Primary angioplasty for heart attack: mismatch between expectations and reality?

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Accepted for publication 6 August 2008

Abstract
Title. Primary angioplasty for heart attack: mismatch between expectations and reality?.
Aim. This paper is a report of a study to explore patients’ experiences of primary angioplasty and assess their illness perceptions during early recovery.
Background. Primary angioplasty is recognized as the gold standard treatment for patients with ST elevation myocardial infarction, yet little is known about patients’ experiences of this treatment. Recent policy change has emphasized the need for clinical practice to be more patient-centred. One way to achieve this is to understand patients’ experiences of treatment better.
Method. A mixed methods exploratory study was carried out in 2006–2007 with a purposive sample of 29 patients. Data were collected 3–12 days after hospital discharge using (a) semi-structured interviews to explore participants’ experiences and (b) The Illness Perception Questionnaire to evaluate illness perceptions. Interview data were analysed using the Framework approach. Questionnaire data were used to inform the qualitative findings.
Findings. Participants were very positive about their treatment but experienced considerable emotional shock, which was exacerbated by the speed with which events occurred. Patients’ experiences were characterized by a mismatch between their expectations and reality. Questionnaire data supported the notion that they experienced difficulty in ‘making sense’ of their condition in a coherent way. They tended to see their condition as ‘acute’ rather than ‘chronic’ and their treatment as curative.
Conclusion. Patient education should include focused discussions addressing the ‘mismatches’ that may occur between their expectations and reality. In this way, a more coherent understanding can be promoted, with greater awareness of heart disease as a long-term condition requiring ongoing self-management.

Keywords: angioplasty, expectations, experiences, heart attack, myocardial infarction, nursing, patient education, rehabilitation
Introduction

The face of cardiac care has recently undergone rapid change. Percutaneous Coronary Interventions (PCI) have overtaken bypass surgery as the dominant revascularization treatment for coronary heart disease (CHD) (Bhargava et al. 2003). PCI is the generic term used to describe balloon angioplasty with or without adjuncts. Put simply, a catheter is inserted peripherally and directed into the coronary circulation under X-ray fluoroscopy to restore coronary blood flow. The first PCI was performed on a human being (Gruntzig 1978). Some 25 years later, almost 734,000 PCI procedures have been conducted in Europe alone (Cook et al. 2007). PCI has evolved from simple balloon angioplasty to what has been described as the current ‘stent’ revolution (Bhargava et al. 2003).

Primary PCI (p-PCI), also known as primary angioplasty, is the newest addition to the PCI suite and is used to treat evolving ST elevation myocardial infarction (MI). P-PCI offers several advantages compared to in-hospital thrombolysis. First, if delivered early, it offers significantly better clinical outcomes for patients. Mortality is reduced by about one-third, reinfarction by half and stroke by two-thirds (Hartwell et al. 2005). Second, the hospital stay is 2 days shorter (Department of Health 2008). These benefits make this treatment option attractive to both patients and healthcare funders. However, an unintended consequence of the shortened hospital stay is the reduced time available to provide education and support for patients and their families.

The number of patients treated with p-PCI in the United Kingdom (UK) is increasing. In 2006, 8% of patients with MI were treated using p-PCI compared with 22% in 2007 (Department of Health 2008). However, little is known about UK patients’ experiences of this relatively ‘new’ treatment option. The need for clinical practice and management to be more patient-centred has been emphasized in recent policy (Department of Health 2005). To achieve this, we need to understand patients’ experiences of hospitalization and, in particular, how specific features of their experience influence the way in which they ‘make sense’ of their condition.

Background

Emergency admission to hospital for MI is a frightening life-changing event. An individual’s response to their illness is strongly influenced by the way in which they interpret and understand their experience (Skelton & Croyle 1991). Leventhal’s self-regulatory model offers a framework for understanding the cognitive processes by which individuals interpret and ‘make sense’ of illness. People cluster unique ideas or ‘illness perceptions’ around five related themes: ‘identity’ (signs and symptoms? Does it have a name/label?), ‘Cause’ (what caused my illness?), ‘consequences’ (how serious is this condition and what will the consequences be?), time-line (how long will my condition last?) and cure/ control (is there a cure and is there anything I can do to control it?). These themes are consistent across a range of chronic conditions (Leventhal et al. 1980).

The literature about patients treated with elective coronary angioplasty indicates that, although patients are generally positive about their experiences (Gulanick et al. 1997), they are at risk of developing illness perceptions that do not match the reality of their condition. For example, they commonly underestimate the seriousness of their condition (Astin & Jones 2006), develop misconceptions about the cause of their disease (Astin & Jones 2000) and perceive angioplasty as curative (Shaw 1986, Gaw-Ens 1992, Wenger 1992, Gentz 2000, Astin & Jones 2006). Those recovering from MI often have similar misconceptions about their health (Petrie & Weinman 1997, French et al. 2005).

