Acute coronary syndrome: are patients and family members aware of the symptoms of attack?

Ostry zespół wieńcowy: czy pacjenci i członkowie rodzin są świadomi wystąpienia objawów ostrego zespołu wieńcowego?

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SUMMARY

Background. A delay is a cause of management failure in patients with Acute Coronary Syndromes (ACS). A delay occurs because the patients and family members do not know the symptoms of ACS.
Objectives. The aim of the study was to explore the perception of patients and family members in recognizing the symptoms of Acute Coronary Syndrome (ACS) attack at the scene.
Material and methods. This study is a qualitative with a descriptive phenomenology that was done through in-depth interviews involving sixteen participants (including, patients with ACS and family members). Data analysis was done by triangulation of data sources.
Results. The theme obtained is a mistake in recognizing the symptoms of the disease. This theme is formed from the subtheme of misunderstanding of symptoms and sees the symptoms of other diseases one previously suffered from such as asthma, ulcer, and stroke.
Conclusions. Participants are unaware of the incidence of ACS attacks that result in delays in finding appropriate assistance to health workers or facilities. The results show the importance of public education about the various symptoms of ACS, and on how to distinguish it from similar symptoms of other diseases, potential threats, and the impact if appropriate treatment is not immediately given.
Key words: acute coronary syndrome, awareness, heart attack, phenomenology.

STRESZCZENIE

Wstęp. Opóźnienie jest przyczyną niepowodzenia w leczeniu pacjentów z ostrymi zespołami wieńcowymi (*Acute Coronary Syndrome* – ACS). Opóźnienie występuje, ponieważ pacjenci i członkowie ich rodzin nie znają objawów wystąpienia ostrego zespołu wieńcowego.
Cel pracy. Odkrycie sposobu postrzegania pacjentów i członków ich rodzin w rozpoznawaniu objawów ACS na miejscu zdarzenia.
Materiał i metody. Badanie to ma charakter jakościowy i zawiera opisową fenomenologię, która została przeprowadzona na podstawie dogłębnych wywiadów z udziałem szesnastu uczestników (w tym pacjentów z ACS i członków ich rodzin). Analizę danych przeprowadzono metodą triangulacji źródeł danych.
Wyniki. Uzyskane dane wskazują na błędy występujące w rozpoznawaniu objawów choroby. Zjawisko to powstaje w wyniku niezrozumienia symptopmów i błędnego postrzegania objawów innych chorób, które występowały wcześniej – astmy oskrzelowej, odleżyn i udaru mózgu.
Wnioski. Uczestnicy badania nie są świadomi występowania objawów ostrego zespołu wieńcowego, co powoduje opóźnienia w uzyskaniu odpowiedniej pomocy od pracowników lub jednostek ochrony zdrowia. Wyniki wskazują na znaczenie edukacji publicznej w zakresie różnych objawów ACS oraz na temat tego, w jaki sposób odróżnić je od podobnych objawów innych chorób, ale także potencjalnych zagrożeń wynikających z opóźnień, jeśli odpowiednie leczenie nie jest udzielone natychmiastowo.
Słowa kluczowe: ostry zespół wieńcowy, świadomość, atak serca, fenomenologia.

Background

Acute Coronary Syndrome (ACS) is a life-threatening condition [1, 2]. ACS is the leading cause of sudden death [3, 4]. The deaths are caused by delays in obtaining reperfusion [1, 5], which to obtain optimal results should be performed within the first hours (< 120 minutes) of symptom onset [6–8].

Prehospital delay time ranged from 15 minutes to 10 days [9] and 1.6 to 12.9 h [10]. In Indonesia, 80% of patients with ACS arrived to the hospital admission more than 12 hours from onset of infarction [11]. The majority of ACS patients' delay in achieving health care is associated with a lack of knowledge of symptoms [10, 12].

Leslie et al. [13] explained that in all cases where the delay is more than one hour, the main reason is the thought that the symptoms are not serious and will soon disappear. However, research conducted by Leslie et al. does not explain what the patients think so they experience delays in getting health services.

Individuals who have had a myocardial infarction directly or indirectly have better awareness of the symptoms of ACS than those who do not [14]. Furthermore, when a person has good awareness, he or she will also have a better attitude and belief about the symptoms [15]. Thus, they will make various efforts to avoid delays in obtaining health services.

