

Acute Coronary Syndrome Pain and Anxiety in a Rural Emergency Department: Patient and Nurse Perspectives

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Rural patients can wait up to 32 hours for transfer to cardiac catheterization (CATH) for events related to acute coronary syndrome (ACS). Pain arising from myocardial ischemia can be severe and anxiety-provoking. Pain management during this time should be optimized in order to preserve vulnerable myocardial muscle. This qualitative focus group study solicited the perspectives of ACS patients and emergency staff nurses on the rural patient experience of cardiac pain and anxiety and priorities and barriers to optimal assessment and management of ACS pain. Patients described ACS pain as moderate to severe, with pain in the chest, arms, back, shoulders, and jaw. Pain was well assessed and managed upon arrival in the emergency department but anxiety was not routinely assessed or treated. Barriers identified were poor management of patients with different acuity levels, high patient volumes, and assumptions regarding patients’ communication about pain. Research related to ACS pain and anxiety management in the rural context is recommended.

Keywords: cardiology, cardiovascular disease, pain, rural and remote health care

Résumé

La douleur et l'anxiété associées au syndrome coronarien aigu : le point de vue des patients et du personnel infirmier d'un service d'urgence en milieu rural

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Les patients atteints d'un syndrome coronarien aigu (SCA) en milieu rural peuvent attendre jusqu'à 32 heures avant d'être transférés pour un cathétérisme cardiaque (CATH). La douleur associée à une ischémie myocardique peut être aiguë et provoquer de l'anxiété. La gestion de cette douleur devrait être optimisée afin de protéger le muscle myocardique, qui est en situation de vulnérabilité. Cette étude qualitative menée auprès d'un groupe cible visait à solliciter le point de vue de patients atteints d'un SCA et du personnel infirmier d'un service d'urgence en milieu rural concernant l'anxiété et la douleur cardiaque ressenties par les patients et concernant les priorités à adopter et les obstacles à surmonter pour une évaluation et une gestion optimales de la douleur liée à un SCA. Les patients ont décrit la douleur liée à un SCA comme étant légère ou aiguë et ont indiqué qu'elle se situait dans la poitrine, les bras, le dos, les épaules et les mâchoires. Selon les participants à l'étude, la douleur est évaluée et gérée adéquatement au moment de l'arrivée des patients au service d'urgence, mais l'anxiété, quant à elle, n'est pas évaluée ou traitée de façon systématique. Les obstacles mentionnés sont une mauvaise gestion des patients présentant des degrés de gravité différents, un volume important de patients et une tendance du personnel soignant à entretenir des a priori relativement à la communication par les patients de leur douleur. L'étude recommande que des recherches soient menées sur la gestion de la douleur et de l'anxiété liées au SCA en milieu rural.

Mots-clés : cathétérisme cardiaque, syndrome coronarien aigu, ischémie myocardique, douleur, anxiété, services d'urgence en milieu rural

Introduction and Literature Review

Acute coronary syndrome (ACS) refers to manifestations of coronary artery disease (CAD), including unstable angina (UA), non-ST-elevated myocardial infarction (NSTEMI), and ST-elevated myocardial infarction (STEMI) (Eftekhari, Bukharvoich, Aziz, & Hong, 2008; Grech & Ramsdale, 2003). In Canada, there are an estimated 70,000 ACS-related myocardial infarctions annually (Chow, Donovan, Manuel, Johansen, & Tu, 2006; Statistics Canada, 2010). In 2008–09 there were 109,109 ACS-related hospitalizations, with Ontario having a larger number (38,465) of hospitalizations for ACS events than any other province or territory. Further, that same year, there were 21,474 deaths attributed to ACS (Canadian Institute for Health Information, 2010).

National guidelines for the treatment of UA, NSTEMI, and STEMI stipulate that the gold standard of ACS treatment include emergent triage with rapid access (i.e., within 90 minutes of ischemia) to diagnostic catheterization (CATH) and reperfusion with percutaneous coronary intervention (PCI) (Antman et al., 2004; Bassand et al., 2007; Chow et al., 2006; Erhardt et al., 2002). Specifically, there is agreement that the ischemic time should not exceed 120 minutes (Antman et al., 2004; Bassand et al., 2007; Erhardt et al., 2002). However, access to rapid CATH can be problematic. In Canada, 50% of the population lives outside urban centres in rural or remote-rural communities, and evidence suggests that wait times for reperfusion therapies can be as long as 32 hours for those who live in rural areas (Cantor et al., 2009).

