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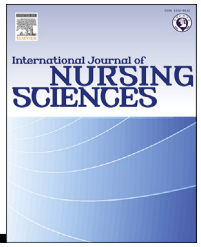

ORIGINAL ARTICLE

The influence of treatment modality on illness perception and secondary prevention outcomes among patients with acute myocardial infarction

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ABSTRACT

Objectives: This study aims to determine if patients with acute myocardial infarction differ in illness perception and secondary prevention outcomes depending on the treatment they received.
Methods: A repeated measures design was used to compare patients with acute myocardial infarction receiving three different treatment modalities: ST-elevation myocardial infarction treated by primary percutaneous coronary intervention, ST-elevation myocardial infarction treated by thrombolytic therapy, and non ST-elevation myocardial infarction treated by medication. A convenient sampling technique was used to recruit 206 patients with acute myocardial infarction who agreed to participate in the current study. Patients' illness perception, physical activity, and demographical and clinical data were collected during hospital admission and again at 6 months.
Results: A total of 186 patients completed the study. Results showed that the primary percutaneous coronary intervention group perceived their illness as acute rather than chronic ($P = 0.034$) and has lower personal control ($P = 0.032$), higher treatment control ($P = 0.025$), and higher perception of illness coherence ($P = 0.022$) compared with patients receiving thrombolytic therapy and treated after non-ST segment infarction. Moreover, they report low control of their blood pressure ($P = 0.013$) and less physical activity ($P = 0.001$).
Conclusion: The results of this study revealed that patients' treated with primary percutaneous coronary intervention had negative illness perception and limited behavioral changes 6 months after hospitalization in comparison with other treatment modalities such as percutaneous coronary intervention and thrombolytic treatment. Further research is recommended to confirm this association with longer follow-up study and among different cultures.

1. Introduction and background

Coronary artery disease (CAD) was the primary cause of death, accounting for approximately 37% of cardiovascular deaths and 15% of total deaths in Jordan in 2012 http://www.sciencedirect.com/science/article/pii/S2352013216301879 [1]. Myocardial infarction (MI) is the leading cause of death globally and is a worldwide health problem http://www.sciencedirect.com/science/article/pii/S2352013216301879 [2]. Both primary and secondary prevention of MI are major priorities. Diagnosis of acute myocardial infarction (AMI) is based on the type of electrocardiography changes, which are of two types: ST-segment elevation MI (STEMI) and non-ST-segment elevation MI (NSTEMI) http://www.sciencedirect.com/science/article/pii/S2352013216301879 [2].

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The management of patients with STEMI includes either sending them directly to the cardiac catheterization laboratory to re-open the occluded vessels using a procedure called primary percutaneous coronary intervention (PPCI) or emergency administration of fibrinolysis if the facility of PPCI is not available. Indeed, PPCI is considered a superior treatment for patients with STEMI when it is available within the necessary time period http://www.sciencedirect.com/science/article/pii/S2352013216301879 [3], and patients may be discharged within 48 h, leaving little time for secondary prevention to be established.

Patients with AMI who presented with NSTEMI are treated initially by medication rather than with a fibrinolytic agent. For both NSTEMI and patients with AMI treated with fibrinolytic, they frequently require coronary angiography before hospital discharge with possible percutaneous coronary intervention (PCI) by opening the occluded vessel through stent or percutaneous transluminal coronary angioplasty by opening the occluded vessel through balloon http://www.sciencedirect.com/science/article/pii/S2352013216301879 [4]. As a result, each one of the three AMI treatment modalities is exposed to different experiences during hospitalization in terms of treatment urgency and length of stay. Literature claims that this may influence patients' understanding of their diagnosis http://www.sciencedirect.com/science/article/pii/S2352013216301879 [5] and motivation for secondary prevention, and this study seeks to address this gap.

