

Patterns of Responses to Cardiac Events Over Time

Samar Nouredine, PhD, RN

Background and Objective: Prompt treatment of acute coronary syndrome (ACS) is essential to reduce mortality and morbidity, but patients often delay seeking healthcare, regardless of their history of heart disease. The purpose of this study was to examine the responses to cardiac events in relation to delay time and past experience with similar symptoms in a sample of Lebanese patients. **Method:** Secondary analysis of data from a descriptive cross-sectional survey of a convenience sample of 210 patients with ACS admitted to a tertiary care center in Lebanon and recruited within 72 hours of admission was conducted. Data on demographic and clinical variables were obtained from medical records. Patients were interviewed using the Response to Symptoms Questionnaire and asked about their prior experience with symptoms similar to their current ones. **Results and Conclusions:** Delay time and the behavioral responses did not differ by past experience with similar symptoms, despite better recognition of symptoms as cardiac and knowledge of myocardial infarction symptoms in patients who had past experience. In both groups, those with past experience and those without one, delay time was significantly correlated with the characteristics and patients' appraisal of the symptoms. Inappropriate immediate responses, such as taking analgesics or resting, persisted with subsequent experience of cardiac events. Seeking emergency care was the least commonly used response and was used even less frequently with prior experience. The findings suggest lack of recognition of the appropriate response to ACS and probable issues with access to the health system. There is a need to emphasize the importance of prompt seeking of care when experiencing ACS, especially upon a repeated occurrence, and educate patients about the variability of clinical manifestations of ACS.

KEY WORDS: acute coronary syndrome, delay, past experience, response to symptoms

Cardiac disease is the leading cause of morbidity and mortality in both developed and developing countries despite advances in treatment.¹ In Lebanon, the Ministry of Public Health noted heart disease to be the leading cause of mortality,² and a recent report indicated ischemic heart disease to be the most frequent cause of hospitalization in public hospitals.³

Empirical evidence supports the effect of timely treatment in reducing the mortality associated with acute coronary syndrome (ACS), with a 50% reduction accrued when the person reaches the hospital within 1 hour of symptom onset.¹ However, studies done worldwide consistently show that people delay seeking care upon experiencing ACS.⁴ In Lebanon, a national study of 432 patients with acute myocardial infarction (MI) found that 46% delayed coming to the hospital longer than 6 hours.⁵

Most of the delay time, that is, the time from symptom onset until arrival to the hospital, is accounted for by the time it takes the person to decide to go to the hospital.⁴ Although one would expect people with previous experience with cardiac events to seek care more promptly in the context of ACS, studies reviewed by Zerwic and Ryan⁶ found that those with history of coronary artery disease (CAD) delayed seeking healthcare as much as those with no such history. The purpose of this study was to examine the relationship between past experience with similar ACS symptoms, current responses to symptoms, and delay time, in a sample of Lebanese patients.

A number of predictors of delay were identified, including demographic, clinical, and psychological factors. The Common-Sense Model of Illness Representation⁷ was used in many studies as a framework for the study of predictors of delay in seeking care for symptoms of ACS. The model posits that upon experiencing a threatening stimulus, such as symptoms of ACS, the individual evaluates these symptoms in relation to the mental representation of an illness perceived to match them. This cognitive response determines the course of action the person would take, such as self-help or calling the physician.

Samar Nouredine, PhD, RN

Associate Professor and MSN Program Coordinator, School of Nursing, American University of Beirut, Beirut, Lebanon.

Corresponding author

Samar Nouredine, PhD, RN, School of Nursing, American University of Beirut, PO Box 11-0236, Beirut 1107 2020, Lebanon (sn00@aub.edu.lb).

Parallel to the cognitive response, people often experience an emotional response depending on the seriousness they associate with the symptoms, and these feelings in turn would influence their behavioral response. The person is then hypothesized to take what he/she perceives as the appropriate action to cope with the symptoms. If there is relief from the symptoms, then the person would judge that he/she has succeeded. However, if no relief is experienced, then the outcome is appraised again and another course of action is taken to cope with the symptoms.⁷

Most of the studies on the association between history of CAD, namely, unstable angina and MI, and delay time in the past decade found no significant relationship.^{8–14} The studies that found differences in delay by history of MI or angina^{15–19} did not show a consistent pattern, possibly owing to differences in the characteristics of the samples studied, the criteria used in defining MI, and the cutoff points used for distinguishing delayers from nondelayers (2, 4, and 6 hours were used), as well as the variation in the methods of data collection (medical records review vs patient interview).