In Canada, “rural” is classified according to geographical location — that is, the population under consideration is living outside the commuting zone of an urban centre with a population greater than 10,000 (Statistics Canada, 2001). In terms of access to interventional cardiac care, “rural” is a function of distance and time from an urban centre where cardiac reperfusion services exist (Statistics Canada, 2001). Canada is a geographically vast country where a large number of patients live far from reperfusion facilities (Fitchett, 2011; Statistics Canada, 2010). This presents geographical inequities in terms of immediate access to critical cardiovascular treatment for anyone diagnosed with ACS. Despite efforts to promote access to timely angiography, within Canada there is considerable interprovincial and regional variability in access to CATH (Faris, Grant, Galbraith, Gong, & Ghali, 2004; Graham et al., 2005; O'Neill et al., 2005). Ontario, in particular, has long wait times for CATH due to a lack of cardiac intervention facilities in numerous rural and remote-rural locations (Cantor et al., 2009; Faris et al., 2004; Graham et al., 2005; O'Neill et al., 2005).

Delay to CATH has negative consequences for patients. For example, prolonged wait time for CATH is a strong independent predictor of increased infarct size ($73 \pm 22\%$, < 180 minutes; $78 \pm 14\%$, 180 – 360 minutes, $86 \pm 14\%$, > 360 minutes, $p = .04$) (Hahn et al., 2008); in-hospital mortality (OR 1.42, 95% confidence interval [CI] = 1.24–1.62, $p < 0.01$) (McNamara et al., 2006); and 30-day mortality risk (OR 12.6, 95% CI = 1.85–86.2, $p = 0.01$) (Nakayama et al., 2009). Moreover, more than a 30-minute delay to PCI is associated with a 7.5% increase in relative risk of 1-year mortality (95% CI = 1.008–1.15, $p = 0.041$) (DeLuca, Suryapranata, Ottervanger, & Antman, 2004).

Adding to the prohibitively long wait for cardiac interventional care, patients report ongoing pain and anxiety. Cardiac pain, like other forms of pain, is individual and complex. Information related to ACS pain ascends the spinal column to cortical and subcortical areas in the brain, with somatic receptive fields in the chest and arms (Foreman, 1999). The noxious or painful stimulus is assessed and evaluated in these structures as threatening, activating the limbic and autonomic nervous systems and leading to a sense of impending doom and apprehension about further pain and anxiety (Heinricher, 2005).

It is understood that cardiac pain related to myocardial ischemia occurs late in the ischemic cascade. The ischemic cascade is activated minutes after ACS and is caused by a reduction in blood flow to the myocardium, secondary to obstructive atherosclerosis of coronary arteries, resulting in an imbalance in oxygen supply and demand (Joshi, Herzog, & Chaudhry, 2008). There is mounting evidence that anxiety may impact negatively on cardiac pain. Whitehead, Strike, Perkins-Porras, and Steptoe (2005), in a descriptive–correlational, repeated measures design across four urban hospitals, examined anxiety at 48 hours after an acute myocardial infarction (AMI) ($n = 184$). Results indicate that increased fear and anxiety scores (Hospital Anxiety and Depression Scale ≥ 8) are significantly associated with severe chest pain intensity ($\geq 8/10$ Numeric Rating Scale [NRS], OR 5.33, 95% CI = 1.40–20.4, $p < 0.001$). Concomitant anxiety in the context of ischemic myocardial pain produces high levels of adrenergic activity, which in turn increase myocardial oxygen demand, potentiate atherosclerosis, myocardial ischemia, pain, and dysrhythmias, as well as in-hospital cardiac mortality (Heinricher, 2005; Moser & Dracup, 1996; Ploghaus et al., 2001; Procacci, Zoppi, & Maresca, 2003; Rosen, 2012). In lieu of rapid access to CATH, ACS care needs to focus on effective pain assessment and management in this at-risk population.