It has been suggested that the information provided by some healthcare professionals may inadvertently contribute to patients developing such misconceptions (Wiles & Kinmonth 2001). Moreover, the misconception of an MI as an acute illness rather than as an acute ‘marker’ of a long-term condition may contribute to lack of motivation amongst patients to make healthy lifestyle changes (Wiles & Kinmonth 2001). This is important, as there is considerable room for improvement in the lifestyle habits of patients with established CHD (Jennings et al. 2008).

Flawed illness perceptions are important because they have been shown to influence a range of health behaviours and outcomes, such as attendance at cardiac rehabilitation (Whitmarsh et al. 2003) and time taken to return to employment (Petrie et al. 1996). Illness perceptions also influence patients’ adherence to treatment regimes and disease management behaviours (Meyer et al. 1985, Gonder-Frederick & Cox 1991, Horne & Weinman 2002, Coutu et al. 2003, Brink et al. 2006, DiMatteo et al. 2007).

Although it is evident that some people with CHD develop flawed illness perceptions (French et al. 2005, Astin & Jones 2006), little is known about the way in which their hospital experiences might influence the formation and configuration of these. It may be more valuable to explore the features of patients’ experiences that act as ‘cues’ and ‘shapers’ of illness perceptions, rather than focusing on correcting inappropriate illness perceptions that are already ‘set’. A first step in this process is to understand patients’ hospital experiences from their perspectives and how these
might contribute towards the development of illness perceptions, faulty or otherwise.

The study

Aim

The aim of the study was to explore patients’ experiences of p-PCI and assess their illness perceptions during early recovery.

Design

As the experiences of this ‘new’ and expanding group have been largely unexplored we used mixed methods in this exploratory study. First, in-depth interviews with accompanying field notes were used to enable us to explore the complexity of patients’ perspectives and interrelationships between these (Mays & Pope 2000). A topic guide based on published literature was used to guide the interview (Thompson et al. 1995, Gentz 2000, Scott & Thompson 2003). Second, participants completed the Illness Perception Questionnaire Revised version (IPQ-R; Moss-Morris et al. 2002).

Study setting

The study setting was a large specialist UK cardiac centre providing a 24 hour p-PCI service for a population of approximately 3-1 million. At the time of the study most patients were transferred directly from home by ambulance to the Catheter Laboratory following diagnosis of ST elevation MI. A small number of patients presented at emergency department. During transfer paramedics contacted the Schedule Nurse, who alerted the Catheter Laboratory team. This was coordinated by coronary care staff out of hours. Following treatment, patients were transferred to the coronary care unit for 24 hours and when clinically stable relocated to one of three district general hospitals for the remainder of their 3-day stay.

Participants

All patients admitted for first-time p-PCI and who spoke fluent English were eligible to participate. Those with any history of a cardiac illness, e.g. angina, heart attack, coronary artery bypass surgery, were excluded as we wanted a population with a ‘fresh’ perspective on their admission to hospital, i.e. not informed by prior experience of hospital admission for a cardiac condition. Specialist research nurses identified and recruited participants on the basis of predefined criteria. We sampled purposively with the aim of ensuring a balance of male and females and younger and older age groups.

Data collection

Data were collected in 2006–2007. Specialist research nurses obtained informed consent from participants on the day of hospital discharge. One researcher not involved in recruitment conducted face-to-face interviews with participants in their homes. We chose to interview patients 3–12 days after hospital discharge for two reasons: first, because the early days of recovery have been identified as particularly difficult for patients after MI (Attebring et al. 2005) and we wanted to understand early recovery experiences as they happened, and, second, because during early recovery participants were more likely to have clear recall of events.

Prior to interview demographic details were collected. A topic guide was used to support consistency across interviews. Participants were asked to describe their experiences of p-PCI. Questions included: ‘can you tell me about your recent admission to hospital for your heart problem?’ and ‘could you tell me about any worries or concerns that you have?’ In response, participants described the development of their symptoms, admission to hospital, p-PCI treatment and first few days at home. Explanatory and clarificatory probes were used to explore their understanding. Interviews lasted between 30 and 90 minutes and were audiotaped. Field notes were also recorded and the IPQ-R was completed following interview.

Illness Perception Questionnaire (IPQ-R)

The IPQ-R (Moss-Morris et al. 2002) was developed to assess patients’ perceptions and beliefs about their illness. A detailed account of the scoring process is available at http://www.uib.no/ipq/. In brief, patients indicate on a 5-point Likertype scale their level of agreement (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree) with 38 statements about their condition.