Leslie and colleagues¹² found in their study that patients with prior history of CAD were more likely to recognize their symptoms as cardiac than were those with no history. However, the number of calls made for an ambulance and the reasons for delay did not differ by history of CAD. A number of explanations were offered for the persistent delay observed in patients who have had a past experience with ACS.⁶ Patients with a history of angina misinterpreted their symptoms for another attack of angina and tried the self-help measures that had worked in the past, which increased their delay. Alternatively, patients who had a bad experience with previous diagnostic or treatment procedures may have hesitated to seek medical help.⁶ Along these lines, Fox-Wasylyshyn et al²⁰ compared the strategies used by patients with acute MI who had history of MI and those with a first-time MI (N = 135). Taking prescribed medications and calling someone for help were significantly more common in patients with history of MI compared with those with no such history; on the other hand, first-time MI patients used nonprescription medications more often than did those experiencing a recurrent MI. Other types of responses, such as denial, praying for the symptoms to go away, distracting oneself, and relaxing did not differ between those with history of MI and first timers. The authors concluded that coping responses do not change with experience, but they did not do correlational analyses of the responses studied to delay.²⁰

As noted above, most investigators compared either delay time or responses to symptoms in patients on

the basis of medical history of CAD. However, the symptoms may differ from time to time, depending on whether the cardiac event was unstable angina or MI. The objectives of this study were to (1) examine the influence of past experience with similar symptoms on delay in seeking healthcare, (2) examine whether the correlates of delay time differ on the basis of past experience with similar symptoms, and (3) determine the pattern of responses to symptoms of ACS over time in a sample of Lebanese patients.

Methods

In the current study, rather than comparing patients on the basis of history of CAD, they were compared on the basis of experiencing similar symptoms because it is the perception of symptoms that is likely to drive the response.⁷ “Similar” symptoms were defined as symptoms of the same type and intensity to the ones that brought the patient to the hospital during this current attack of ACS. Moreover, previous and current responses to similar symptoms were examined within the same group, used as their own control, to further our understanding of how the experience of symptoms shapes patients’ responses over time when faced with the same stressful event, in this case, an ACS experience.

Sample and Setting

This study is a secondary analysis of data collected for a descriptive study of delay in seeking healthcare when experiencing symptoms of ACS. Preliminary results of the main study were published elsewhere, where the predictors of delay in seeking care were studied for the whole sample.²¹ Power analysis was performed to estimate the sample size for the main study. Assuming a moderate effect size ($R^2 = 0.13$ for multiple regression) and 10 predictors with a power of 0.80 and α set at .05, a sample size of 120 was deemed appropriate for regression analysis and the Student *t* test. However, for χ^2 analysis with 24 degrees of freedom, a sample of at least 208 was deemed to be needed.²² Thus, a convenience sample of 210 consecutive patients with ACS admitted to the coronary care unit (CCU) of a major referral tertiary center in Beirut was recruited. The inclusion criteria were age over 30 years; diagnosis of unstable angina or MI on the basis of clinical presentation, electrocardiographic changes, and cardiac enzymes (creatinine kinase-MB and troponin T); and admission through the emergency unit. Exclusion criteria included cognitive, psychiatric, or hemodynamic derangements that prevent patients from enduring the interviews; admission with trauma; and transfers from other hospitals or nursing homes. A total of 255 patients were

approached; 36 refused to participate because of fatigue or anxiety (response rate, 86%). Seven patients did not have reliable delay data, and another 2 did not answer the questions related to their previous experience with ACS, so they were excluded from this analysis. The final sample included 210 patients.

The setting was a CCU, a 20-bed unit with 9 monitor rooms, each with a single bed and 8 telemetry rooms, with 2 patients per room. The nurse-to-patient ratio is 1 to 4; the rate may be less when patients are hemodynamically unstable or on mechanical ventilation.