There is some evidence that, following initial assessment and stabilization, rural ACS patients awaiting CATH for prolonged periods are at risk for recurrence of chest pain and related anxiety (Nakano, Mainz, &

Lomborg, 2008; Tanabe & Buschmann, 1999). ACS patients have reported receiving inadequate and/or ineffective analgesia, despite ongoing moderate to severe chest pain prior to CATH (Nakano et al., 2008). When immediate access to CATH is not available, ACS pain assessment and management are critical, to preserve vulnerable myocardial muscle. Emergency department (ED) trends observed in urban centres demonstrate that the frequency of pain assessment and management generally wanes following primary assessment and management (Motov & Khan, 2009; Tanabe & Buschmann, 1999; Todd et al., 2007). We are unaware of any studies exploring cardiac pain and its related anxiety in the context of pain management for rural ACS patients awaiting diagnostic CATH. Little attention has been given to nurses' perspectives on assessment and management of ACS patients in a rural ED.

Purpose

The primary purpose of this study was to examine rural ED patients' experience of ACS pain and anxiety while awaiting transfer for cardiac CATH. Its secondary purpose was to uncover priorities of and barriers to assessment and management of ACS pain and anxiety.

Methods

Design

A qualitative focus group design was used in one rural ED setting in southeastern Ontario, Canada. Focus groups provide concentrated amounts of qualitative data (Sandelowski, 2000), allowing for observation of group dynamics and spontaneity of group interaction while maintaining an interview structure through the use of a moderator (Kruger, 1994; Morgan, 1997). Dynamic interactions observed in focus groups as compared to individual interviews allow for greater depth and a higher level of inquiry, wherein the subject matter (currently, pain assessment and management practices; facilitators and barriers) may result in highly charged discussions (Morgan, 1997). Qualitative description, via content analysis, as outlined by Sandelowski (2000), was the analytic method employed. This type of description entails the presentation of current clinical practice using everyday language (Kruger, 1994).

Participants

ACS patients and ED registered nurses were recruited. Patient inclusion criteria were (a) confirmation of a recent rural ED admission for ACS (i.e., within the past 6 months); (b) recent diagnostic CATH to confirm a diagnosis of ACS; and (c) ability to read, speak, and understand English.

Patients who had recent cardiac surgery involving sternotomy and/or a major cognitive disorder were excluded; cardiac-related surgery with median sternotomy can result in the development of persistent post-operative pain, which could confound patients' descriptions of acute ACS-related pain. The nurse inclusion criterion was active involvement in the care of ACS patients in the study setting.

The study was approved by the research ethics board at the University of Toronto and the research ethics committee at the hospital site.

Data Collection

Three focus groups were conducted between September 2010 and February 2011, one with ACS patients and two with registered nurses. Focus groups were held in a quiet room at the hospital site and lasted between 45 and 90 minutes. The principal investigator moderated the focus groups and the research assistant documented the interactions within each group. All interviews were audiorecorded and field notes were made during and immediately after the interviews to record impressions of both patient and nurse responses to the questions.

Focus group guides (see Appendix 1) were used, featuring an introductory stem with open-ended questions and probes to elicit dialogue about patients' experiences of ACS pain and related anxiety and nurses' experiences of ACS assessment and management practices. Throughout the sessions, questions were modified as key themes emerged during discussion. Prior to each session, participants completed a demographic questionnaire designed for this study.

Data Analysis

The focus group interviews and field notes were transcribed verbatim by a hired transcriptionist. Two members of the research team read and reviewed all transcripts. The transcripts were compared with the recordings for accuracy. Any disagreements (e.g., wording, categorization of themes) were handled by a consensus-building procedure between analysts.