The instrument was theoretically derived and consists of eight subscales, which reflect components of Leventhal et al.’s (1980) cognitive model of illness perceptions. These include patients’ beliefs about their disease identity, timeline and consequences. High scores on these items represent strongly held beliefs about the number of symptoms attributed to the illness, chronicity of the condition, negative consequences of the illness and cyclical nature of the condition. IPQ-R items also assess patients’ perceptions of personal control, treatment control, emotional representation and illness coherence.
High scores for these represent positive beliefs about the controllability of the illness and a personal understanding of the condition. The IPQ-R is a self-report questionnaire reported to have sound psychometric properties (Moss-Morris et al. 2002) and takes approximately 20 minutes to complete.

Data analysis

Framework analysis techniques were used to synthesize findings from the interview transcripts (Ritchie & Spencer 1994). Two researchers independently read and re-read ten transcripts to identify key categories and themes. Consensus was reached through a series of meetings convened to discuss the interpretations, thereby reaching consensus. The categories and themes were then used to develop a ‘framework’, which was systematically applied to all transcripts. In this way, relevant text was indexed in each transcript whenever a particular theme appeared and then organized into a grid. This made it possible to compare themes across participants. We searched for patterns and associations which characterized patients’ experiences, and particular attention was given to non-conforming cases.

All IPQ-R subscale items were summed and divided by the number of items on each particular scale. In this way, a final score for each subscale was calculated, which was indicative of patients’ beliefs and perceptions about their cardiac illness (strongly held, positive or otherwise). Subscale IPQ-R scores were used in two ways. First, beliefs and perceptions derived from IPQ-R scores were compared with categories and themes evident in the interview data. This contributed to the process of interpretation and verification. Second, IPQ-R scores were compared to scores from other published studies, thereby providing a context for interpretation.

Rigour

To ensure trustworthiness various approaches were adopted (Graneheim & Lundman 2004). To enhance credibility, particular attention was given to recruiting both male and female and older and younger participants, thereby capturing a variety of experiences. During analysis, transcripts were referred to consistently and characteristic quotations used to support the credibility of findings. In addition, independent data analysis was conducted by two researchers (FA, SJC).

Group findings were circulated to all participants as a way of confirming the credibility of our analyses in the light of their experiences. The majority (71%) provided written feedback, which generally supported our categories and themes.

Finally, field notes were taken during data collection which detailed the context of interviews, together with the researcher’s own personal biases and assumptions, and consideration was given to how these might influence analysis. To enhance dependability, a topic guide was used to ensure that the key questions posed were consistent across interviews. Data collection ceased once no new responses to questions were forthcoming.

Ethical considerations

The study was approved by the appropriate research ethics committees. Prior to giving written consent, participants received an information pack, which contained an information sheet giving details about the purpose of the study and advising them that they could withdraw at anytime without affecting their care. Interviews were conducted in a setting chosen by the participants, and all were given the choice of having a relative or friend present if desired. Anonymity was assured.

Findings

The final sample comprised 29 participants, and their characteristics are shown in Table 1. The mean age of participants was 60 years (range 36–83), 59% were men and 14% lived alone.

Figure 1 shows a hypothetical model linking the themes, which emerged from the analysis. These illustrate the process of p-PCI from the participants’ perspectives, including key elements of their experiences that influenced the way in which they ‘made sense’ of events.

Qualitative data

Three key themes characterized participants’ experiences of the p-PCI process. These were: (i) the speed of events, (ii) expectations and reality: a mismatch and (iii) emotional reactions. Supporting excerpts will be presented in accompanying tables.

(i) The speed of events

All participants were very positive about the quality of the service at the cardiac centre, and many likened it to private

| Table 1 Participant characteristics |
|-------------------------------|-----------------|-----------------------|
| N = 29 (%)                    | Age in years    | Living alone |
|                               | mean (range)    |            |
| Male 16 (59)                  | 59 (36–78)      | 1          |
| Female 13 (41)                | 60 (45–83)      | 3          |
care (Table 2, Quote 1). The efficient and speedy delivery of p-PCI clearly had an impact on participants’ views of their treatment. They were amazed at the speed of the process, but this simultaneously contributed to feelings of shock at what had occurred (Table 2, Quote 2). The rapid unfolding of events contributed towards participants feeling some uncertainty about what had occurred (Table 2, Quote 3). The majority felt ‘normal’ soon after their treatment, and this led them to question the seriousness of what had occurred (Table 2, Quote 4). For some, the experience had a dreamlike quality (Table 2, Quote 4). Participants used physical signs and symptoms as cues to enable them to make sense of what was happening to them, e.g. the presence of pain and feeling/looking unwell. Although they were relived by the rapid
resolution of symptoms as a result of the speedy delivery of p-PCI, some were left with feelings of uncertainty about exactly what had occurred.

(ii) Expectations and reality: a mismatch
As participants gave their accounts of events, it became apparent that their expectations did not always match the reality of what had occurred during hospitalization and early recovery. Some misconceptions were evident concerning the p-PCI procedure, whilst others centred on recovery.