Procedures and Instruments

Approval for the conduct of the study was secured from the institutional review board of the university, the hospital administration, and the cardiologists. Medical records of all patients admitted to CCU were screened, and eligible patients were approached within 72 hours of admission and invited to participate in the study. Those who consented to participate were interviewed in their room. Three CCU nurses trained by the primary investigator screened the medical records and recruited and interviewed the patients. One of the nurses was not working in the CCU at the time, whereas the other two interviewed patients whom they were not taking care of to reduce bias. Patient interviews took, on average, 15 minutes.

Data about the patients' demographic characteristics, clinical manifestations on admission, cardiac enzymes and cholesterol levels, cardiac catheterization results, cardiovascular risk factors (height, weight, hypertension, diabetes, and smoking status), and treatment received (medications, percutaneous interventions, and surgery) were retrieved from the medical records.

The interviews were conducted using the Response to Symptoms Questionnaire (RTS), modified form.²³ The 30-item questionnaire includes multiple-choice questions and 5-point Likert scale items. The purpose of the RTS is to identify factors that distinguish patients who responded early compared with those who responded later to symptoms of ACS. The RTS asks about the date, time, type, and severity of symptoms experienced; the context in which the symptoms first appeared, that is, where the patient was when the symptoms occurred; the antecedent of symptoms, what the patient was doing when the symptoms occurred; the patient's affective response, namely, anxiety, fear, and loss of control; his/her cognitive response, namely, symptom attribution, knowledge of MI symptoms, unwillingness to bother others, embarrassment to ask for help, and perceived seriousness of the symptoms; the behavioral response, that is, the first thing the patient did when the symptoms occurred; and the response of others present to the patient's symptoms. Content validity of the RTS was supported by a

panel of experts in cardiology and cardiovascular nursing,²³ and acceptable reliability was reported,²³ with comparable results found in the United States, Australia, England, Japan, and Korea.²⁴ The items examine independent concepts, and thus, the RTS is not amenable to internal consistency testing. Moreover, because of recall issues, test-retest reliability assessment is not appropriate. Each item is scored and analyzed separately using the mean (range, 1–5); there is no summary score or total score. In addition, patients were asked whether they had experienced similar symptoms in the past, when was that, and what they did at that time. Past experience with similar symptoms reported by the patients was confirmed with the data on history of heart disease that were collected from the medical records.

The RTS was translated to Arabic then back-translated into English; the original and back-translated English versions were identical. Three cardiology professionals (the nurse manager of the CCU, a critical care clinical nurse specialist, and a cardiologist) supported the content validity and the appropriateness of the RTS to the Lebanese culture. The instrument was pilot tested on 5 patients; no problems in administration were encountered. No modifications in the RTS were warranted on the basis of pretesting. The responses to the symptoms of ACS, delay time, and their associations were compared between the patients who had no previous experience with similar symptoms and those who had a prior experience. In the group with a previous experience with similar symptoms ($n = 129$), the initial response to the current ACS symptoms was compared with their previous initial response to note any changes over time.

Data Analysis

Sample characteristics were described using frequencies and means and SDs. Patients who experienced similar symptoms in the past and those who did not were compared on demographic and clinical variables, as well as their responses and delay time using t tests and χ^2 tests. Bivariate correlations with delay time were analyzed using t tests and Pearson r coefficients. Finally, the past and current responses to the ACS symptoms were compared using the χ^2 test. The delay-time variable was log transformed in the analyses because it was skewed to the right by a few patients who waited 5 to 6 days to seek care.

Results

Sample Characteristics

The sample included mostly middle-aged adult (age: mean, 62.36 years [SD, 10.95 years]; range, 38–89 years) married (81.0%) men (70.5%) with at least high

school education (55.3%) and who were currently working (54.1%) and medically insured (81.9%). The sample included similar proportions of patients in terms of the medical diagnosis (52.4% with unstable angina vs 47.6% with MI). One third of the sample had normal weight, another third were overweight, and the rest were obese (body mass index: mean, 29.23 kg/m² [SD, 5.4 kg/m²]). These results are shown in Table 1. A total of 129 participants (61.4%) reported having had past experience with similar symptoms a mean of 30 months (SD, 62.43 months) before admission (range, 22 hours to 30 years). The median time from the previous to the current experience with ACS symptoms was 3 months, with 67.2% of participants reporting having had their previous symptoms in the past year.

