'I am still a bit unsure how much of a heart attack it really was!' Patients presenting with non ST elevation myocardial infarction lack understanding about their illness and have less motivation for secondary prevention

Lisa Dullaghan, Lisa Lusk, Mary McGeough, Patrick Donnelly, Niall Herity and Donna Fitzsimons

*Eur J Cardiovasc Nurs* published online 3 June 2013
DOI: 10.1177/1474515113491649

The online version of this article can be found at:
http://cnu.sagepub.com/content/early/2013/05/31/1474515113491649
‘I am still a bit unsure how much of a heart attack it really was!’ Patients presenting with non ST elevation myocardial infarction lack understanding about their illness and have less motivation for secondary prevention

Lisa Dullaghan1, Lisa Lusk1, Mary McGeough2, Patrick Donnelly1, Niall Herity2 and Donna Fitzsimons2,3

Abstract
Background: There are considerable differences in the type of treatments offered to patients presenting with acute myocardial infarction (AMI), in terms of the speed and urgency with which they are admitted, treated and discharged from hospital. The impact of these different treatment experiences on patients’ illness perception and motivation for behavioural changes is unknown.

Aim: The aim of this study was to explore and compare patients’ illness perception and motivation for behavioural change following myocardial infarction (MI) treated by different methods.

Methods: Semi-structured, domiciliary interviews (n=15) based on the common sense model of self regulation, were conducted with three groups of MI patients within four weeks of diagnosis: (a) primary percutaneous coronary intervention (PPCI) (n=5); (b) thrombolysis (n=5); (c) non ST elevation MI (NSTEMI) (n=5). Framework analysis was used to identify and compare themes between groups.

Results: Patients presenting with a ST -elevation MI (STEMI) receiving either PPCI or thrombolysis had similar perceptions of their illness as a serious, life-threatening event and were determined to make lifestyle changes. In contrast, patients with a NSTEMI experienced uncertainty about symptoms and diagnosis, causing misconceptions about the severity of their condition and less determination for lifestyle changes.

Conclusion: Patients with NSTEMI in this study expressed very different perceptions of their illness compared to those experiencing STEMI. Patients’ clinical presentation and treatment experience during an AMI can impact on their illness perception, motivation for behavioural change and uptake of cardiac rehabilitation. Nurses should consider the patients’ illness experience and perception when planning secondary prevention interventions.

Keywords
Myocardial infarction, primary angioplasty, illness perception, secondary prevention, common sense model, qualitative

Received 25 November 2012; revised 10 April 2013; accepted 6 May 2013

Introduction
Acute myocardial infarction (AMI) is a major cause of death and morbidity affecting people at global, regional and local levels. The differences in the pathology and manner of AMI presentation have led to separate diagnostic sub-categories and different recommended treatment modalities for each sub-category.1 Thus there are considerable variations in the type of treatment offered to patients presenting with AMI, in terms of...
the speed and urgency with which they are admitted to the catheter laboratory and discharged from hospital. Primary percutaneous coronary intervention (PPCI) has been established as an effective treatment for acute ST-elevation myocardial infarction (STEMI) patients. Patients receiving PPCI are admitted directly to the catheter laboratory for treatment and generally experience a shortened hospital stay. PPCI delivers better outcomes for STEMI patients in terms of mortality, re-infarction, stroke, bleeding and the need for coronary artery bypass grafting. However, while PPCI does have undisputed clinical advantages, the shorter hospital stay allows less time for patient education and support associated with Phase 1 cardiac rehabilitation. Previous studies suggest that patients receiving PPCI are more likely to regard themselves as ‘fixed’ and question the severity of their diagnosis. There are concerns for PPCI patients that misconceptions around what had happened, and the seriousness of their condition, can lead to poor uptake of secondary prevention. It is widely recognised that patients’ illness beliefs affect future behavioural change, however there is little evidence regarding the implications of the fast track service and shorter hospital stay afforded by PPCI.