Thematic data analysis was an ongoing process whereby codes were identified and revised as each focus group was conducted (Kruger, 1994). The research objectives and semi-structured interview questions guided the first reading of the transcripts. Saturation was achieved when repetition of information, confirmed by team members, occurred within and across focus groups (Morse & Field, 1994) — that is to say, during data analysis, themes would recur and no new material was revealed by the end of the analysis. The frequency, extensiveness, and specificity of participants' comments guided the coding of the data (Morgan, 1997; Sandelowski, 2000). Codes were then organized into categories. As the

analysis progressed, frequent similarities in the data provided a strong indication of triangulation for the emergence of themes. In addition to member checking of the findings, the thematic analysis was reviewed by two of the co-authors to determine interrater reliability in order to enhance credibility of the results. Pseudonyms were used by participants to ensure anonymity. Descriptive statistics were used for analysis of nurse and patient demographic data (SPSS Inc., 2010).

Results

The results describe patients' experiences of ACS pain, their anxiety-related care, and nurses' priorities for and barriers to management of ACS pain and anxiety in a rural setting. Three overarching themes were identified: *ACS pain presentation*, *the emergency environment*, and *barriers to pain management*. The first theme, *ACS pain presentation*, was extracted down to include varied chest pain symptoms, symptom interpretation, and anxiety and fear. *The emergency environment* was divided into two sub-themes: (a) wait time, and (b) high patient volumes and lack of time. The third theme, *barriers to pain management*, comprised problematic pain knowledge and beliefs held by nurses.

Demographic and Clinical Characteristics

The demographic and clinical characteristics of the patient sample ($N = 4$) are shown in Table 1. The nurse sample ($N = 8$) consisted of females only. Although recruitment extended to physicians, nurse practitioners, and ED nurses, only ED nurses responded to the recruitment call. Lack of male ED nurse representation was not intentional; no male RNs agreed to participate in the study. The mean age was 40.25 ± 11.39 with an average of 11.44 years' experience in the ED. All eight RNs had professional certification in advanced cardiac life support (ACLS); see Table 2 for other characteristics.

ACS Pain Presentation

Varied chest pain. Patients described individual experiences of ACS pain and reported that while they waited in the ED their chest pain was of moderate to severe intensity. They described their ACS pain as a mix of "typical" and "atypical" chest pain presentations (i.e., mid-sternal pain radiating to the jaw, between the shoulders, or down the arm) as well as angina-equivalent symptoms, including diaphoresis, burning, nausea, fatigue, and increasing shortness of breath.

Nurse participants indicated that approximately half of their patients described typical ACS pain. Yet the word "pain" was not often used by patients. "Burning," "stabbing," "tightness," "heaviness," and "discomfort"

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Variable	M	SD
<i>Age</i> (years)	57	± 2.5
Gender	N	%
	Male	100
Marital status		
Married/cohabiting	4	100
Employment		
On disability	1	25
Retired	3	75
Education		
College	2	50
High school	2	50
Comorbidities		
Hypertension	4	100
Diabetes	1	25
Hyperlipidemia	4	100
Thyroid disease	2	50
Other	1	25
Cardiac conditions		
Acute myocardial infarction	2	50
Angina	2	50
Followed by cardiologist	4	100
Followed by family doctor/nurse practitioner	4	100

Variable	M	SD
<i>Age</i> (years)	40.25	±11.39
Gender	N	%
	Female	100
Employment		
Full-time	7	87.5
Part-time	1	12.5
Education		
Baccalaureate	4	50
Diploma	4	50
Pain education	2	25

were typical descriptors used by patients to describe their ACS-related symptoms:

Patient #1: *It was like stabbing chest pain, but, I mean, it [was] quite severe. It was pretty well in the centre of my chest.*

Patient #2: *It began with a pain down my left arm, pretty typical, and then heaviness on the chest and shortness of breath, sweating — really sweaty.*

Symptom interpretation. Patients indicated that unusual or atypical chest pain confused them and that they found it difficult to interpret the significance or meaning of their ongoing chest pain. They said that once they were triaged into the ED and had initial assessment and treatment, their pain often returned. Recurrence of chest pain was viewed as problematic in two ways: (1) if they had further chest pain after they had received their initial assessment and treatment for chest pain and had been categorized as stable, they were unsure whether it was important enough to notify the nurse; and (2) they found it difficult to differentiate between their cardiac pain and coexisting persistent pain problems:

