

The Difference of Chest Pain in Adult and Elderly Patients with Acute Myocardial Infarction

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ABSTRAK

Nyeri pada serangan akut infark miokard tidak bisa dianggap remeh karena nyeri ini akan berdampak buruk bagi pasien. Belum ada penelitian yang membandingkan nyeri dada antara pasien dewasa dan lansia dengan penyakit arteri koroner. Dengan demikian, penelitian ini membandingkan nyeri dada pada pasien dengan infark miokard akut pada orang dewasa dan orang tua. Penelitian ini merupakan penelitian kuantitatif analitik dengan studi dokumentasi. Dengan teknik purposive sampling, jumlah sampel dalam penelitian ini adalah 68 responden. Analisis statistik menggunakan uji Mann Withney. Dari total peserta (n=68), 72,1% adalah lansia, 60,3% laki-laki dan 79,4% STEMI. Hasil tersebut diperoleh dari skala nyeri pada orang dewasa dengan nilai mean 54,11 dan nilai mean pada lansia usia 26,90 dengan nilai p (0,000). Ada perbedaan yang signifikan antara nyeri infark miokard pada orang dewasa dan nyeri infark miokard akut pada orang tua. Intensitas nyeri dewasa lebih tinggi dibandingkan pasien usia lanjut. Penelitian ini merekomendasikan agar petugas kesehatan tetap memberikan penanganan yang serius pada pasien nyeri dada pada orang dewasa dan lansia.

Keywords: Infark Miokard Akut, Nyeri Dada, Usia, Dewasa, Lansia.

ABSTRACT

Chest pain in an acute attack of myocardial infarction cannot be underestimated because this pain will have a harmful impact on the patient. Pain is influenced by personality, life stress, social economic factor, cognitive, and psychology factor. There is no study comparing chest pain between adult and elderly patients with coronary artery disease. Thus, this study to compare chest pain in patients with acute myocardial infarction in adults and the elderly. This research is a quantitative analytic study with a documentation study. With the purposive sampling technique, the number of samples in this study was 68 respondents. The statistical analysis employed the Mann Withney test. Out of total participant (n=68), 72,1 % were elderly, 60,3 % were male and 79,4 % were STEMI. The results were obtained from the pain scale in adults with a mean value of 54.11 and a mean value at the elderly age 26.90 with a value of p (0.000). There is a significant difference between myocardial infarction pain in adults and acute myocardial infarction pain in the elderly. Adult more high intensity of pain than elderly patients. This study recommended that health workers so provide serious treatment for chest pain patients in elderly althrought the pain is not serious.

Key words : Acute Myocardial Infarction, Chest Pain, Age, Adult, Elderly.

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INTRODUCTION

Acute coronary syndrome has been suffered globally (M. A. Khan et al., 2020). Based on World Health Organization (WHO) data, acute coronary syndrome is the largest increase of death in the world, since 2000, rising from more than 2 million to 8,9 million deaths in 2019. In lower middle countries, including

Indonesia, ischemic heart disease is the number one cause of death, rising more than 1 million 3,1 million since 2000 to 2019 (World Health Organization, 2020). Mortality ischemic heart disease in five countries such as United Kingdom, United States, Brazil, Kazakhstan, and Ukraine was the highest number. The mortality rates per 100 000 people per year were much higher in Ukraine (324) and

Kazakhstan (97) than in United States (60), Brazil (54), and the lowest number in United Kingdom (46)(Nowbar et al., 2019). Thus, in Romania was 197,152 deaths caused by myocardial infarction (39,3% from total myocardial infarction in women) and 304,644 (60,7%) in men(Ioacara et al., 2020). In Indonesia, 2,784,064 (1.5%) cases of heart disease occurred (Kementerian Kesehatan Badan Penelitian dan Pengembangan Kesehatan 1, 2018), with mortality rank in West Asia and Pacific was 2, (the number 242,8)(Finegold et al., 2013).

Acute myocardial infarction is characterized by the main symptoms of typical chest pain, which radiates to the left arm, neck, back, or jaw, dyspnea, nausea, sweating, and others (Lu et.al, 2015). Chest pain was the presenting symptom of myocardial infarction in 91% of men and 92% of women. Other symptoms were more common in women (77%) than in men (59%) with myocardial infarction (Ferry et al., 2019). Chest pain also appears on 79,2 % of myocardial infarction patients (Fujino et al., 2017). Pain in an acute attack of myocardial infarction cannot be underestimated because this pain will have a harmful impact on the patient. The impact of pain in acute patients is that it results in sympathetic stimulation that significantly affects the cardiovascular system, gastrointestinal, and urinary tracts. Especially in the cardiovascular system, it will lead to acceleration in heart rate, increase in contractility and tone of heart walls, and elevated blood pressure. These conditions worsens heart damage (Zubrzycki et al., 2018). Therefore, this is the importance of dealing with pain of myocardial infarct patient.