The treatment experience for patients receiving PPCI is likely to be different to that of STEMI patients receiving thrombolysis and patients being treated for a non ST-elevation myocardial infarction (NSTEMI). NSTEMI patients will be treated with medications initially and frequently do not have an immediate diagnosis due to inconclusive electrocardiographs (ECGs). These patients will be taken to the laboratory for angioplasty as a planned procedure, if appropriate, and in this setting may have inpatient waits for up to 72 h for this as it is a non-urgent procedure. The treatment experience for NSTEMI patients is not well evidenced. The differences in treatment modality for AMI may not only impact on the patients’ experience of their myocardial infarction (MI), but also on their illness perception and motivation for behavioural changes following it. Patients’ initial perceptions and understanding of their AMI are important determinants of their recovery and motivation for lifestyle changes and secondary prevention. Radcliffe et al. (2009) asserted that further research is needed to make comparisons between patients who received PPCI and who were thrombolysed to determine if the treatment experience affects compliance with secondary prevention. Presently there is no study that compares the treatment experience of patients treated for AMI by the different methods and its impact on their illness perception and compliance with secondary prevention. This study aimed to address that gap.

This study was guided by the common sense model of self regulation of health and illness of Leventhal et al. (see Figure 1). Other theoretical frameworks were considered but Leventhal et al.’s model was chosen as it provides a dynamic framework for understanding the complexities of behaviours in response to events such as illness. This approach proposes that in response to an illness or health threat, people form their own common sense beliefs or illness perceptions about their illness and treatment. These illness perceptions influence the types of healthy behaviours and coping strategies that patients use for managing their illness and these may impact on disease outcomes.

**Study aim**

The aim of this study was to explore and compare patients’ illness perceptions and motivation for behavioural changes following MI treated by different methods.

**Methodology**

A deductive qualitative approach was chosen as this enabled detailed exploration and comparison of patients’ experiences.
of their illness between the three groups,\textsuperscript{12,13} and allowed the salient features of their individual experiences to be identified and further explored. Qualitative methods are suited to eliciting patients' detailed understanding and perceptions of illness and have been employed in many other similar studies.\textsuperscript{8,10} Leventhal et al.'s common sense model of self regulation of health and illness,\textsuperscript{11} provided the framework for the interview schedule and analysis of data. A framework approach to qualitative data analysis is particularly useful when the intention is to compare data across different groups or against a specific theoretical construct.\textsuperscript{14} This paper presents the qualitative component of a larger mixed methods, cross-sectional study.

**Study design**

**Setting**

Patients were recruited from three major teaching hospitals in an urban area. Two of the hospitals provide a 24-hour primary angioplasty service: the other hospital provides thrombolytic-based care for patients presenting with STEMI.

**Sample**

A stratified, purposive sample was selected as the most appropriate for this study. There were three groups of patients recruited:

(a) PPCI group: patients who had a confirmed diagnosis of STEMI treated by PPCI
(b) Lysed STEMI group: patients who had confirmed diagnosis of STEMI treated by immediate thrombolysis, then PCI if appropriate
(c) NSTEMI group: patients who had confirmed diagnosis of NSTEMI, treated by PCI if appropriate

Purposive sampling was used to ensure maximum variation of variables such as age and gender. Five patients were recruited to each of the groups (see Table 1). Patients with a history of a previous MI were excluded, to ensure that responses were not influenced by previous experience.

**The interview**

An interview guide was developed around the components of Leventhal et al.’s common sense model of self regulation of health and illness.\textsuperscript{11} Patients were asked about symptoms/illness identity, causes, consequences, timeline and controllability. The interview guide was used to initiate discussion of the patients’ experience and retain focus on the phenomena of interest, but patients were encouraged to discuss the aspects of their experience they felt were most relevant.\textsuperscript{15} The semi-structured interviews began with questions about what happened when the patient had their MI and their experience of the treatment they received. This served as a starting point for further discussion around the components of the Leventhal et al. model, which included patients’ beliefs about the cause/s of their MI, their personal ability to control the illness and intentions regarding lifestyle changes following their AMI.

Patients were interviewed between one and four weeks after their MI. The interviews were conducted by the researcher in the patients’ homes and lasted between 30–80 minutes. All of the interviews were audio-taped with the patients’ permission using a small digital device.