Comparisons of the group with past experience with that without experience (Table 1) did not show significant differences in demographic variables, except for working status; those with past experience were less likely to be currently working compared with their counterparts (49.6% vs 61.3%, $P = .03$). Those with past experience were also significantly more likely to have unstable angina (64.3% vs 33.3%) and less likely to have MI (35.7% vs 66.7%) compared with those with no past experience ($\chi^2_1 = 19.18$, $P < .01$). In terms of cardiovascular risk factors, those with past similar symptom experience were more likely to have a history of hypertension (72.1% vs 50.6%; $\chi^2_1 = 9.94$, $P < .01$) but less likely to be current smokers (46.9% vs 60.5%; $\chi^2_1 = 3.69$, $P = .06$) compared with those without such prior experience. In addition, there were no significant group differ-

ences in the symptoms at presentation, except for less sweating in those with past symptom experience (odds ratio, 0.43; confidence interval, 0.24–0.77; $P < .01$). Moreover, the 2 groups did not differ significantly in terms of the place where they had the ACS symptoms, what they were doing, and who was with them at the time. Most of the participants (71.8%) had their symptoms at home, were most frequently sitting (42%), and were with their spouse (39%) when the symptoms occurred.

Group Differences in Delay Time

Delay time did not differ significantly between those who had past experience with similar symptoms and those who did not, with median delay times of 5 and 4.78 hours, respectively. However, there were differences in the cognitive and affective responses to the symptoms, as shown in Table 2. Those with past experience were more likely to recognize their symptoms as cardiac ($P < .01$) and know the symptoms of MI ($P < .01$) than were those with no prior experience; they were also more likely to fear what might happen ($P = .01$).

The initial behavioral response to the symptoms of ACS did not differ significantly between the 2 groups ($\chi^2_9 = 11.95$, $P = .23$). The most common first action was telling someone (24.8% in the past-experience group vs 32.1%), then taking some medicine (23.3% vs 14.8%) and trying to relax (21.7% vs 18.5%); the least common responses were wishing and praying for symptoms to go (3.9% vs 2.5%) and going to the hospital (3.9% vs 4.9%).

TABLE 1 Demographic Characteristics by Group and for the Whole Sample

Variable	Past Symptom Experience (n = 129)	No Past Symptom Experience (n = 81)	Total Sample (n = 210)
Age, y	63.09 (10.69)	61.33 (11.45)	62.36 (10.95)
Body mass index, kg/m ²	28.94 (5.31)	29.69 (5.40)	29.23 (5.32)
Sex (male)	68.2	74.1	70.5
Marital status			
Single/divorced	3.9	11.1	6.7
Married	82.8	79.0	81.0
Widowed	14.0	9.9	12.4
Education			
Less than high school	44.5	45.1	44.8
Completed high school	20.0	19.7	19.9
University graduate	35.5	35.2	35.4
Working now ^a	49.6	61.3	54.4
Has health insurance	81.3	82.5	81.9
Medical diagnosis ^b			
USA	64.3	33.3	52.4
MI	35.7	66.7	47.6

Abbreviations: MI, myocardial infarction; USA, unstable angina.

Values are presented as mean (SD) or percentage, where applicable.

^aSignificant group difference at $P < .05$.

^bSignificant group difference at $P < .01$.

TABLE 2 Differences in Cognitive and Affective Responses to Symptoms and Delay Time by Past Experience (n = 210)

Response to Symptoms	Past Symptom Experience (n = 129)	No Past Symptom Experience (n = 81)	P (t Test)
Delay time, h	17.45 (32.12)	15.40 (23.13)	.62
Cognitive responses			
Thought symptoms were serious	3.09 (1.30)	2.83 (1.52)	.21
Did not recognize symptoms as cardiac	1.89 (1.35)	2.49 (1.50)	.00
Was embarrassed to seek help	1.61 (1.17)	1.46 (1.04)	.35
Did not want to trouble anyone	2.04 (1.41)	2.07 (1.39)	.86
Did not know MI symptoms	1.70 (1.14)	2.40 (1.45)	.00
Did not realize symptom importance	2.09 (1.30)	2.37 (1.39)	.14
Affective responses			
Feared what may happen	1.88 (1.32)	1.46 (1.04)	.01
Felt anxious	3.12 (1.37)	3.01 (1.40)	.57
Felt in control of symptoms	2.76 (1.38)	2.42 (1.31)	.08

Abbreviation: MI, myocardial infarction.
Values are presented as mean (SD).