General vs. local anaesthetic. Participants sometimes assumed that they were to have a general rather than local anaesthetic, but what they experienced felt somewhere in between (Table 3, Quote 1). They frequently referred to having an ‘operation’ and being on the ‘operating table’

### Table 2 Speed of events

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<thead>
<tr>
<th>Quote</th>
<th>Age</th>
<th>Description</th>
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<tbody>
<tr>
<td>Quote 1: Male aged 61</td>
<td>'It were very good, in actual fact, it were like being a private patient really, you know, I mean, I didn’t expect anything like that to happen at all'. (M1)</td>
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<tr>
<td>Quote 2: Female aged 45</td>
<td>'Within 2 hours I was lying in a bed recovering after what they’d done, it was amazing, a bit of a shock'. (F10)</td>
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<tr>
<td>Quote 3: Male aged 36</td>
<td>'I don’t know – it was a mixed sort of emotions, I didn’t know what to think, or everything happened so quick'. (M36)</td>
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<td>Quote 4: Male aged 55</td>
<td>'By 5 am it was all over, waking up as normal in the morning without any problems as such, just a slight bit of bruising where they’ve been operating…it seemed like, er, a dream (laughter) it… I just couldn’t understand what all the fuss is about that, you know, people were making – um family and friends and all totally worried – and yet I felt OK (laughing). So yes, it was just like a small dream – did it really happen? (laughter). (M21)</td>
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### Table 3 Expectations and reality: a mismatch

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<thead>
<tr>
<th>Quote</th>
<th>Age</th>
<th>Description</th>
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<tbody>
<tr>
<td>Quote 1: Female aged 74</td>
<td>'Not conscious but you’re not unconscious either…It’s sort of an airy fairy feeling'. (F19)</td>
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<tr>
<td>Quote 2: Male aged 68</td>
<td>'They showed me this photograph before I’d had the operation’. (M25)</td>
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<tr>
<td>Quote 3: Male aged 48</td>
<td>'I thought your heart’s there (pointing to chest)(short pause) – easiest place to get in, like, never thought they were going (slight laugh) from top of your groin…there again, that’s progress, isn’t it (slight laugh)’. (M8)</td>
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<tr>
<td>Quote 4: Male aged 48</td>
<td>'As I say, I was just expecting (laughing), I mean, I don’t want to go down to the hospital just to scar me up a bit, like (laughing). But, er, no, I expected a bit more, bit more pain more pain and a lot more (short pause) bit more blood…it’s a lot like nothing’s happened.</td>
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<td>Quote 5: Male aged 57</td>
<td>'I felt great after that, once pain had gone away, I just felt brilliant, like, and I just wanted to get up and get off home’. (M2)</td>
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<tr>
<td>Quote 6: Male aged 48</td>
<td>'Obviously, there are different scales of heart attacks and everything…I must have been…one of the lucky ones, you know, didn’t have a really serious one’. (M8)</td>
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<tr>
<td>Quote 7: Female aged 70</td>
<td>'I’m not cut anywhere. I was trying to see where it went, but you can’t, it’s gone’. (F29)</td>
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<tr>
<td>Quote 8: Male aged 64</td>
<td>'How serious is serious…how do you define it?’. (M25)</td>
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<tr>
<td>Quote 9: Female aged 49</td>
<td>'I have got more energy, I’ve been up since 6 this morning’</td>
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<td>Quote 10: Male aged 67</td>
<td>'Well, (short pause) before I had the heart attack I must have known something were happening to me body, because I were tired all the time. Now I have so much energy that I’ve got to stop, I’m having to force myself to sit down, slow down, that’s what I’m on about. I mean, I could go out there now and I could literally dig the garden with the energy that I’ve got’. (M7)</td>
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<td>Quote 11: Male aged 64</td>
<td>'I just can’t believe from coming out of there, I can’t believe how well I feel. I just feel as though I could just get up and carry on as I were. I don’t feel as though there’s been any problem that’s stopped me, I don’t feel as though I’ve had a heart attack, it’s as simple as that’. (M26)</td>
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<td>Quote 12: Male aged 55</td>
<td>'I just feel that I’m not that bad, you know. It’s as if the whole thing was made not so much for what I’ve had done but for if somebody had to have like an ordinary heart operation and had to have full six weeks recovery…I just feel that, you know, within a few weeks I could perhaps even go back to work. I’m not saying that I should or even that I could, because I don’t know yet. But…I saw other people so much worse than me…is there…a test that says, ‘Oh yeah, if you’ve got past that you can skip to page 12?’’. (M21)</td>
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<tr>
<td>Quote 13: Male aged 64</td>
<td>'I can’t understand in that book, she told me I cannot drive for a month, and yet if it’s pre-planned and you have this stent, whatever it is, this, you know, the word for the operation, angioplasty, whatever it is, it’s a week. What difference does it make? Whether it’s planned or it isn’t planned? To me it’s still the same op’. (M25)</td>
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<tr>
<td>Quote 14: Male aged 57</td>
<td>'How can I put this? I’ve never, I’ve never felt ill. In fact, on Sunday I had a gentle walk up to (name of supermarket) again so that we could do some shopping. I had a gentle walk up there on my own, which is about 3 mile, um, did the shopping. My wife joined me up there and we both walked back again’. (M12)</td>
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(Table 3, Quote 2). Two aspects of their experiences could lead them to developing this misconception: completion of the consent form prior to angioplasty, which is also characteristic of a surgical operation and the fact that the catheter laboratory has features of an operating theatre, e.g. staff wearing surgical gowns and hats. In one case, the mismatch between expectations and reality was extreme. One man explained that he was shocked when he discovered that a general anaesthetic was not to be administered. He had incorrectly assumed that his heart would be accessed through his sternum, and he explained that he thought that they would ‘saw’ through his chest. To him, this approach was logical as it was the most direct means of accessing his heart (Table 3, Quote 3). He was too embarrassed to express his fears to staff, but was very relieved when a femoral approach was used.