### Table 1. Sample characteristics and groups.

<table>
<thead>
<tr>
<th>Patient no.</th>
<th>Age</th>
<th>Gender</th>
<th>Diagnosis</th>
<th>Treatment group</th>
<th>LV function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>66</td>
<td>Male</td>
<td>Inferolateral STEMI</td>
<td>Lysed STEMI</td>
<td>Mildly impaired</td>
</tr>
<tr>
<td>2</td>
<td>62</td>
<td>Male</td>
<td>NSTEMI</td>
<td>NSTEMI</td>
<td>Normal</td>
</tr>
<tr>
<td>3</td>
<td>56</td>
<td>Male</td>
<td>Anterolateral STEMI</td>
<td>PPCI</td>
<td>Normal</td>
</tr>
<tr>
<td>4</td>
<td>44</td>
<td>Male</td>
<td>Inferior STEMI</td>
<td>Lysed STEMI</td>
<td>Mildly impaired</td>
</tr>
<tr>
<td>5</td>
<td>44</td>
<td>Male</td>
<td>Inferoposterior STEMI</td>
<td>Lysed STEMI</td>
<td>Moderately impaired</td>
</tr>
<tr>
<td>6</td>
<td>57</td>
<td>Male</td>
<td>NSTEMI</td>
<td>NSTEMI</td>
<td>Normal</td>
</tr>
<tr>
<td>7</td>
<td>66</td>
<td>Male</td>
<td>NSTEMI</td>
<td>NSTEMI</td>
<td>Normal</td>
</tr>
<tr>
<td>8</td>
<td>62</td>
<td>Female</td>
<td>Anterior STEMI</td>
<td>PPCI</td>
<td>No ECHO done during admission</td>
</tr>
<tr>
<td>9</td>
<td>62</td>
<td>Male</td>
<td>Anterior STEMI</td>
<td>PPCI</td>
<td>Normal</td>
</tr>
<tr>
<td>10</td>
<td>56</td>
<td>Female</td>
<td>Inferior STEMI</td>
<td>Lysed STEMI</td>
<td>Normal</td>
</tr>
<tr>
<td>11</td>
<td>59</td>
<td>Male</td>
<td>NSTEMI</td>
<td>NSTEMI</td>
<td>Normal</td>
</tr>
<tr>
<td>12</td>
<td>56</td>
<td>Male</td>
<td>Anterolateral STEMI</td>
<td>PPCI</td>
<td>Normal</td>
</tr>
<tr>
<td>13</td>
<td>73</td>
<td>Female</td>
<td>Anterolateral STEMI</td>
<td>Lysed STEMI</td>
<td>Moderately impaired</td>
</tr>
<tr>
<td>14</td>
<td>58</td>
<td>Male</td>
<td>Anterior STEMI</td>
<td>PPCI</td>
<td>Normal</td>
</tr>
<tr>
<td>15</td>
<td>56</td>
<td>Female</td>
<td>Anterior STEMI</td>
<td>PPCI</td>
<td>Normal</td>
</tr>
</tbody>
</table>

NSTEMI: non ST-elevation myocardial infarction; PPCI: primary percutaneous coronary intervention; STEMI: ST-elevation myocardial infarction; LV: Left Ventricular; ECHO: echocardiogram.
Ethics

Data collection proceeded after the study was approved by the local Research Ethics Committee and all patients gave written informed consent.

Data analysis

The interviews were transcribed verbatim and any identifiers removed. Data were analysed using the stages of the framework method of analysis; familiarisation, identifying a thematic framework, indexing, charting, mapping and interpretation. The data in each group were analysed separately initially to obtain an account for each treatment experience. Each groups’ transcripts were read and re-read by the researchers to increase familiarity. Key issues and themes were identified and a thematic framework was developed. This framework was applied to the transcripts and themes were coded and charted. This allowed the refined themes to be mapped and interpreted to give a full account of the investigated phenomena. The accounts from each group were compared to find similarities and differences between the groups. To enhance rigour, a process of member checking was employed in which, the researcher returned to two patients and discussed the descriptive account of their groups’ phenomena to ensure the researcher’s analysis adequately reflected their account.

Findings

Four themes developed from the analysis of the interviews and will be presented in this section: (a) impact of treatment urgency; (b) clarity of diagnosis; (c) taking control; and (d) motivation for lifestyle changes.

