacy and speed are essential if maximum benefits are to be achieved from the therapeutic interventions that are available to patients [5].

The decision to seek care for ACS symptoms is contingent on the individual having the requisite knowledge, attitudes and beliefs about the condition [6]. The literature suggests that knowledge,

attitudes and beliefs about ACS is substandard among individuals with a diagnosis of coronary heart disease [7,8], even among those who had recently experienced an ACS event [9]. While the ACS symptoms, chest pain, arm pain and shortness of breath are relatively well known [9–14], knowledge of other ACS symptoms is less evident [9–11,13,15]. Those with inadequate knowledge, attitudes or beliefs about ACS are more susceptible to protracted pre-hospital delay time and a worse prognosis than their speedy counterparts.

To date, eight interventions aimed to improve knowledge, attitudes or beliefs about ACS [7,8,14,16–20]. A summary of these interventions is outlined in Table 1. Six of the eight interventions reported significant improvements in knowledge of ACS symptoms [7,8,14,16,18,19]. Of the three researchers who reported on attitudes and beliefs [7,8,18], one researcher [8] reported significant improvement in attitudes, while two researchers [8,18] reported significant improvements in beliefs, following their intervention. While previous interventions showed promising results, none of these have been conducted in Europe.

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Table 1
Summary of interventions aimed at improving knowledge, attitudes or beliefs about ACS.

Author, setting and design	Intervention type	Sample	Selected concepts measured Research instrument	Selected results
Goff et al. (2004) United States 1996–1997	18 month mass media & multi-component intervention in 20 communities.	Pre intervention: <i>N</i> = 1294	Knowledge of ACS symptoms using open-ended questions. Random digit telephone survey.	Knowledge of symptoms increased in intervention communities ($p < 0.001$).
Mass media RCT	Symptom recognition and the need to act fast by calling 911	Post intervention: <i>N</i> = 1204		No change in knowledge in comparison communities.
Meischke et al. (2004) United States 2001–2002	Information kit distributed to increase knowledge of ACS symptoms and the use of 911.	Over 65s (<i>N</i> = 323) Intervention = 176 Control = 147	Knowledge of ACS symptoms and intentions to respond to symptoms. Telephone survey with open-ended questions.	No significant differences in knowledge of symptoms between groups.
Individualized RCT				
Buckley et al. (2007) Australia 2001	Structured, one-to-one education and counselling intervention.	History of CHD (<i>N</i> = 200) Intervention = 105 Control = 95	Knowledge, attitudes and beliefs at baseline, 3 months and 12 months. The ACS Response Index.	The intervention significantly improved knowledge of ACS over time ($p = 0.02$). No significant differences in attitudes and beliefs between groups over time.
Individualized RCT				
Tullman et al. (2007) United States March–October 2001	Structured, one-to-one education and counselling intervention.	Over 65s with history of CHD (<i>N</i> = 115). Intervention = 58 Control = 57	Knowledge, attitudes and beliefs at baseline and 3 months. ACS Response questionnaire.	Significant increase in knowledge ($p < 0.001$) and beliefs ($p = 0.002$) in the intervention group compared to the control group. No significant differences in attitudes between groups.
Individualized RCT.				
McKinley et al. (2009) United States, Australia & New Zealand 2001–2003. Individualized RCT.	Individualized education and counselling intervention.	CHD (<i>N</i> = 3522). Intervention = 1777 Control = 1745	Knowledge, attitudes and beliefs about ACS facts and symptoms ACS Response Index.	Significant increase in knowledge ($p = 0.0005$), attitudes ($p = 0.0005$) and belief ($p = 0.0005$) scores in the intervention group at 3 and 12 months, compared to the control group. Knowledge, attitudes and beliefs were associated with improvements in the other.
DeVon et al. (2010) United States December 2006–March 2008	Computerized slide presentation.	Patients with CHD for elective PCI (<i>N</i> = 64) Intervention = 32 Control = 32	Knowledge of ACS symptoms and care seeking behaviour. An identified 20-item instrument.	Knowledge of ACS symptoms and care-seeking behaviour increased significantly in the intervention group, compared to the control group ($p < 0.001$).
Pilot RCT				
Gallagher et al. (2013) Australia. March 2010–March 2011	Individualized educational intervention.	CHD (<i>N</i> = 137)	Knowledge of ACS symptoms and actions. ACS Response Index.	Significantly improvement in mean symptom knowledge ($p < .0001$) Significant improvement in knowledge of actions to take ($p < .001$).
Pre-test post-test				
Mosca et al. (2013) USA 1997–2012. National educational intervention.	Mass media Intervention to increase awareness and educate the public about the hazards of heart disease in women.	Women over 25 (<i>N</i> = >1000)	CVD risk and prevention. American Heart Association National telephone survey using random digit dialling with open-ended questions.	Significant increase in awareness of: nausea ($p < 0.0001$) and shortness of breath as ACS symptoms ($p < 0.05$) Significant increase in awareness of heart disease as the leading cause of death in women ($p < 0.001$).

RCT: randomized controlled trial; CHD: coronary heart disease; PCI: percutaneous coronary intervention; CVD: cardiovascular disease.

Consequently, we decided to test the effectiveness of an individualized educational intervention on knowledge, attitudes and beliefs about ACS in Ireland, using a randomized controlled trial (RCT). It was intended that improvement would expedite help-seeking behaviour in the presence of ACS symptoms. The trial tested the hypothesis that, following the educational intervention, patients in the intervention group will demonstrate greater

knowledge, attitudes and beliefs about ACS. The trial was called the 'ACS Response Time Intervention Trial'.

2. Methods

Patients were considered eligible for participation in this multi-site, RCT if they had a provisional diagnosis of ACS, were clinically

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