Correlates of Delay Time per Group

Bivariate correlations were run between delay time on one hand, and the demographic variables shown in Table 1, cardiac risk factors, and the cognitive, affective, and behavioral responses in each group separately; *t* tests and Pearson correlation coefficients were used. No significant correlations were found between delay time and any of the demographic or risk factor variables. On the other hand and in both groups, significant small to moderate correlations were found between delay time, symptom characteristics, and some of the responses. Delay time was negatively correlated with perceived symptom seriousness in those with ($r = -0.19$, $P = .03$) and those without ($r = -0.28$, $P = .01$) past experience. Conversely, delay time was positively associated with waiting for symptoms to go away ($r = 0.20$ [$P = .02$] vs $r = 0.37$ [$P < .01$]), not knowing the symptoms of MI ($r = 0.24$ [$P < .01$] vs $r = 0.26$ [$P = .02$]), not realizing the importance of their symptoms ($r = 0.33$ [$P < .01$] vs $r = .29$ [$P < .01$]), and experiencing symptoms that came and went ($r = 0.24$ [$P < .01$] vs $r = 0.44$ [$P = .00$]). Moreover, in both groups, mean delay times were longer in those who experienced dyspnea compared with those who did not. In those with past experience the results were (21.47 hours [SD, 35.31 hours] vs 13.95 hours [SD, 28.86 hours]; $t_{127} = -2.21$, $P = .04$), whereas in those with no past experience the results were (20.71 hours [SD, 27.81 hours] vs 10.93 hours [SD, 17.41 hours]; $t_{79} = -2.49$, $P = .02$).

In patients who have had past experience exclusively, having jaw pain was significantly associated with shorter delay time (mean, 2.96 hours [SD, 3.95 hours] vs 17.91 hours [SD, 32.52 hours]; $t_{127} = 2.08$, $P = .04$). On the other hand, in patients without past experience with similar symptoms, not recognizing the symptoms as cardiac was associated with

longer delay time ($r = 0.34$, $P < .01$). Moreover, there was a tendency in those without past symptom experience to delay less (mean, 9.24 hours [SD, 13.42 hours] vs 22.03 hours [SD, 29.07 hours]) when experiencing sweating ($t_{79} = 1.99$, $P = .05$) or when the symptoms were severe ($r = -0.21$, $P = .06$).

Pattern of Responses to Symptoms of ACS Over Time

Participants who had previous experiences with similar symptoms changed their initial behavioral responses to ACS symptoms significantly ($\chi^2_{35} = 56.47$, $P = .01$). Table 3 shows the patterns of behavioral responses in the past versus the current ACS symptom experience. More than half of those who took medicines in the past (54.5%) did it again this time, whereas 18.2% told someone or tried to relax, and the rest either tried some self-help or prayed (4.5%). More than half of those who tried to relax in the past (53.3%) resorted to this strategy again this time, whereas 20% told someone, and the rest either denied that anything was happening or took some self-help measure such as drinking tea (13.3%). Self-help was repeated in 27.3% of cases, with another 27.3% trying to relax and 18.2% either denying or telling someone. Only 6.8% of those who went straight to the hospital in the past repeated this response again, whereas 29.5% told someone, 25% took medicine, and 18.2% tried to relax. None of those who went to the physician's clinic last time went or even called a physician again; 30% tried to relax this time and another 30% tried self-help measures, 20% took medicine, and 10% either told someone or went to the hospital this time. Finally, only 6.9% who used denial the previous time denied again; this time, 34.5%

TABLE 3 Patterns of Responses to Acute Coronary Syndrome Symptoms Over Time^a (n = 123)