Thureson et al. [16] described that the majority of patients when experiencing ACS preferred to contact family members rather than directly request an ambulance. Based on this, this study intends to explore the patients' perception and family members related to ACS symptoms. The results of this study are expected to provide awareness of the symptoms of ACS as early as possible to the community.

Material and methods

Study design

The study used a descriptive phenomenology qualitative research design. The focus of this study is on the subjective experience of participants on the perception of patients and family members related to ACS symptoms. The descriptive phenomenology approach requires the researcher to put aside all previous experience and knowledge, so that there is an understanding of the phenomenon under study [17, 18].

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Study setting and participants

The study was conducted in Turen Public Health Center, Malang, East Java, Indonesia. Based on the results of a national survey in 2013, there were 883,447 people suffering from coronary heart disease, with the highest estimated number in West Java Province (160,182 people) and East Java (144,279 people) [19]. Malang City, which is part of East Java province, has 1311 incidents until July 2017, and 39 of them are in Turen Public Health Center of the 39 Public Health Centers (Malang Demographic Survey 2017).

The participants in this study and have achieved data saturation sixteen people (including, eight ACS patients and eight family members) in Turen Public Health Center, Malang, East Java, Indonesia [20]. A family member is the person whom the patient contacts when experiencing ACS. The patients were selected from the population using a purposive sampling approach [21] based on inclusion criteria, including having a history of ACS attack for the first time, recorded as a patient at the Public Health Center. The consent to participate in the research was evidenced by the signing of an informed consent by the participants.

Data collection

This study has obtained the ethical approval from the UB Medical Faculty (Number 216/EC/KEPK/06/2017). The study was conducted in four (4) months from September to December 2017.

The study was conducted by a team of researchers led by a nursing specialist in a nursing community. Prior to the data collection process, participants got an explanation of the research objectives and procedures. The absence of a relationship between researchers and participants required the researchers to hold 2 to 3 meetings at participants' home. This was done to ensure participants to be willing to share their experiences about ACS openly and honestly. The interview process for patients and family members was done at different times, and not interviewed simultaneously. It was done to avoid bias results in the study.

Data collection was done by in-depth interviewing. The interview process was done face-to-face at participants' house – the interview was held personal. The interview took between 27 minutes to 40 minutes. The statements submitted by the participants were recorded in an audio (MP3) format. The results were kept confidential.

Data analysis

The data were the statements expressed by the participants during the interview. Data analysis used triangulation method of data sources to identify the category, subtheme, and theme meaning of participant experience. The categories of the same meaning are arranged to form subthemes, then subthemes of similar meanings are arranged into a theme. Data analysis was done manually using thematic method [22]. First, we got ourselves familiar with the data by reading repeatedly the results of interviews. Then, coding was done by making categories of keywords and answering the purpose of research. The next step was searching for themes, organizing categories according to their groups for subthemes and themes. Reviewing the theme followed the process as we examined conformity of the theme and category. After that, we defined and named the themes, as to come to the essence of each theme. The last was making a report or writing the research results after being associated with the existing literature [23].

Findings

There are sixteen participants, consisting of eight ACS patients and eight family members whom the patient contacts when experiencing ACS in Turen Public Health Center, Malang, East Java, Indonesia. The characteristics of participants are presented in Table 1.

Table 1. Participants characteristics

Characterisrtics	Category	Number of participants (n = 16)
ACS Patients		
Sex	male	3
	female	5
Age (years)	41–50	2
	51–60	5
	> 60	1
Highest Level of Education	Junior High School	3
	Senior High School	3
	Bachelor degree	2
ACS type	STEMI*	2
	NSTEMI**	3
	unstable angina	3
Family members		
Sex	male	3
	female	5
Age (years)	< 30	3
	31–40	2
	41–50	2
	51–60	1
Highest Level of Education	Senior High School	5
	Diploma	1
	Bachelor degree	2

* STEMI – ST Elevation Myocardial Infarction;
** NSTEMI – Non ST Elevation Myocardial Infarction.

The themes obtained from the data analysis of the sixteen participants are as follows. First, they have mistaken the ACS symptoms with other symptoms. This means the inability of participants to recognize ACS symptoms when they first experience a heart attack, and before getting an explanation from a health worker (doctor). This theme has two subthemes namely the lack of knowledge related to the symptoms of ACS and their perception, i.e. believing the symptoms of ACS as the symptoms of previously suffered diseases such as asthma, ulcer, and stroke.