Impact of treatment urgency

Both the PPCI and lysed STEMI groups described traumatic experiences of receiving fast and ‘life saving’ treatment for their AMI. Patients in the PPCI group described developing chest pain and being rushed to the cardiac catheterisation laboratory. Patients in the lysed STEMI group described developing chest pain, being given thrombolysis by the cardiac ambulance at the scene, then being taken directly to the Coronary Care Unit (CCU). Both PPCI and lysed STEMI patients spoke about the speed of the treatment and their perception of rapid recovery:

I took those pains in my chest at 12.10 pm and at 1.40 pm I was sitting up in bed eating tea and toast with a stent fitted. It was amazing, absolutely amazing. (PPCI patient 13)

I think it was the right treatment at the right time and the fact I came round fairly quickly and there is no damage done to the heart itself speaks volumes for that. (Lysed STEMI patient 1)

The patients in both groups viewed their experiences as a life-threatening situation. This impacted on their perception of the illness, as the urgency of treatment was a major factor in both groups’ understanding of the gravity of the heart attack:

I then realised that this is really serious, up to that I thought I was having a heart attack, ok that is bad enough, I just didn’t think it was as terminal or as final as it could have been. (PPCI patient 10, describing being rushed to the laboratory)

In contrast the NSTEMI group did not have the same urgency of treatment and did not describe similar traumatic experiences of their hospital admission. All these patients had inconclusive ECGs and waited in the accident and emergency department for blood test results. For example, ‘I was seen fairly quickly, I don’t think I was rushed through, but was certainly taken reasonably quickly and seen to’ (NSTEMI patient 7).

The treatment experiences were not viewed by the NSTEMI patients as a life-threatening situation, and had an immediate impact on their beliefs about the illness severity. For example, ‘My impression early on was that it was really quite mild. Just compared to what was happening all round me [in CCU]. I felt I had got off quite lightly’ (NSTEMI patient 7).

These excerpts confirm that the urgency of the patients’ investigations and treatment impacted on how seriously they viewed their illness.

Clarity of diagnosis

All of the PPCI and lysed STEMI patients were informed of their AMI diagnosis by health-care staff before treatment was commenced. However some PPCI patients reported that the speed of recovery caused them some uncertainty about what had actually happened. For example, ‘I didn’t feel like anything serious had happened to me, because it seemed to be so easily addressed’ (PPCI patient 14).

Similarly the speed of recovery and rapid resolution of symptoms caused the lysed STEMI patients to question if they really had had a heart attack. For example, ‘I started to feel much better and by the time I got to hospital was feeling reasonably well. To be honest I started to wonder if that [heart attack] was really what had happened’ (lysed STEMI patient 6).

In contrast to the PPCI and lysed STEMI groups, the NSTEMI patients did not have an immediate and definite diagnosis of a heart attack. This was viewed by the patients as uncertainty about their diagnosis, which led them to believe their condition was mild:

The nurse called me and said the ECG was clear, I thought ‘great, maybe it’s just angina’. (NSTEMI patient 9)
At that stage I felt like an absolute fraud. I thought ‘What are doing in here? There is nothing wrong with you’. (NSTEMI patient 2, diagnosed with triple vessel disease but refused to wait for inpatient coronary artery bypass surgery)

Two patients in the NSTEMI group did not need coronary artery stenting when they went for angiogram, further reinforcing to them that they had experienced a mild event. One said, ‘I am still a bit unsure how much of a heart attack it was’ (NSTEMI patient 12).

These quotations demonstrate that expedient treatment can leave all groups of AMI patients feeling unsure about their condition but that this is most marked for the NSTEMI group.

Taking control

It is interesting that despite these perceptions of urgent and efficient treatment for a serious event, all patients in the PPCI group saw their heart attack as a chronic, long-term condition and felt control of it was in their hands. These patients recognised that although they had received coronary artery stenting, they still had heart disease which could progress. One said, ‘I will do my best to halt what is going on, I have no intention of going back to clogged arteries’ (PPCI patient 4).

Many of the PPCI patients felt the illness could impact their life in a positive way, as the changes they had made as a consequence of the AMI would improve their overall health.