Unexpectedly low levels of procedural pain. In some instances, there was a mismatch between participants’ expectations of procedural pain and the reality of their experiences. Although most experienced pain as part of their evolving MI, they were often surprised that the angioplasty procedure was not more painful (Table 3, Quote 4). The presence of pain was a powerful cue, and once it had resolved participants often felt ready to go home (Table 3, Quote 5). The level of procedural pain experienced was often used as an indicator of the severity of the heart attack, leading interviewees to make a distinction between those that were very serious compared to less serious (Table 3, Quote 6).

No scar. The way in which participants described their experiences and ‘made sense’ of the seriousness and consequences of this event varied, although all acknowledged that they had suffered a heart attack. The absence of a scar was another example of the mismatch between their expectations and reality. Although they had bruising at the femoral site, this resolved in time leaving no residual scar. Some expected to have a scar which was objective evidence of what had occurred (Table 3, Quotes 7). The lack of scar seemed to influence the way in which participants interpreted the seriousness of their condition, leading to misconceptions. In fact, the whole meaning of ‘serious’ was a matter of individual interpretation (Table 3, Quote 8).

Unexpected energy. Participants often experienced unexpected feelings of energy after p-PCI (Table 3, Quote 9). Although this new lease of energy was welcomed, it has implications for recovery. For example, some interviewees thought that the recommended levels of physical activity associated with early recovery were incongruent with the level of energy they felt (Table 3, Quote 10). Others reasoned that they felt so well that it seemed as if they had not had a heart attack (Table 3, Quote 11). In this way, the unexpected feelings of energy could influence the way in which participants interpreted the seriousness of their condition.

Interviewees were sometimes unclear about the difference between primary and elective angioplasty and bypass surgery. Some were keen to get back to work and thought that the recommended 6 week wait for this was more appropriate for someone who had had coronary artery bypass surgery rather than p-PCI angioplasty (Table 3, Quote 12). One participant could not appreciate why he should not drive his car after p-PCI. He did not understand why he should be restricted from driving for a longer period than a person treated with elective angioplasty for angina.

He could not distinguish between elective and p-PCI, as to him the procedures were alike (Table 3, Quote 13). This shows that participants often had difficulty in ‘making sense’ of the severity of their condition and relating this to their daily activity levels. This underestimation of severity sometimes led to unwise levels of physical activity; one participant put it quite simply by explaining that he had never felt ill and had walked for 6 miles on his first day home (Table 3, Quote 14).

(iii) Emotional reactions
When participants described their experiences of p-PCI, they identified a range of emotional reactions. The speed of events and mismatch between expectations and reality in the context of an unfamiliar and strange environment contributed to a range of emotions, such as shock, fear, disbelief and denial. The emotional aspects of the experience were as important as the physical aspects (Table 4, Quote 1).

Feelings of disconnectedness. Patients’ descriptions of their experiences in the catheter laboratory conveyed that they were extremely impressed with the technology used. This engendered a feeling of awe and a sense of being in a surreal environment (Table 4, Quote 2). In some cases, there was a feeling of disconnection from events and an inability to assimilate what was happening. It was almost as if the patient were looking from the outside in (Table 4, Quote 3).