Patient #1: *I don't know how you tell the difference between . . . a muscle pain, like a sharp — . . . or an angina attack or whatever . . . what's the difference in the kind of pain?*

Patient #3: *I've had pain so many times, this chest pain . . . but the pain, whether it's been my heart, or maybe my chronic back pain or whatever . . . you're wondering which it is.*

Anxiety and fear. Patients reported feelings of anxiety and fear in addition to chest pain. Both patients and nurses commented that pain was anxiety-provoking, which in turn increased the pain. Patients reported feeling anxious during bouts of pain and said that their anxiety often increased relative to what they thought the painful episode might mean to their life situation:

Patient #1: *You're worried when you're first there [in the ED] and you're feeling all the pain and — okay . . . what's going to happen now?*

Patient #3: *When I get the pain, am I going to get another one? The pain and the locking of the jaw and burning — there's a lot of nervousness about what the pain will amount to, or what do I have to face down the road?*

Similar comments were made by nurses:

RN #1: *I'd say there's a lot of anxiety, the unknown. Their concerns exacerbate their level of pain.*

RN #6: *Anxiety definitely impacts the pain they feel. They don't know what [will be happening] after they arrive.*

Patients discussed their fear of death and expressed feelings of impending doom:

Patient #1: *The pain was so bad. It seemed to be in my arms and chest. It was there for quite a while. I felt really bad . . . I didn't want to go to sleep — I was afraid if I fell asleep I wouldn't wake up again.*

Patient #3: *There was a lot of anxiety . . . what's the next [pain] going to mean? When it [your heart] stops, you're done, and, you know, by itself the pain brings a lot of anxiety.*

The Emergency Environment

Wait time. The environment of a busy ED was perceived as influencing the experience of ACS pain and anxiety and was described as impacting the treatment provided to patients. In this environment, the waiting period consisted of multiple delays. Patients described their time in the ED as constantly waiting for something to happen — waiting for pain relief, waiting for confirmation of their diagnosis or for the results of tests. They also had to wait hours or even days for transfer to a tertiary urban cardiac centre for CATH. During this waiting period, their pain continued; it was distressing for them:

Patient #1: *I spent 3 days waiting. You wait for your angiogram because there's a time delay.*

Patient #2: *The pain wouldn't settle down. It was constant. They gave me nitroglycerin and morphine. They were putting morphine through the IV. They gave me oxygen, of course. It [the pain] started at a 12 . . . went down to a 10 . . . worked its way down over the hours. They had me on morphine right through until Monday morning. So it was days [of pain] . . . on and off, coming back. I wasn't relieved of the pain.*

High patient volumes and lack of time. The characteristics of the ED environment were perceived by the nurses as driving the ACS care processes. Nurses indicated that the fluctuations in patient volume often drew their focus away from their ACS patients. For example, patient care that was designated in an acute or sub-acute area seemed to impact the level of attention that the nurses gave to pain assessment and management:

RN #4: *I probably pay more attention to ACS patients when they're in trauma. If a patient is placed in acute [for] observation, sometimes the ACS patients can get lost in with your other acute patients. . . . then you*

have your second set and you think, Oh, [he's just waiting] . . . a second set of [cardiac markers], he's okay, he'll let me know [if he's having chest pain] — and you may find that he's not telling you.

In each focus group, nurses reflected upon the fact that they were often operating at an instrumental level, depending on the influx of patients. They attempted to complete the most pressing tasks. Increased patient flow often served to restrict the amount of time they could spend with their ACS patients. Nurses expected patients to report their pain. They explained that ACS patients, once assessed, tended to get lost within the patient flow:

RN #2: It's a flurry of activity at the beginning. You get the pain-scale rating, give the nitro and Aspirin, get them sort of settled down, and then it's sort of coasting and . . . you rely on them to let you know how they're doing — I'm not sure they do all the time.

RN #7: Yes, you sort of rely on them to tell you if they're having pain. They can get lost in the shuffle when the other people are more urgent.