The first subtheme of the lack of knowledge related to the symptoms of ACS shows the difficulties of participants in recognizing the symptoms of ACS experienced. Here are the participants' statements:

> *At first I am feeling... What do you call it? Every time, I often experience cold sweat and then such my heart beats fast and pain here (put the hand on the chest). The left side feels painful. I do not know if this is a heart attack, this happens almost every week. Constant pain, then cold sweat, and then I feel like my body is so weak (Patient Number 3).*

> *I did not feel anything before. Then, suddenly I felt such pain in here (holding the chest to the left), like there were needles on it. Then after I read, it is indeed a sign of coronary heart attack. There was cold sweat as well (Patient Number 5).*

> *At first, I felt my stomach bloated, hard to breath and I felt pain in the chest, the pain even goes through the chest to my back. I did not know what to do or what it was; my family asked me to have the medicated oil, and then at 8 o'clock (night) I could not stand the pain and my family took to the hospital (Patient Number 6).*

> *I do not know if I have a coronary heart disease. My chest is so painful. The doctor said I had to have a heart record and it turned out I was exposed to the coronary heart disease. It should be treated and I must take continuous medication (Patient Number 8).*

> *Mother often told me that her heart is often pounding, sometimes pain in the chest. I did not know if it is heart disease symptoms. I said maybe mom is less drink or less rest. However,*

because it is often complained by my mother and worse, so I recommend to see a doctor. From the doctor was just knowing if my mother was exposed to coronary heart disease, immediately told to take care (Family Member Number 3).

Before the heart attack, my wife was often dizzy, sometimes that night often ask the children to massage the hands and around the neck. I think it may be because she is fatigued, my wife is a teacher. Said a doctor, such symptoms because the heart can (Family Member Number 5).

At first my mother was asleep, late afternoon. Calling me, tell me to get medicate oil. I do not think anything, my mother often uses medicated oil. A few hours later, my mother complained hard to bhreat, I am confused, so asked for help to neighbours to take my mother to the hospital (Family Member Number 6).

I knew my mother had been exposed heart attack at the hospital after being examined. I think maybe my mother was cold, fatigue, my mother does work in the shop, said I was dizzy, then she vomits. I was afraid of anything happening to her so I brought her to the hospital. I know that her heart was troubled in the hospital (Family Member Number 7).

Before she was taken to the hospital, my mother was complaining that her chest was warm, I did not know; ... I give drinking water, have a break. A few hours later, she said her chest felt narrow, so check. The doctor said there is a problem in the heart and should be monitored at the hospital (Family Member Number 8).

The participants' statements above indicate that they are not aware that the symptoms experienced are heart attacks. They experience confusion in interpreting the symptoms. It can be seen from sentences, like "I do not know if this is a heart attack", "I am confused", "I do not think anything" and "I do not know if I have a coronary heart disease", explaining that they never get an introduction to symptoms of the coronary heart attack.

Another subtheme of mistake in recognizing the symptoms of ACS is their perception, i.e. believing their symptoms as the symptoms of previously suffered diseases such as asthma, ulcer, and stroke. This subtheme implies that the first time participants got a heart attack, they did not interpret the symptoms as ACS. This can be seen from the following participants' statements:

... chest was so painful, like being stabbed with a sharp knife and it went through the chest to my back; ... I was breathless and I found sleeping difficult, I thought it was asthma or maybe something was wrong with my lungs; I could not lie down, just sit; ... I have asthma because my father also suffers from it (Patient Number 1).

... I took medication for ulcer for a week as I do suffer from ulcer; ... I suffered from nausea, and I lost my appetite, I could not eat anything; then my family called a health worker. I got an injection and medicine as well for my ulcer, but my condition did not improve; then my family took me to Malang; ... The doctor said it was heart attack; I had to ask for a referral to the Turen Health Center; then I knew it was a heart attack (Patient Number 2).

First my chest felt like burning; I did not understand, took medicine; ... sometimes at night, noon, or morning, often at night. I often wake up at midnight; I did not know it was the heart attack symptoms, and I thought it was stroke symptoms (Patient Number 4).