Pain is influenced by personality, life stress, social economic factor, cognitive, and psychology factor (Nurulain T. Zaveri, 2016). Previous studies showed correlation of depression to chest pain in patients with coronary artery disease (Hayek et al., 2018), women with acute coronary syndrome (ACS) have different symptom than men with ACS (N. A. Khan et al., 2013) and a significant relationship was shown from risk factors of

dyslipidemia, family history and previous chest pain and previous infection (Rini, Ayuningtyas, & Ratnawati, 2017). There is no study comparing chest pain between adult and elderly patients with coronary artery disease. Thus, it is necessary to conduct a study to compare chest pain in patients with acute myocardial infarction in adults and the elderly.

MATERIAL AND METHOD

This research employed a quantitative study using the comparative study method. The number of samples obtained was 68 respondents with a non-probability sampling technique using a purposive sampling technique. For collecting demographic detail of participants and patients pain scale using secondary data, by study documentation using patient medical records. The participants criteria were patients diagnosed with acute myocardial infarction and there was documentation of pain scale assessment in the emergency room, and the exclusion criteria were patients with comorbidities with diabetes mellitus. Statistical analysis used the Mann-Whitney test.

A self questionnaire was prepared to collect demographic details of participant and to collect pain scale of participants. The first part covered demographic information, such as age, gender, and medical diagnosis. The second part covered pain scale and onset time of chest pain.

This research obtained an ethical permit from the Ethics Commission of Universitas 'Aisyiyah Yogyakarta number 1464/KEP-UNISA/II/2020. The study was conducted between 15 and 27 July 2020 in RS PKU Muhammadiyah Yogyakarta.

RESULTS

The research was conducted at a private hospital in Yogyakarta, Indonesia, involving 68 participants. Frequency and percentage of all the demographic characteristic such as gender, age and medical diagnosis are represented in Table 1.

was 58.8%, and at least 16.2% experiencing

Table 1 Demographic information of the participants

	Characteristics	Frequency (f)	Percentage (%)
Age	24-44 (Adult)	19	27,9
	45-64 (Elderly)	49	72,1
Gender	Male	41	60,3
	Female	27	39,7
Type of AMI	STEMI	54	79,4
	NSTEMI	14	20,6
Onset of Pain	<12 hours	12	14.0
	>12 hours	9	10.5
	Missing system	65	75.5
	Total	68	100

Based on Table 1, it can be seen that based on gender, the most male respondents are 41 respondents (60.3%). Based on age, the most respondents were 45-64 respondents (72.1%), while the ages of 24-44 were 19 respondents (27.9%). Based on medical diagnoses, the most respondents diagnosed with inferior STEMI were 54 respondents (19.4%). Based on the onset of pain, it can be seen that the respondents with the category of onset of pain <12 hours were 11 respondents (16.2%), and the category of onset of > 12 hours were 10 respondents (14.6%), but there were 47 respondents (69, 1%) for which there is no pain onset data.

Based on Table 2, it is found that 100% of respondents experienced chest pain, with most respondents in the mild pain category, which

severe pain.

Table 3 shows that in adult patients with acute myocardial infarction, the largest percentage felt severe pain (58%), and the smallest percentage felt mild pain (10.5%). Meanwhile, in the elderly, the largest percentage felt mild pain (77.5%) and none experienced severe pain.

Table 4 shows that the respondents felt the most pain, namely the respondents aged 24-44. Hypothesis statistical test using the Mann Withney test technique obtained a p-value coefficient of 0.000, which means that there are differences in chest pain in adults and elderly patients with acute myocardial infarction.

Table 2 Frequency distribution of chest pain in acute myocardial infarction

Pain	Incidence	
	F	%
Mild	40	58,8
Moderate	17	25
Severe	11	16,2
Total	68	100

DISCUSSION

neurological system so that they experience a decrease in the ability to feel pain

Table 3 Cross-tabulation of chest pain in adults and elderly patients with Acute Myocardial Infarction

Pain	Age			
	Adult		Elderly	
	F	%	F	%
Mild	2	10,5	38	77,5
Moderate	6	31,5	11	22,5
Severe	11	58	0	0
	19	100	49	100