Shock and disbelief. Participants experienced shock and disbelief in response to what was described as a ‘life-changing’ event (Table 4, Quote 4). This emotional shock appeared to affect their ability to recall events, and they often referred to difficulties in remembering events and information related to the p-PCI process or during early recovery (Table 4, Quotes 5 and 6).
Table 4 Emotional reactions

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<thead>
<tr>
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<tr>
<td>Quote 1: Male 61 years (M17)</td>
<td>‘Because at the time you’re not only, you’re ill physically, it’s mentally as well’</td>
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<tr>
<td>Quote 2: Female aged 49</td>
<td>‘Just them talking, you know, I just watched, it looked like a tree trunk, you know, with all these little spider things, and then I could see like a spider, like a little, little, I don’t know what it were. I was just fascinated and they were just talking as normal, and apparently I know what they mean now’. (F16)</td>
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<tr>
<td>Quote 3: Male aged 57</td>
<td>‘It was so unreal, you know, you could not believe that (anything) were happening. I went down (name) Road looking out the window and I could hear these people saying, ‘Keep with us, keep with us’, and I’m just looking out of the window and wondering what they were talking about (smiling)’. (M2)</td>
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<td>Quote 4: Female aged 59</td>
<td>‘No, no, you’re in no state, I mean I was shocked completely, I mean I was in shock, there’s no question about it, whether it’s because you think, ‘I can’t possibly be having a heart attack (slight laugh), ridiculous’, but I suspected that it would happen’. (F9)</td>
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<tr>
<td>Quote 5: Male aged 57</td>
<td>‘People were talking to me but I weren’t taking much notice, I mean they were telling me what they were doing but it just wasn’t sinking in – it were just over me head’. (M2)</td>
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<td>Quote 6: Female aged 47</td>
<td>‘I was sort of in a world that, you know, I was sort of semi-unconscious or semi-conscious...they gave me this information and keeping it there...obviously it was impossible for me to keep everything on board, so it’s remembering things now, bit by bit’ (F15)</td>
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<td>Quote 7: Female aged 56</td>
<td>‘It’s frightening that when they said, ‘You’re having a heart attack, you know, there’s all sorts goes through your mind – you can’t imagine it, and it’s so upsetting’. (F18)</td>
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<td>Quote 8: Male aged 57</td>
<td>‘They opened the ambulance doors and took me out and the nurses were waiting for me. The next thing, I was on the operating table looking up and watching this big screen (pause) and I was actually watching him do it all. I never felt a thing and I wasn’t scared or anything like that’ (M2)</td>
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<tr>
<td>Quote 9: Female aged 68</td>
<td>‘I can’t walk, I’m not going. I’ve no intentions, I’d be frightened to death’. (F27)</td>
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<td>Quote 10: Female aged 45</td>
<td>‘I was trying to watch it on the screen, you know, to take me mind off the pain and stuff, and then all of a sudden they gave me a shock that I weren’t expecting. Apparently the heart rate was going too fast and the only way to slow it down was to shock me – and it did, it was the most horrible thing I’ve experienced in the whole of my life’. (F10)</td>
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<tr>
<td>Quote 11: Female aged 47</td>
<td>‘When they took that sheath out, you know, it started bleeding very badly – it were very, very, bad and I thought, ‘My God, I’m bleeding to death now’. (F15)</td>
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<tr>
<td>Quote 12: Female aged 45</td>
<td>‘Well, I was saying that I weren’t having a heart attack, I had a virus (slight laugh). So I wouldn’t accept that I was having a heart attack...you think you pass out and collapse don’t you?’ (F22)</td>
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<tr>
<td>Quote 13: Female aged 39</td>
<td>‘I thought, ‘The less I know, the better it is for me...Because I actually thought it’s, it will go away, will this. In the back of me mind I’m thinking, ‘This will go away, it’s not me, it is not mine.’ I’m sort of pushing it to the back of my mind because I just don’t want to know’. (F27)</td>
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</table>

Feelings of fear. Interviewees were filled with fear at the news that they were having a heart attack, although women were more likely than men to report this. This may reflect the fact that men are less likely to disclose their fears than women (Table 4, Quotes 7 and 8). For some participants, feelings of fear persisted after treatment and affected activities such as sleeping and walking (Table 4, Quotes 9 and 10). Some aspects of p-PCI treatment were particularly frightening, such as the stemming of bleeding or unplanned cardioversion (Table 4, Quotes 11 and 12).

Denial. Some participants described how they had been unable to accept what was happening to them during the early stages of the experience (Table 4, Quote 13). In some cases, this influenced health information-seeking behaviour. One person, who was asked if she wanted to ask any questions, explained that she preferred to know less rather than more about what had occurred (Table 4, Quote 14).

Illness Perception Questionnaire Scores

Table 5 shows the mean IPQ-R scores from pilot data. Scores indicated that participants tended to view their illness as ‘acute’ rather than ‘chronic’. They saw it as having serious consequences and had a strong personal belief in both their treatment and their own ability to control their illness. Scores suggested that patients saw their treatment as curative. The mean score for ‘illness coherence’ was particularly high indicating that participants lacked a coherent understanding of their illness.