Past	Now							
	Tried to Relax	Denied	Prayed	Told Someone	Took Medicine	Called Physician	Self-help	Went to the Hospital
Took medicine (n = 22)	18.2	0.0	4.5	18.2	54.5	0.0	4.5	0.0
Tried to relax (n = 15)	53.3	13.3	0.0	20.0	0.0	0.0	13.3	0.0
Self-help (n = 11)	27.3	18.2	0.0	18.2	9.1	0.0	27.3	0.0
Went to hospital (n = 44)	18.2	2.3	2.3	29.5	25.0	6.8	9.1	6.8
Went to physician's clinic (n = 10)	30.0	0.0	0.0	10.0	20.0	0.0	30.0	10.0
Denied (n = 21)	6.9	6.9	6.9	34.5	10.3	3.4	27.6	3.4

Values are presented as percentage.

$\chi^2_{35} = 56.47$; $P = .01$.

^aAnalysis was done in the group who had past experience with similar symptoms. For each past response category, the number of patients who used that response is shown as n. The percentages show the frequency of the various responses to symptoms of the current cardiac event within each past response category.

told someone, 27.6% tried self-help, and 10.3% took some medicine.

Discussion

This study examined how Lebanese patients respond to recurrent symptoms of ACS and whether having had experienced similar symptoms in the past influenced the speed at which they would seek healthcare. Considering that most of the sample had medical insurance and two-thirds had previous experience with CAD, it was disappointing to find that delay time did not improve with past experience, a finding that is consistent with studies done in Western countries,⁸⁻¹⁴ suggesting a universal problem. In this study, the absence of difference in delay time cannot be accounted for by differences in demographic or contextual variables between those with past experience with similar symptoms and symptom-naïve patients. The reduced length of stay in the hospital and the absence of home care in Lebanon may limit the nurses' ability to give adequate education for patients to impress upon them the importance of promptly seeking healthcare in case they experience a recurrent cardiac event. Anecdotal evidence from communication with CCU nurses in the medical center where the study was conducted revealed that the main focus of teaching for patients upon hospital discharge is on medications and diet. Thus, it is possible that the patients did not get enough education on what is an adequate response to ACS. Moreover, although heart disease is the leading cause of mortality and morbidity in Lebanon, there are no public awareness campaigns that address its prevention or the appropriate steps to take when symptoms of MI occur. The unstable situation in the country is restricting public health-related activities. The Ministry of Public Health addresses in its public campaigns vaccinations, mammography screening, and the use of seat belts, but not heart disease.

The lack of difference in behavioral responses between those with past symptom experience and those without it concurs with the findings of Fox-Wasylyshyn and colleagues²⁰ and Leslie et al.¹² In these studies, although patients with past experience knew more about symptoms of MI and more often recognized their symptoms as cardiac, they did not act accordingly. In this study, regardless of past experience, participants resorted mostly to telling someone, trying some medications, or resting, whereas going to the hospital was the least used initial measure, as was found in Australia.²⁴ In Lebanon, people rarely live by themselves, often experiencing cardiac events in the presence of their significant others, whose presence could influence seeking healthcare; the fact that inefficient measures were taken suggests lack of knowledge of what is the right thing to do when experiencing a cardiac event.

Moreover, taking medications is a common coping strategy in Lebanon, similar to what was reported in England²⁴ and Japan.²⁵ Because the Lebanese can acquire medications that can be purchased only with a prescription in the United States or Europe, symptom-naïve patients may try a medication used by someone in the family or even a neighbor before seeking medical care, whereas those with past experience may try a medication that was prescribed to them first. Fox-Wasylyshyn et al²⁰ found that patients with history took prescription drugs, whereas those with no history took nonprescription medications. Unfortunately, we did not ask what type of medications the patients took in this study, but most of those who named the medication they used mentioned an analgesic or antacid; only a few mentioned nitroglycerin.

Going to the hospital was the least used strategy, suggesting lack of knowledge of the appropriate response to a cardiac event. In Lebanon, there is no organized emergency medical system. In case of an emergency, the Lebanese Red Cross, which covers all regions of the country, provides ambulance transportation to

the hospital if called, free of charge. Nevertheless, people often drive themselves or ask others to drive them to the hospital. The reason for not going to the emergency department was not asked in this study. The Red Cross does not call the hospital or give report before taking the patients there, so patients may not perceive using it as more efficient, especially that this sample did not live far from the hospital.

