Heart & Lung 47 (2018) 142–148

Contents lists available at ScienceDirect

Heart & Lung

journal homepage: www.heartandlung.com

Predictors of health-related quality of life in korean patients with myocardial infarction: a longitudinal observational study

Kyoungrim Kang, PhD Candidate, MSN, BSN, RN [a,*], Leila Gholizadeh, PhD, RN, MSc, BSc [a], Hae-Ra Han, PhD, RN, MSN, BSN, FAAN [b], Sally C. Inglis, PhD, RN, BN, BHSc(Hons) [a]

[a] University of Technology Sydney, Sydney, NSW, Australia
[b] The Johns Hopkins University, Baltimore, MD, USA

ARTICLE INFO

Article history:
Received 2 July 2017
Accepted 18 December 2017
Available online 21 February 2018

Keywords:
Factors
Korea
Myocardial infarction
Predictors
Quality of life

ABSTRACT

Background: Experience of myocardial infarction (MI) negatively affects different aspects of health-related quality of life (HRQoL).
Objectives: This study aimed to examine trends in HRQoL of MI patients and to identify demographic, clinical and psychosocial predictors of HRQoL at three months.
Methods: A total of 150 patients in South Korea were completed the study questionnaires at baseline. After three months from discharge, 136 participants completed follow-up questionnaires, including the Korean version of the MacNew Quality of Life after Myocardial Infarction Questionnaire (MacNew).
Results: HRQoL significantly improved over three months. Younger age, ST-elevation MI, and higher LVEF, lower level of depression, better understanding of the illness and higher perceived social support at baseline were associated with better HRQoL at three months.
Conclusion: Providing adequate information about the illness and social support as well as reducing negative psychological experiences in early days after MI may improve HRQoL of MI patients.

Introduction

Experience of myocardial infarction (MI) poses a threat to health-related quality of life (HRQoL).[1] Within the first year after MI,[2] about 20% of patients experience persistent symptoms including fatigue, sleep disturbance and shortness of breath as well as reoccurrence of MI, stroke, or death.[3] It is common that patients after MI report lower HRQoL scores than those without MI; however, HRQoL scores improve in most patients over time.[4] The results of a longitudinal study conducted by Eriksson et al.[5] showed that patients' HRQoL, measured by the Short Form 36 Health Survey Questionnaire (SF-36), was lower than their partners and those without the experience of MI at a one-month follow-up. However, HRQoL of MI patients showed improvement with higher scores than their partners or those without MI over time, at seven months, 13 months, and 25 months from MI. Similarly, another study found that improvement of HRQoL in patients with MI was statistically significant from four weeks to six months, as measured with both the Medical Outcomes Short Form-12 (SF-12) and the Seattle Angina Questionnaire (SAQ).[6]

Multiple factors were reported to affect HRQoL of patients after MI.[4] These factors included female gender, living alone and low education level and higher depression, anxiety and stress. Disease-related factors such as severity of MI and the associated symptoms were also found to be negatively associated with HRQoL post-MI. In addition, MI affects different aspects of HRQoL, including the physical, emotional and social functioning of patients. Patients' psychological experiences including depression, anxiety, stress, level of social support, perception of the disease, and self-efficacy are also associated with HRQoL.[7]

Assessment of HRQoL can supplement the traditional measures of health outcomes as this subjective report represents the patient-centred health status individually in broader aspects. It can also be assumed that diminished HRQoL negatively affects morbidity and mortality in cardiac patients as well as in those without heart disease.[4] Studying this multi-dimensional concept thus could lead to a broader understanding of patients' recovery status.[8] Understanding those factors that contribute to HRQoL post-MI, particularly modifiable factors, can open a window of opportunities to improve recovery experience and disease outcomes of patients post-MI. Although some studies have examined the relationships between different demographic, clinical and psychological factors

Conflict of interests: None.
Funding: All authors have no funding source to declare.
* Corresponding author. Fax: +61 (0) 2 9514 4835.
E-mail address: Kyoungrim.Kang@student.uts.edu.au (K. Kang).

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https://doi.org/10.1016/j.hrtlng.2017.12.005

and HRQoL after MI, few studies have investigated the predictors of HRQoL using robust statistics to enable development of reliable models. These studies are particularly scarce in Asian countries including South Korea.

The purposes of the current study were to examine the trends in HRQoL of patients and to identify the role of different demographic, clinical and psychosocial variables in predicting HRQoL of these patients at the three-month follow-up.

Methods

Overview of the design

This study used a longitudinal observational design to examine the trends in changes of HRQoL, from baseline to three months, in patients with MI in South Korea and to identify factors predicting HRQoL of the patients at three months post-MI. The majority of infarct healing occurs within 3–4 months of MI[9] and most patients can resume their pre-illness activities including returning to work within three to six months after MI, positively affecting their emotional well-being.[10] Therefore, as the patients' functioning status improves, improvement in HRQoL is also expected.