Data on ‘Cause’ were non-numerical and therefore excluded from this table. Participants most frequently attributed the causes of their CHD to cigarette smoking (38%), unhealthy diet/overeating (31%) and heredity (10%). Obesity, stress, previous chest infection and excess alcohol intake comprised the remaining 14% of causes, with 7% of patients unsure.
Patients’ experiences of primary angioplasty

Table 5  Illness Perceptions Questionnaire Scores after angioplasty

<table>
<thead>
<tr>
<th>Illness Perception Questionnaire Scores</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Minimum/maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identity (symptoms)</td>
<td>2.2</td>
<td>2.1</td>
<td>0–8</td>
</tr>
<tr>
<td>Timeline (acute/chronic)</td>
<td>16.8</td>
<td>5.0</td>
<td>7–27</td>
</tr>
<tr>
<td>Timeline (cyclical)</td>
<td>9.6</td>
<td>3.4</td>
<td>4–16</td>
</tr>
<tr>
<td>Consequences</td>
<td>19.8</td>
<td>3.9</td>
<td>12–28</td>
</tr>
<tr>
<td>Personal control</td>
<td>24.8</td>
<td>2.7</td>
<td>24–30</td>
</tr>
<tr>
<td>Treatment control</td>
<td>19.8</td>
<td>3.2</td>
<td>14–25</td>
</tr>
<tr>
<td>Emotional representation</td>
<td>16.5</td>
<td>5.6</td>
<td>6–30</td>
</tr>
<tr>
<td>Illness coherence</td>
<td>18.6</td>
<td>3.9</td>
<td>11–25</td>
</tr>
</tbody>
</table>

Discussion

The user’s perspective is important to inform service development, yet there is a lack of published material describing patients’ experiences of p-PCI. The aim of this study was to address this gap. We have also presented a hypothetical model of the p-PCI process from the participants’ perspectives.

Once symptoms had evolved and participants were identified as eligible for p-PCI, the speed of treatment delivery was for them simultaneously impressive and shocking. In practice little can be done to ameliorate this, as favourable clinical outcome is linked to rapid treatment. Patients were extremely positive about their treatment but experienced a variety of emotional reactions, exacerbated by the rapid pace at which events occurred.

They felt disconnected from what was occurring and experienced shock, disbelief, fear and denial. Their descriptions of feeling ‘disconnected’ appeared to characterize the recognized phenomenon of ‘depersonalization’. This is described as ‘a sense of unreality and detachment from oneself’ that occurs in response to extreme stress (Hunter et al. 2004, p. 9). This reaction is important because perceptions of events can be biased and recall influenced (Wissow 2007), which has implications for patient education. The role of denial in recovery is less clear, as in some cases it can have a positive effect through a ‘protective’ mechanism (Lazarus 1993). Emotional reactions are high on the list of challenges identified by patients recovering from a cardiac event (Jaarsma et al. 1995, Roebuck et al. 2001, Kristofferson et al. 2007).

Although the spectrum of emotions reported by participants in this study is similar to that experienced by MI patients treated with in-hospital thrombolysis (Thompson et al. 1995, Roebuck et al. 2001, Wiles & Kinmouth 2001), the context of patient care is not. This difference is important as those treated with p-PCI have a hospital stay 2 days shorter than their counterparts treated with in-hospital thrombolysis. In practice, this means that healthcare professionals have less opportunity to provide patient education and support. In the future it is likely that in-patient stays for p-PCI will decrease further.

A key feature of the p-PCI experience was the way in which emotional reactions appeared to blunt participants’ ability to remember what had occurred. This has implications for the provision of cardiac rehabilitation which, according to current recommendations, should start immediately. In the light of the rapid delivery of treatment, combined with shortened hospital stay, this may need to be reviewed, especially as participants often found it difficult to remember the details of information given to them. Other researchers have identified the importance of ‘pacing’ information provision after MI (treated with thrombolysis) to promote patient learning (Thompson et al. 1995). A greater focus on the ‘staging’ of health information provision and improved alignment with patient need might lead to improvement.

Patients’ experiences were typically characterized by a mismatch between their expectations and what occurred in reality. For example, they expected to have a general anaesthetic and more procedural pain. The lack of a scar and unexpected feelings of energy were incongruent with the seriousness of their condition and advice given about activities of daily living, such as physical activity and return to driving. The sudden resolution of the presenting pain, together with a ‘mismatch’ between their expectations and reality in the context of considerable emotional reaction, could easily lead to misunderstanding.

The way in which patients interpreted the severity of their condition was particularly susceptible to misinterpretation. This is important, as underestimation of severity may reduce a patient’s motivation to make healthy lifestyle changes, thereby reducing coronary risk (Wiles & Kinmouth 2001). Alternatively, such misconceptions might lead patients to engage in risky behaviours, such as inappropriate levels of physical exercise. At the other extreme, an overestimation of severity might lead to a level of fear which functions as a barrier to normal daily activities, resulting in ‘cardiac invalidism’. In this study, there were participants who represented both ends of the spectrum.