The lysed STEMI patients also felt that control of their condition was largely in their hands. However, they varied in their views about their heart attack being a long-term condition. One said, ‘I would have thought short term now because hopefully I am only going to get better. I don’t see any reason why I would have it long term. It was just a mishap’ (lysed STEMI patient 6).

This can, in part, be attributed to the fact that patients also felt their health would be better as a consequence of their MI and the lifestyle changes that they were making. Similarly to the PPCI group, the lysed STEMI patients felt that they could halt the progression of the disease through lifestyle changes:

Yes, the heart attack has impacted my lifestyle but for the better, I have stopped smoking – for 6 weeks coming. Plus I am eating better. In a way it is good, I think it was the wakeup call that I needed. I needed a kick up the backside. (lysed STEMI patient 11)

Similarly, in the NSTEMI group, most viewed the condition as long-term. Patients also recognised that control was in their hands: however, control of the condition proved difficult for some patients. For example, ‘You think to yourself, “I wonder if I can do that?”’, “Will it bring on an angina attack? Am I going to have to use the spray and sit down for 10 minutes or something?”’ (NSTEMI patient 9).

One patient in the NSTEMI group, who did not receive coronary artery stenting, had been readmitted twice with chest pain which he felt was probably anxiety-related: ‘Well you feel that there is something there and I can’t do anything about it. It is not like you can just go home and cut this out’ (NSTEMI patient 12).

These findings demonstrate that all groups recognised their AMI as a long-term condition which they needed to take control of. However, taking control of the condition proved to be more difficult for the NSTEMI group, and this can be attributed to a lack of understanding about their condition.

Motivation for lifestyle changes

Both the PPCI and lysed STEMI patients had identified their personal risk factors and were addressing them. For example, ‘The choice has been taken away from me whether to smoke or not, because of what has happened. I’m petrified of smoking’ (lysed STEMI patient 11).

Both the PPCI and lysed STEMI groups had started making lifestyle changes which they were intending to maintain in the long term. All of the PPCI and lysed STEMI patients had the intention of engaging with cardiac rehabilitation classes. One said, ‘That will just be my lifestyle now. It’s changed for good’ (PPCI patient 15).

In contrast the NSTEMI group did not have the same overall uptake of new healthy behaviours. For example, ‘I know I am changing my lifestyle to a certain extent but I can’t see myself doing a complete turnaround’ (NSTEMI patient 7).

The NSTEMI group all recognised that lifestyle changes needed to be made for the long term: however, they described varied levels of confidence in achieving these. While all patients appeared determined to undertake new lifestyle changes, they seemed uncertain if they would succeed in maintaining them. For example, ‘Never say "never," because you are kicking yourself in the backside doing that, so my attitude at the moment is I will not smoke for as long as I can possibly avoid it’ (NSTEMI patient 2).

Two patients were unsure if they would attend the cardiac rehabilitation classes. One of these patients explained that he did not need to attend as classes on diet were basically ‘common sense’. However, during the interview he acknowledged that poor diet was one of his biggest risk factors. These results demonstrate that although all groups recognised the need to make lifestyle changes, members of the NSTEMI group did not have the same motivation to adopt and maintain new healthy behaviours.

Discussion

The most significant finding of this study was that, for NSTEMI patients’, initial uncertainty about diagnosis could
lead to reduced understanding about their condition and its seriousness, and this adversely affected their illness perception and motivation to change lifestyle or behaviour. NSTEMI patients interpreted their illness experience as meaning that their condition was less serious than other patients in the CCU. The NSTEMI group did not experience urgency of treatment and did not view their investigations and treatment as a life-saving event, which was in contrast to the PPCI and Lysed STEMI groups. These factors led the NSTEMI patients to perceive their illness as ‘mild’ and that they had ‘got off lightly’. Previous studies have shown that patients’ subsequent acceptance of treatment and lifestyle changes will be based on their own perception of risk rather than the clinician’s assessment. The results of this study echo this, as control of the illness appeared difficult for some of the NSTEMI patients, particularly in relation to halting the progression of the condition and the management of symptoms. Not all of the NSTEMI patients were planning to engage in cardiac rehabilitation. Previous studies have shown that underestimating the severity of their condition can affect a patient’s motivation to make healthy lifestyle changes and their attendance at cardiac rehabilitation, and the results of this study support those findings.