I was working at that time. I felt something painful in my chest; I thought it was ulcerated. After the x-ray, I knew it was my heart. Other organs were good, it has been just my heart. (Patient Number 7).

One week before went to public health centre, my husband often said that his chest is painful, ... creeping backward, his breath was sometimes short, he said; ... asking for massage, is sleep can not supine, but sitting. I think what asthma, because my husband has asthma since long time; ... then by my brother was treated at home given infusion, said it is a lung infection. The night of Friday infusion was trouble, home of my brother is far, asked me to take my husband to public health centre. From a public health refers to Kepanjen hospital. In Kepanjen, the doctor said my husband has coronary heart disease (Family Member Number 1).

My father got medication from the nurse near here, given the medicine. The nurse said that stomach acid of my father increased. A few days there was no improvement, vomiting, nausea continued, breathless, finally taken to the doctor. The doctor asks for a referral letter from the public health center; ... said it should be treated in the hospital, possibility his heart there is a constriction (Family Member Number 2).

Before experienced heart attack, my husband had suffered a stroke since 5 years ago. Before knowing, having heart disease, the night often said that his chest is heavy, asking to take warm drinking water, then his hands say it often tingling asking to massage. I think what might be the impact of a stroke, when the Monday night it is an accident, ask to be escorted to the hospital, said pain in the chest is hard (Family Member Number 4).

The above participants' statements reveal that when experiencing ACS symptoms during a heart attack, they perceive the symptoms as the symptoms of asthma, ulcer, and the effects of stroke. The statements can be seen in the sentences, such as "I thought it was asthma", then the expression "I took medication for ulcer". The phrases indicate that the symptoms experienced by the participants are interpreted as a symptom of the disease that they previously had experienced.

Discussion

The results show that there has been a failure in recognizing the ACS symptoms during the first attack by patients and family members. This can be seen from participants' misunderstanding and mistake in interpreting the symptoms of ACS. Some participants perceive that the symptoms they experience are symptoms of recurrence of diseases such as asthma, ulcer, and stroke, and not a health condition that requires immediate treatment.

The findings in the study support the results of previous research conducted by Ribeiro et al. [24]. They explain that the majority of patients (62.6%) do not perceive the symptoms as ACS before the explanation from the doctor, and the majority (58%) who perceive the symptoms as the symptoms of ACS have had a history of previous ischaemic heart disease [24]. Patients who have had previous ACS have a shorter delay time than those without experience [25].

Failure of family members to recognize symptoms and threats ACS illustrate how people perceive ACS. The findings in the study support the results of previous research conducted by Intas et al. [26]. They explain that there is no general public able to answer all questions about the signs and symptoms of a proper heart attack. The same is also expressed by Whitaker et al. [14] that knowledge of the symptoms of myocardial infarction in the general population is still in the less category. Based on this, one of the efforts to increase public knowledge about ACS is by providing health education. Darsin Singh et al. [27] find that educational programs conducted by health professionals are able to improve the level of knowledge, attitudes and beliefs about ACS. It means that people who have received information about ACS will easily recognize the symptoms of ACS experienced by their family members, and will have an impact on decision making to seek immediate care, so delays can be minimized.

Mistakes in interpreting ACS will have an impact on delay in seeking treatment [9]. Patients who do not have a good awareness of the symptoms of ACS will attempt to treat themselves and wait for symptoms to disappear [28]. Meanwhile, individuals who recognize the symptoms in the heart will decide to seek treatment immediately, so the delay is reduced [16, 25, 29].

Patients with ACS will clearly benefit if they receive timely treatment. The reperfusion action provides highly optimized results if performed in the first hours after onset. However, in the context of the relationship between patient and health care, delays are a major cause of treatment failure [30], and high mortality in hospitals [31].

Conclusions

The results of this study reveal that delays in seeking health care at the time of the first heart attack, caused by the failure of the participants to recognize ACS symptoms and its threat to life. Participants interpret the symptoms of ACS as a symptom of another disease they suffered previously. This suggests that the importance of educating the introduction of ACS symptoms to the community, which includes topics on the difference between ACS symptoms and other diseases such as asthma, ulcer, and stroke. Then, health professionals also must educate them about potential threats if they are late for treatment at the time of experiencing the symptoms, so that mortality due to ACS can be lowered.

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