Barriers to Pain Management

Problematic pain knowledge and beliefs held by nurses. Some barriers to ongoing ACS pain assessment and management were related to problematic pain knowledge and beliefs. Pain assessment and management were mediated by nurses' misbeliefs regarding patients' pain. Some nurses described incongruence between their patients' self-reports of pain intensity, the presence of objective physiological signs, and their own initial perception of their patients' pain intensity:

RN #4: Some people say it's a [chest pain intensity of] 4 out of 10, but they're, like, white-knuckled, holding on to the stretcher, and can barely breathe. Or some will say it's a 10 out of 10 and be sipping on a drink.

RN #8: Anxiety definitely impacts the pain they feel. If they're anxious . . . they're tense, their blood pressure's up, and so that's going to put their pain level up if they're an ACS.

Triangulation of the data revealed that nurses confined their assessments of patients' pain to use of the numeric pain intensity rating scale (NRS-0-10). Although nurses did acknowledge that they assessed anxiety and determined that it impacted the pain experience, anxiety was not discussed as being objectively measured or treated. The treatment of patients' anxiety was not perceived as a clinical priority:

RN #5: I think their pain is more . . . my concern . . . from a clinical perspective anyway. But I'm certainly aware of their anxiety; that kind of

goes around it too. But pain seems to be the main focus . . . if you get the pain under control, I find they do settle a bit.

RN #7: I have to say, if they're pain-free and look comfortable, I don't really investigate how they are emotionally . . . I don't dwell on it [the anxiety]. I focus more on the clinical symptoms.

Discussion

ACS Pain Presentation

Patients in this study described their ACS pain as moderate to severe while they waited for transfer for CATH. In some cases, the discomfort experienced was reported as unusual or atypical pain-related symptoms. Our findings support those of other qualitative studies (Arslanian-Engoren, 2007; Gassner, Dunn, & Piller, 2002; Lockyer, 2005; MacInnes, 2006; McSweeney, 1998; McSweeney & Crane, 2000; Miklaucich, 1998) in which ACS pain was described as an admixture of typical anginal pain and angina-equivalent symptoms such as pain in the jaw and arm or heaviness in the centre chest with tightness, burning, shortness of breath, nausea, and excessive perspiration.

Patients reported that increased anxiety increased their pain. These results are consistent with those of other studies investigating cardiac pain and anxiety. For example, Moser and Dracup (1996) examined the association of pain and anxiety early on in the AMI trajectory and found that patients with higher levels of anxiety reported greater intensity of cardiac pain.

Intense feelings of impending doom were also expressed by patients — specifically, the fear of death. Whitehead et al. (2005), similarly, found that, in a sample of 184 ACS patients, increased anxiety and fear of dying were significantly associated with greater intensity of chest pain ($\geq 8/10$ NRS, OR 5.33, 95% CI = 1.40–20.4, $p < 0.001$). This finding is not surprising when one views the experience of myocardial ischemia from a neurobiological perspective. Pain is only one component that patients experience in the overall spectrum with the onset of myocardial ischemia. The affective experience, the anxiety that patients report, is typically associated with cardiac pain. It is described as a sense of impending death (angor animi) that has long been associated with angina (Rosen, 2012).

The Emergency Environment

The context of a busy ED was repeatedly discussed as problematic with regard to timely ACS assessment and treatment. The individual experience of pain depends not only on the nature of the stimulus, but also on

the memories, emotions, and *context* in which the stimulus is experienced (Basbaum, Bushnell, & Devor, 2005). Pain is a subjective experience; the quality and quantity of pain experienced is dynamic and variable for each person. Melzack and Wall's (1965) seminal Gate Control Theory has led clinicians to understand that myocardial injury related to ischemia, for example, produces neural signals that enter an active nervous system — that is, the cumulative combination of past experience, culture, context, and emotion (Melzack & Wall, 1965, 1973, 1982).

The ED environment was reported as impacting patients' level of pain and anxiety. Although patients did not specifically say that living in a rural area had affected their ACS pain experience directly, they did imply that waiting for advanced cardiac interventions, specifically CATH, was anxiety-provoking, even though the wait was expected. Similar sentiments were expressed in a qualitative study examining the lives of rural women after myocardial infarction (Caldwell, Arthur, & Rideout, 2005). In that study, participants viewed the health care they received with a degree of reluctant acceptance that they did not live near cardiac services and believed they were fortunate to have survived their cardiac event; they regarded distance as an unalterable fact of rural life and did not question it.