Originally, the focus of this study was the effects of the ‘fast track’ PPCI service, and the shorter hospital stay it affords, on patients who received the treatment. There were previous concerns outlined in the literature for PPCI patients that misconceptions about what had happened, and the seriousness of the condition, could lead to poor update of new healthy behaviours. However concordance with lifestyle changes did not appeared adversely affected in either of the PPCI or Lysed STEMI groups in this study. Both groups were committed to maintaining new healthy behaviours in the long term. This is in keeping with Condon and McCarthy’s (2006) findings that survival was a major factor in motivating and empowering patients to undertake lifestyle changes in the early recovery period following an AMI. Patients’ focus on surviving the heart attack has considerable impact, as many patients believe that their heart attack could have resulted in death. Participants in both groups (PPCI and lysed) were intending to engage with cardiac rehabilitation, as they recognised the importance of secondary prevention. This can also be attributed, in part, to their treatment experience, as patients who view their symptoms as serious and having severe consequences are more likely to attend cardiac rehabilitation.

This study demonstrated that the initial uncertainty about diagnosis and lack of understanding about their condition had a negative impact on the NSTEMI group, causing misconceptions about the severity of their condition. These misconceptions need to be identified early by health-care practitioners, in order to address any uncertainties and allow interventions that promote patients’ understanding of their illness. This study has illustrated that patients’ different treatment experiences for an AMI can impact their perception of their illness and has implications for their concordance with healthy lifestyle behaviours. Early interventions can positively change illness perceptions and improve functional status for patients but the impact of the patients’ treatment experience on their perception needs to be considered by all health-care practitioners.

This study found concordance with healthy lifestyle behaviours was being achieved by both the PPCI and lysed STEMI groups. However the interviews took place within four weeks of the patients’ MI. For the PPCI and lysed STEMI groups this was still in the early recovery period after what they perceived to be a life-threatening event. Leventhal et al.’s common sense model of self regulation recognises that patients’ illness representations are constantly being reappraised and modified. Therefore, further research is needed to follow up these patients to assess the extent of maintenance of their new behaviours. This study is part of a larger mixed methods prospective study which will provide follow up data at one year and generate further evidence to clarify the validity of these results.

This study used a deductive approach as it was anticipated that the different treatment methods for AMI could impact the patients’ illness perception and compliance with secondary prevention. This could have introduced interviewer bias because, by necessity, the interviewer could not be blind to the treatment that the patient received. However, steps were taken to enhance the rigour of the investigation such as use of an interview schedule based on the Leventhal et al.’s common sense model of self-regulation and steps such as taping and transcribing the interviews verbatim and member checking. Additionally a more experienced researcher (DF) did undertake a separate analysis of a proportion of the interviews to enhance the confirmability of the findings.

Conclusion

This study has illustrated that the different treatment experiences for AMI can impact patients’ illness perception and motivation for behavioural changes. The study builds on previous research demonstrating that adherence to healthy lifestyle behaviours and participation in cardiac rehabilitation programmes are likely to be improved by strategies that take into consideration patients’ beliefs about their illness. It is important that all health-care practitioners have an understanding of the patient’s perception of their MI in order to individualise secondary prevention strategies and promote positive behaviour change. In addition this study identifies that the patients’ treatment experience and how it impacts on their illness perception also needs to be considered by health-care practitioners. It is hoped that the findings will contribute to the development of new individualised approaches to secondary prevention that meet the needs of all AMI patients.
Implications for practice

- This study demonstrated that the initial uncertainty about diagnosis and lack of understanding about their condition had a negative impact on the NSTEMI group, causing misconceptions about the severity of their condition.
- These misconceptions need to be identified early by health-care practitioners, in order to address any uncertainties and allow interventions that promote patients’ understanding of the illness.
- This study has illustrated that patients’ different treatment experiences for an AMI can impact on their perception of their illness and has implications for their concordance with healthy lifestyle behaviours.
- Early interventions can positively change illness perceptions and improve functional status for patients, but the impact of the patients’ treatment experience on their perceptions needs to be considered by all health-care practitioners.

Conflict of interest

The authors declare that there are no conflicts of interest.

Funding

The study was supported by Northern Ireland Chest, Heart and Stroke.

References