Chest pain is the main clinical manifestation in acute coronary syndrome patients (Lu et al., 2015). Almost all patients with acute coronary syndrome experience chest pain with varying intensity from mild, moderate and severe. This study indicates that 100% of patients with acute coronary syndrome experience pain, with a mild, moderate and severe pain distribution, with the largest percentage of respondents experiencing mild pain. The results of this study are relevant to previous study which are relevant to previous study that concluded that 100% of acute coronary syndrome patients experience chest pain (Pangestika & Nureni 2017). Research by Yadav et al. (2010) found that 94% of all respondents experienced chest pain, and it was the highest symptom experienced by respondents. However, there is a difference in the majority of the pain scale. In Pangestika and Nuraeni's (2017) study, the largest pain scale was at a moderate pain level of 76.92%. Whereas in this study, most of them experienced mild pain, which were 58.8%. Most of the mild pain was probably because most of the respondents were elderly. It is known that the elderly experience a dissipation process in all systems, including the

In the study, 31.5% of adult respondents experienced moderate pain and only 10.5% experienced mild pain. Thus, it can be said that most adult patients experience significant pain, which were severe and moderate pain. This study indicates the mean value of the pain scale for patients with acute coronary syndrome is 54.11. This value is sufficient to indicate that the respondent quite feels the adult patient's pain scale.

Chest pain in adults in this study was mostly in severe pain (58%). It may be because most of the medical diagnoses of adult patients are STEMI, which were 16 respondents (84.2%). It is known that STEMI occurs due to blockage of the coronary arteries by a thrombus that occurs in pre-formed atherosclerotic plaques. This condition causes severe damage to the heart so that the clinical manifestations of chest pain are felt heavier (Satoto, 2014). In this study, 84.2% of adult respondents experienced STEMI, so that the pain felt by patients was mostly in the severe category. In addition, the age factor is still in the adult age category. The neurological function is still normal, so that the pain sensation that is felt is still normal, does not decrease from the actual pain sensation.

Table 4 Results of the Mann-Whitney Test for Comparison Pain Scale on adult and elderly

Age	Mean	Sig. (2-Tailed)
24-44 (adult)	54,11	0,000
45-64 (elderly)	26,90	

Most of the adult respondents were male (73.6%), with the majority on the severe pain scale. Men tend to be more receptive to pain than women, while women complain more. However, although most respondents were male in this study, the majority felt severe pain. The results of this study are not in accordance with the research of Coventry, Finn, and Bremner (2011) which found that women felt more pain than men.

This study shows that the mean of the pain scale in the elderly age group is 26.90. The highest percentage with mild pain scale was 77.5%, only 22.5% experienced moderate pain, and none experienced severe pain. Thus, it can be said that most elderly patients experience mild pain. The results of this study are in line with the research of Culic et al (2017) that elderly patients are less likely to complain of chest pain compared to adults. Elderly patients only tend to complain of dyspnea and feel like they are about to faint. According to Madhavan et al. (2018), coronary heart disease in the elderly shows symptoms that are not specific to coronary heart disease.

Based on the analysis, it was found that the p value was 0.000, so there is a significant difference between pain based on age in acute myocardial infarction patients. The table results show that the mean value of adult age is 54.11 greater than that of the elderly 26.90, which indicates that the young age in acute myocardial infarction patients is greater than the elderly.

Table 4 shows that the incidence of acute myocardial infarction is more prevalent in the elderly (45-64) as many as 49 respondents compared to adults (24-44) as many as 19 respondents. Research by Yadav et al (2010) found that 69% of respondents with the acute coronary syndrome are over 50 years old, while the rest are under 50 years old, which also supports that the incidence of acute myocardial infarction increases in the age range of 40 to 60 years by five times as much as in patients under 40 years of age. It happens because at the age of over 40 years, there is a decrease in the body's function in the body, including the heart

such as in coronary arteries that experience vasoconstriction disrupting blood flow to the myocardium which will lead to heart muscle necrosis. The results of the study from table 6 above show that the pain at the age of 24-44 is greater with a mean value of 54.11 compared to the age 45-64 with a mean value of 26.90. Pain in the elderly is felt to be lighter than pain in adults. This result is in line with the research of Pangestika and Nuraine (2017) which states that the high mortality rate of ACS sufferers in the old age group is because at old age the patient does not feel significant chest pain. Thus, it is not considered a serious problem, as a result of which the patient is brought to the health care center too late. However, the more severe complaints felt in the elderly group were shortness of breath, fatigue, vomiting and hiccups (Taghipour et al., 2014). Age has a relationship of experience with a health problem or disease and in decision making so that someone who is older will respond to the stressors encountered than someone who is younger. The age factor influences an important role in patient perception.

CONCLUSION AND RECOMMENDATION

In conclusion, most of the acute myocardial infarction patients experienced severe pain. There is a significant difference between myocardial infarction pain in adults and acute myocardial infarction pain in the elderly. Adult more high intensity of pain than elderly patients. This study recommended that health workers so to provide treatment for chest pain patients in elderly patients of acute myocardial infarction although the chest pain is mild.

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