The patients in our study described feeling anxious waiting for analgesics, diagnostic tests, and transfer to an urban cardiac care centre for CATH. In keeping with our results, in an older study (Bengtson, Herlitz, Karlsson, & Hjalmarson, 1996) with 831 ACS patients, 465 (56%) reported that anxiety, fear, and uncertainty were the most disturbing symptoms while they awaited transfer for cardiac care.

Nurses also attributed inconsistent pain management practices to the busy context of the ED. They explained that high patient acuity demanded inordinate amounts of their time and thus precluded prompt analgesic administration. In a qualitative study with 30 patients diagnosed as having ACS, Nakano et al. (2008) found that, during the acute phase of ACS admission, patients discussed inconsistent pain management for their chest pain and reported unrelieved pain even when analgesics were administered.

Consistent with reports from other studies, our sample of nurses identified lack of patients' self-report of pain as preventing effective pain assessment and management. Clarke et al. (1996) surveyed 120 nurses for their knowledge and beliefs regarding pain management. The top nurse-ranked barrier to pain management was patient reluctance to report pain. RNs often express the expectation that patients will tell their nurse when they are in pain. This indicates problematic misbeliefs about pain that could prevent nurses from administering timely pain medication.

Barriers to Pain Management

Pain misbeliefs are attitudes and beliefs that are held about pain and pain management despite current evidence to the contrary (Watt-Watson, 1992). In our study, nurses focused more on the clinical pain presentation and tended to disregard patients' anxiety, which was not perceived as a clinical priority. Similar research conducted by O'Brien et al. (2001) found that documentation of anxiety assessment was minimal for 45% of AMI patients ($n = 101$); of 45 AMI patients, 58% ($n = 28$) were described as anxious, and nurses did not routinely assess anxiety even though close to half the sample self-reported moderate to severe anxiety. This knowledge gap in clinical practice is problematic, as nurses may not recognize anxiety as a treatable component of the ACS presentation or the potentially negative impact of anxiety on CAD patients if left untreated (De Jong et al., 2004; Moser, 2007; O'Brien et al., 2001).

Pain assessments that were discussed typically included use of the NRS. According to the Canadian Pain Society (2005), pain assessment should be routine and minimally requires the use of a multidimensional approach wherein pain intensity, quality, location, interference with activities of daily living and role function, alleviating and contributing factors, satisfaction, temporal aspects, and the effectiveness of therapy and medications are recorded. Nurses need to conduct comprehensive pain assessments with reliable and valid tools that reflect the sensory-discriminative, motivational-affective, and cognitive-evaluative dimensions of the patient's pain experience; the McGill Pain Questionnaire-Short Form is an example (Melzack, 1987).

Strengths and Limitations

Several steps were taken to ensure trustworthiness of the findings: (1) appropriate and well-recognized research methods were used; (2) analyst and participant triangulation were employed to reduce bias and ensure credibility of the data (Creswell, 1998; Shenton, 2004); (3) transparency in the informed consent process ensured participant honesty when contributing data, ensuring that they were genuinely willing to take part and prepared to offer data freely (Shenton, 2004); (4) data credibility was enhanced through the use of the same set of questions for patient and nurse focus groups with iterative questioning and use of probes in each session; (5) all participants were asked to verify the data through member checks, throughout and at the end of the focus group sessions. According to Guba and Lincoln, this is the singular most important strategy for bolstering a study's credibility (Guba, 1981; Lincoln, 1995). Moreover, purposive sampling yielded information-rich descriptions of patients' ACS pain and anxiety experiences and RNs'

current pain assessment and management practices, which further enhanced the descriptive credibility of the data (Morgan, 1997). In addition, our study included a diverse nurse sample. Both expert and novice nurses participated, allowing for an in-depth exploration of clinical ACS pain management practices.

There are some limitations in the transferability of the findings. Only one hospital site was used. Further, women were not represented among the patients in the study, and neither male RNs nor physicians were represented in the nurse sample.