Questionnaire data showed that patients had mixed illness perceptions, some more realistic than others. One of the key topics they found difficult to understand was the chronic nature of their condition. After p-PCI, the majority viewed their illness as an acute event cured by their treatment, rather than as an acute ‘marker’ of a long-term condition. Other
studies support this finding (Wiles & Kinmouth 2001, Sampson et al. 2008). Similarly, patients undergoing elective (rather than primary) angioplasty often share the perception of their treatment as curative (Shaw 1986, Gaw-Ens 1992, Wenger 1992, Gentz 2000, Astin & Jones 2006). Furthermore, the widening of narrowed vessels as the target of successful treatment supports the notion of angioplasty as a curative treatment.

Although the majority of our participants viewed p-PCI as curative, they did view their illness as having serious consequences and had strong personal beliefs in both their treatment and their own ability to control their illness. Whether this translated into positive lifestyle change and medication management is unknown, but positive beliefs about one’s ability to perform tasks (also known as ‘self-efficacy’) have been shown to enhance levels of accomplishment and personal well-being (Bandura 1994).

Participants experienced some difficulty in ‘making sense’ of their illness in a coherent way. This finding was supported by the ‘mismatch’ between expectations and reality evident in the interview data as well as the poor IPQ-R ‘illness coherence’ scores. Lack of coherent understanding may contribute to uncertainty during recovery. Other authors have reported that participants undergoing revascularization using elective angioplasty experience greater levels of uncertainty during early recovery than those treated with bypass surgery (White & Frasure-Smith 1995). In an ideal world it would be preferable to prevent such misunderstanding before it is ‘set’ rather than trying to ‘correct’ it later. In a real-life setting, this might be impracticable, although publicity campaigns to emphasise p-PCI as a treatment rather than a cure for a MI might have some impact.

As part of ‘making sense’ of illness, individuals typically go through a process of searching for a cause. Several studies have shown that cardiac patients often have misconceptions about cause, and stress is a commonly cited cause (Astin & Jones 2000, French et al. 2005). However, in our study the most frequently cited causes were ‘poor diet’ and ‘cigarette smoking’, which is encouraging.

Coronary heart disease is a long-term condition requiring lifelong self-management to reduce risk. Ensuring that patients and families understand the ‘chronic’ nature of their condition is important. However, discussions about the chronicity and severity of disease need to be carefully tailored to individual need. In this study, a minority completely disregarded advice about physical activity levels, whilst others were too terrified ever to walk again. Reaching a satisfactory balance is a challenge, especially as opportunities for such discussions are hampered by situational factors such as lack of opportunity and emotional reactions.

**Study limitations**

The study was limited by the following factors. First, participants’ discussions of their illness experiences during the interview might have influenced the way in which they answered questions on the IPQ-R questionnaire, which was completed afterwards. Second, the use of personal interviews favours those who are willing to discuss their illness experiences. Thirdly, those from non-English-speaking backgrounds were excluded. Future studies could examine the whether the strong personal beliefs in treatment and control evident in this patient group influenced lifestyle change.

**What is already known about this topic**

- Primary angioplasty is a relatively new, gold standard treatment for ST elevation myocardial infarction, and little is known about patients’ experiences of this treatment.
- Patients’ beliefs, or ‘illness perceptions’, influence their recovery and are key determinants of psychological adjustment to illness.
- People with coronary heart disease are at risk of developing illness perceptions that do not match the reality of their condition.

**What this paper adds**

- During admission, the speed of events, mismatch between expectations and reality, and their emotional reactions were key influences on patients’ understanding of the primary angioplasty process.
- Patients’ illness perceptions were skewed towards believing that they had experienced an acute, curative episode rather than the manifestation of a long-term condition.

**Implications for practice and/or policy**

- Patient education should include focused discussions addressing the ‘mismatches’ that may occur between their expectations and reality.
- Public awareness campaigns and focused patient education are needed to promote greater awareness of this intervention as a treatment rather than a cure.
Conclusion

Cardiac rehabilitation practices may require review to ensure a closer alignment with advances in treatment and shortened hospital stays. It may be useful to ask patients and families to reflect on their hospitalization experience as a way of uncovering misunderstandings that they may have about their condition. This, coupled with publicity campaigns to emphasize p-PCI as a treatment rather than a cure for a MI, might raise awareness of CHD as a long-term condition requiring ongoing management, rather than as an acute condition which can be cured. Further research is required to verify our hypothetical model of the p-PCI process.

Acknowledgements

We would like to thank the study participants, as well as Mandy Dodson and Ruth Allcroft for administrative support and Kathryn Summers and Carol Hague for their assistance with recruitment.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Author contributions

FA was responsible for the study conception and design. FA and CP performed the data collection. FA and SJC performed the data analysis. FA and SJC were responsible for the drafting of the manuscript. FA, SJC, JM, SH and CP made critical revisions to the paper for important intellectual content. SJC supervised the study.

References