Treatment of acute myocardial infarction (AMI) in South Korea includes reperfusion strategies using pharmaceutical interventions, percutaneous coronary intervention (PCI) or coronary artery bypass graft. More than 90% of patients with acute MI undergo drug-eluting stenting and there is no gender difference in the initial treatment of AMI. However, prescription of medical therapy for secondary prevention has been reported to be suboptimal.[11] After discharge from hospital, patients visit an outpatient clinic two or three times within the first month and then once or twice a month for the next three months.

Human subjects

Participants were recruited from the comprehensive cardiovascular centres of two tertiary hospitals in the southern part of South Korea. They were asked to complete study questionnaires at baseline (within one week after MI) and at three-month follow up.

Inclusion/exclusion criteria

Inclusion criteria required admission with a diagnosis of either ST-elevation myocardial infarction (STEMI) or non-ST elevation myocardial infarction (NSTEMI), ability to understand and speak Korean, be a Korean resident, ability to understand the study procedure and give an informed consent. Patients were excluded if they had cognitive impairment or if they were participating in other interventional studies that might have affected the results of the current study. Patients' cognitive status, capacity to provide consent, and to understand the study questionnaires were assessed prior to enrolment in accordance with the Fan et al.'s two step approach.[12] A charge nurse in each study site firstly confirmed the patient's ability to participate in the study, and then each patient was asked to state their full name and answer which colour they had seen among one of three sheets of coloured paper. After the cognitive assessment, patients who signed the consent form were subsequently enrolled in the study.

Rationale for the sample size

The formula of 'N > 50 + 8* the number of independent variables'[13] was used to calculate the study sample size. Using this formula, a sample size of 138 was needed to allow for inclusion of 11 independent variables into the regression model.

Procedures

The Institutional Review Boards of the participating hospitals (PNUH IRB no. H-1505-008-029 and PNUYH IRB no. 05-2015-072) and the Human Research Ethics Committee of the involving university (UTS HREC Approval No. 2015000254) approved the ethics of the study. Potential participants were provided with information about the study verbally and in writing in Korean. Participations who were interested in the study gave consent and were enrolled in the study. The confidentiality privacy and volunteer participation were maintained throughout the study. Participants were assured that their participation was completely voluntary and that they could withdraw at any time they wished. The individual's participation was not disclosed to others and the data collection was held individually in a room where the patients' privacy could be protected. Follow-ups were scheduled according to participants' preferences to minimise inconvenience. Data collection was completed by the principle investigator whose first language is Korean (KK). Two cardiologists and several nurse managers were consulted to discuss strategies for participant recruitment, study questionnaires, and ethical considerations. Fig. 1 describes the process of screening, enrolment and follow-up of the study participants. A total of two hundred and fifteen consecutive patients were screened for the study inclusion criteria from August 2015 to February 2016; of whom 17 patients were excluded due to poor hearing, five patients were discharged before enrolment, and one patient was unconscious. The remaining eligible patients were invited to participate in the study. Among those who were invited to the study, 23 patients declined to participate because of perceived poor health condition, including dyspnoea, pain and tremor and 19 patients declined the invitation without giving a specific reason.

A total of 150 patients (69.8%), who provided informed consent were enrolled in the study and completed the study questionnaires at baseline (within one week after MI) and at the three-month follow-up. The participants were asked to complete the questionnaires by themselves or the researcher read out the

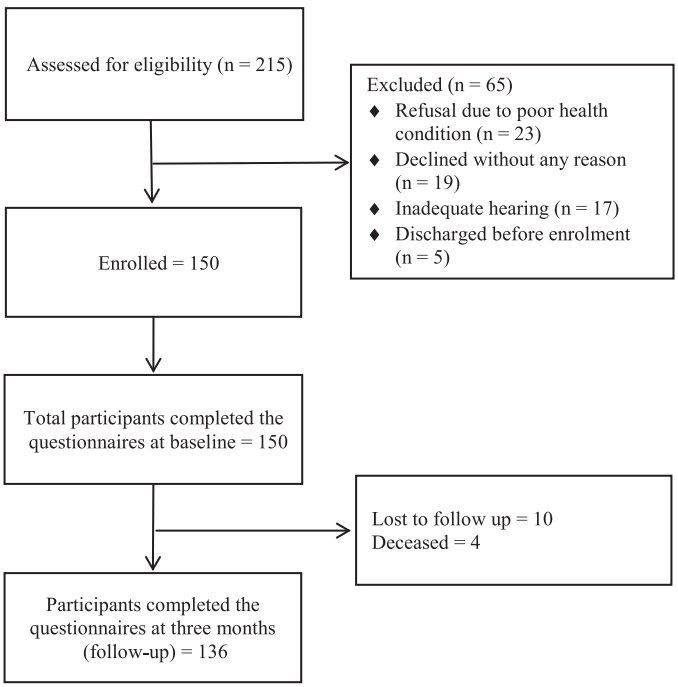

Fig. 1. Flow diagram of participants with MI from screening, recruitment, withdrawal to completion.