Implications for Research and Practice

Two important issues emerged from this study. Ongoing assessment and management of acute cardiac pain seemed to lose focus throughout the ACS trajectory while rural patients waited long hours in the ED. There are few studies providing detailed descriptions of ACS pain management patterns that reflect current clinical practice in rural settings; this warrants future consideration. Second, the assessment of ACS pain was limited to the use of one tool to measure pain (NRS), and anxiety was not assessed, measured, or treated. It is unknown whether current knowledge regarding ACS-related pain and pain management by rural nurses influence patients' cardiac pain intensity and/or anxiety levels; this also requires further investigation. Unrecognized and untreated anxiety may potentiate cardiac pain intensity. To date, however, no studies have examined this complex interrelationship in the context of pain management for ACS patients awaiting diagnostic CATH in rural EDs.

Patients described their ACS pain as moderate to severe with overwhelming feelings of anxiety and fear of death. Routine and ongoing assessments of ACS pain need to incorporate the subjectivity of the individual in pain and pain management needs to be based on patients' self-report of both pain and anxiety. Anxiety as a symptom is easy to assess, treat, and manage and ought to be included in the treatment plan for individuals with ACS. More importantly, it is critical that clinicians and patients be aware that cardiac pain and anxiety may manifest as a mixture of typical and atypical ACS-related symptoms. Moreover, this group or cluster of symptoms may be directly related to myocardial ischemia. Anxiety and non-traditional cardiac pain symptoms should not be separated out from the differential diagnosis of ACS.

Conclusion

Acute coronary syndrome is a painful condition that often includes overwhelming anxiety. The immediate treatment for myocardial ischemia is reperfusion with percutaneous coronary intervention within 90 minutes

of ACS onset. ACS patients in rural areas can experience long wait times for diagnostic cardiac CATH, and adequate cardiac pain and anxiety assessment and management should be provided for these patients in order to preserve vulnerable myocardial muscle. Results from this study suggest that rural ACS patients are at risk for unrelieved cardiac pain and ongoing and unrecognized anxiety. We need research examining the interrelationships of current pain management practices in rural areas and patients' report of cardiac pain and anxiety while they wait long hours for transfer for cardiac reperfusion interventions. This qualitative focus group study provides important information and new knowledge about the ACS patient experience of cardiac pain and its related anxiety in the rural context. These results could provide unique discussion points that extend the dialogue and discourse to include the rural ACS patient experience in decisions that determine Canadian wait times for interventional cardiovascular care.

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Appendix 1 Questions and Probes Contained in Semi-structured Interview Guide	
Broad Questions	Probes
Patients	
1. Can you tell us what it was like to have chest pain? What was that experience like while you were admitted to the emergency department?	Were there any other symptoms you experienced besides your chest pain?
2. Would you describe yourself as anxious at all when you were having chest pain?	Can you tell me whether your pain and anxiety affected the pain you were feeling?
3. Can you tell us what it was like while you waited in the emergency when you were having pain?	Were you able to talk to your doctor and nurse about your pain or your anxiety? How did the nurses and doctors manage your pain? As time progressed, what were the things that most concerned you about your chest pain or your anxiety? Can you tell me more about that?
4. Is there anything else that you would like to tell us that you think is important for nurses and doctors to know about what it is like to have chest pain and anxiety?	

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Appendix 1 (cont'd)	
Nurses 1. Based on your experience, how would you describe patients presenting to your ED with acute coronary syndrome?	What are the most common symptoms you see in the ACS population? Do you find that most patients self-report the typical mid-sternal chest pain type of symptom?
2. What would you consider important in your assessment and management of a person with ACS?	Do you use any standardized pain measurement tools in your practice? When you consider cardiac pain, are there other symptoms that are of concern for patients? You identified anxiety as impacting the patients' pain experience; can you give me an example of what you mean?
3. What do you think are the challenges that nurses face related to pain assessment and management of ACS patients in the emergency on a daily basis?	What do you feel that nurses do well in the treatment of ACS pain? Within your current practice, what would you identify as barriers to pain management? Is there anything else that you would like to add at this time?