All patients with either STEMI or NSTEMI will be told that they have had a heart attack and, where appropriate, are advised to make behavioral changes http://www.sciencedirect.com/science/article/pii/S2352013216301879 [6]. However, given the very different experiences in terms of urgency of treatment initiation and hospital stay length, it is understandable that it can be difficult for all patients with an AMI diagnosis to understand this fully http://www.sciencedirect.com/science/article/pii/S2352013216301879 [5]. Research has shown that some patients who had PPCI perceived a mismatch between their expectations of treatment and recuperation and their actual experience, which led them to question the seriousness of their illness, and to consider it as acute rather than as a chronic condition http://www.sciencedirect.com/science/article/pii/S2352013216301879 [5]. Such perceptions may make it more difficult for patients to understand the chronicity of their illness and undertake the lifestyle changes necessary to prevent further disease progression http://www.sciencedirect.com/science/article/pii/S2352013216301879 [7]. Less evidence is found in terms of patients' understanding of an NSTEMI diagnosis, but qualitative data would suggest that their experience of a protracted and sometimes ambiguous diagnosis may also cause patients to question the seriousness of the event and the need for behavioral change http://www.sciencedirect.com/science/article/pii/S2352013216301879 [8].

Illness perception (IP) is the organized cognitive representation or views that patients develop to make sense of their illness experience http://www.sciencedirect.com/science/article/pii/S2352013216301879 [9]. The Self-Regulation Model (SRM) of Leventhal et al. (1984) provides a theoretical explanation of the concept of IP and the factors that influence individual's coping behavior and outcomes. The model postulates that when an individual is facing a health problem, he or she will be motivated to regulate the health-related risk consistent with his or her perception of an illness. According to the SRM, outcomes of behavioral changes are a reflection of patients' coping strategies that, in turn, are affected by their illness beliefs.

Secondary prevention is the second level of heath care that includes measures to control and limit the negative impact of an illness. Among patients diagnosed with MI, secondary prevention measures are highly recommended to avoid further disease progression and complications. These measures mainly include physical activity, smoking cessation, blood pressure and lipid management, and weight control http://www.sciencedirect.com/science/article/pii/S2352013216301879 [10].

The IP of patients with AMI has been considered a predictor of their functional status, returning to work, depressive symptoms, and attendance at cardiac rehabilitation clinics http://www.sciencedirect.com/science/article/pii/S2352013216301879 [11]. Although IPs are an important determinant of individual behavioral changes in CAD http://www.sciencedirect.com/science/article/pii/S2352013216301879 [12], sparse evidence is found regarding the implication of the fast track services of PPCI on patients' psychological and health behavior changes, and little is known about AMI patients' experiences and perceptions during and after PPCI http://www.sciencedirect.com/science/article/pii/S2352013216301879 [13]. To our knowledge, this is the first study to compare IP and associated outcomes among patients with AMI receiving different treatment modalities. This study aims to evaluate if treatment modality influences IP and the outcomes of behavioral change (obesity, smoking status, blood lipids, physical activity, and blood pressure) among patients with AMI. Hence, the present study aims to answer the following question: Do patients with AMI differ in IP and secondary prevention outcomes (SPO) depending on the treatment they received?

2. Methods

2.1. Design

A quantitative repeated-measure design was used to assess the influence of the three selected treatment modalities on IP and the outcomes of behavioral change among patients with AMI. This design was appropriate to collect and examine changes in study measures during patients' hospitalization and after 6 months.

2.2. Sample and setting

This study was conducted in the International Heart Institute in Amman. As the largest heart institute in Jordan and having patients admitted from across Jordan, we choose this institute and assume that the Jordanian population will be fairly represented. In addition, this institute is a specialized heart institute with a total of 170-bed capacity and performs cardiac surgery in addition to more than 12,000 cardiac catheterization procedures annually, including PPCI. This heart institute provides care for patients from Jordan, the region, and worldwide.

A convenience sampling technique was used to recruit the participants in the current study. The inclusion criteria were as follows: first-time AMI, over 18 years of age, physically and mentally competent, pain free and hemodynamically stable in which they have stable vital signs for more than 8 h, and agreed to participate in the study. The exclusion criteria were as follows: patients had previous MI and refused to participate in the study.

The power analysis calculation indicated that a sample of 186 patients was required, with confidence interval of 5%, 95% confidence level, and estimated number of 365 patients admitted annually to the hospital presented with first-time AMI. To account for attrition in the follow-up time, 10% was added to the calculated sample size; consequently, 206 patients were recruited to meet the target sample of 186 patients.

2.3. Data collection procedure

Approval for the study was sought and obtained from one of the Universities in the United Kingdom and from the hospital research

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