The correlates of delay did not differ much between the 2 groups under study. Jaw pain predicted shorter delay in the past-experience group. It may be that jaw pain was a new symptom that was perceived as serious, thus alerting the patients to act quickly to relieve it. On the other hand, symptom-naïve patients delayed longer when they did not attribute their symptoms to the heart, as was found by Leslie and colleagues.¹² However, in both groups, when the symptoms were perceived as serious, delay was short, whereas when the symptoms were intermittent or included dyspnea, when their importance was not realized, when MI symptoms were not known, or when the “wait and see” approach was taken, delay was longer. This suggests that the perception of symptoms does not change with experience and reflects lack of knowledge of the variations in the clinical manifestation of ACS in this sample, regardless of past experience.

The types of initial responses to recurrent symptoms in patients with past experience raise concern. Assuming that going to the hospital is the most effective response, it is disturbing that this action was repeated by only 6.8% of this group. Trying to relax and taking medications were somewhat sustained in this group; they may have worked in the past and were thus perceived to be effective.⁷ Alternatively, because most of these patients had unstable angina at this time, their symptoms may have been somewhat less severe, and thus, self-management was first attempted to relieve them. One positive finding was that denial was used again by only 6.8% of this group and was replaced by telling someone or using self-help. This emotional coping response, appraised as ineffective, was replaced by a problem-solving approach.

These findings concur with the premise of the Common-Sense Model of Illness Representation⁷ in terms of people appraising the outcome of their response to symptoms and acting accordingly. Initial actions that helped in the past relieve the symptoms were repeated, whereas ineffective coping responses were changed this time. The findings also suggest that the mental representation of the identity of ACS, namely, its symptoms, did not change from the past to the current experience, which is why previous responses tended to persist. This explanation is supported by the lack of knowledge of MI symptoms and realization of their importance, which were significantly correlated with delay.

Limitations

These findings are limited in generalizability because the sample was recruited from 1 medical center. Moreover, recall bias is possible, especially remembering the response to the previous symptoms; however, half of the patients experienced the previous ACS within the past 3 months. Also, recall bias is expected to increase the frequency of mention of coming to hospital as a first response in the past, which was not the case. Finally, the context of the ACS experience may have differed between the previous and current cardiac event, thus confounding the results; the context of the previous experience was not investigated.

Summary and Implications

- Patients with past experience with similar ACS symptoms delayed seeking healthcare similarly to those with no prior experience. Delay was predicted by the characteristics of the current symptoms experienced and knowledge of ACS symptoms, regardless of past experience.
- Although prior experience with ACS was associated with better knowledge of cardiac symptoms, it was also associated with more fear of what might happen.
- The quality of responses to ACS experience did not improve with time, with seeking emergency care the least frequently used initial strategy.

The findings of this study suggest lack of recognition of the importance of immediate seeking of care in response to a cardiac event and probable unsatisfactory experiences with the healthcare system. A qualitative inquiry of the decision-making processes of patients experiencing a cardiac event could shed light into how experience shapes the patients' responses to symptoms.

At the practice level, the findings are relevant to nurses who work in community and home care settings. After discharge, nurses need to explore with patients what symptoms they are experiencing and how they are managing them. Then misconceptions about the clinical manifestations of ACS and the appropriate response to them can be dispelled, and patients are educated as needed, with emphasis on the importance of prompt seeking of care to reduce risk.

Finally, the fast recurrence of ACS (median, 3 months) and high-risk profile of the sample (smoking and hypertension) suggest the need for nurses to address lifestyle changes as part of their discharge and follow-up teaching and provide written materials for patients, especially in light of the lack of cardiac rehabilitation facilities in Lebanon, to prevent further ischemic events.

What's New and Important

- Patients with acute coronary syndrome use similar strategies in response to symptoms when they face a recurrent cardiac event.
- Delay in seeking emergency care does not improve over time even with recurrent cardiac events.
- Characteristics of the symptoms experienced are the strongest correlate of delay in seeking care for acute coronary syndrome.

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