

Acute Coronary Syndrome in Young Patients at Dr. Sardjito General Hospital

Insidensi Sindrom Koroner Akut pada Pasien Muda di RSUP Dr. Sardjito

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ABSTRAK

Latar Belakang: Insidensi sindrom koroner akut (ACS) pada pasien muda meningkat baru-baru ini. Beberapa penelitian melaporkan bahwa pasien muda memiliki karakteristik klinis yang berbeda dibandingkan dengan pasien yang lebih tua.

Tujuan: Untuk menilai prevalensi, faktor risiko dan presentasi klinis ACS pada pasien muda di rumah sakit Sardjito Yogyakarta.

Metode: Kami melakukan studi potong lintang antara September 2008 - Mei 2009 di Unit rawat koroner intensif (ICCU) rumah sakit Sardjito. Pasien yang dirawat dengan ACS kami ikuti secara konsekutif. Kami mengelompokkan pasien ACS muda (usia \leq 45 tahun) dan ACS tua (usia $>$ 45 tahun). Kami membandingkan faktor risiko kardiovaskular, presentasi klinis dan spektrum klinis dari kedua kelompok. Analisis statistik menggunakan uji chi-square, nilai $p < 0,05$ dipertimbangkan berbeda secara signifikan.

Hasil: Pada penelitian kami didapatkan 20 (13.5%) pasien ACS muda dan 128 (86.5%) pasien ACS yang lebih tua. Sebagian besar pasien ACS muda adalah laki-laki (90%). Proporsi diabetes mellitus pada pasien ACS muda tidak berbeda dengan pasien ACS yang lebih tua (20% dibanding 18.8%, $p = 0.55$). Hipertensi juga tidak berbeda (50% dibanding 53.1%, $p = 0.49$). Enam puluh persen dari pasien ACS muda adalah perokok, namun proporsinya tidak berbeda dengan pasien ACS yang lebih tua ($p = 0.84$). Tidak ada perbedaan yang signifikan pada dislipidemia. Para pasien ACS muda sebagian besar mengalami STEMI dibandingkan NSTEMI dan angina tidak stabil (55% dibanding 15% dibanding 30%), namun tidak ada perbedaan yang signifikan bila dibandingkan dengan pasien ACS yang lebih tua ($p = 0.65$). Tiga puluh persen dari pasien ACS muda hadir dengan Killip kelas II atau lebih tinggi, namun tidak ada perbedaan yang signifikan antara kelompok ($p = 0.40$).

Kesimpulan: Pada penelitian ini kami menemukan bahwa tidak ada perbedaan yang signifikan dalam faktor risiko, presentasi klinis dan spektrum antara pasien ACS muda dan pasien ACS yang lebih tua. Kebutuhan untuk program pencegahan pada kedua kelompok sebaiknya tidak ada perbedaan.

Kata kunci: ACS, muda, tua, presentasi klinis.

ABSTRACT

Background: The incidence of acute coronary syndrome in the young patients is increased recently. Several studies reported that young patients have distinct clinical characteristics as compare with older patients.

Objective: To assess the prevalence, risk factors and clinical presentation of acute coronary syndrome (ACS) in young patients at Dr. Sardjito Hospital, Yogyakarta.

Methods: We conducted a cross sectional study between September 2008-May 2009 at intensive cardiovascular care unit (ICCU) of Dr. Sardjito Hospital. We enrolled consecutive patients admitted with acute coronary syndrome. We divided the patients as young ACS (age \leq 45 years) and older ACS (age $>$ 45 years). We compared cardiovascular risk factors, clinical presentation and clinical spectrums from both groups. Statistics analysis was performing using chi-square test, p value $<$ 0.05 was considered significantly different.

Results: In our study there were 20 (13.5%) young ACS and 128 (86.5%) older ACS patients. Most young ACS patients are male (90%). Proportion of diabetes mellitus in young ACS was not different from that in older ACS patients (20% vs. 18.8%; $p=0.55$). Hypertension was not different either (50% vs. 53.1%; $p=0.49$). Sixty percent of young ACS patients were smoker, however its proportion did not differ from older ACS patients ($p=0.84$). There were no significant differences of dyslipidemia. The young ACS patients mostly experienced STEMI than NSTEMI and unstable angina (55% vs. 15% vs. 30%), but there were no significant differences when compared to older ACS patients ($p=0.65$). Thirty percent of young ACS patients presented with Killip class II or higher, however there were no significant differences between groups ($p=0.40$).

Conclusion: In this study we found that there were no significant differences in risk factors, clinical presentation and spectrums between young ACS and older ACS patients. The need for prevention program in both groups should not be difference.

Keywords: ACS–young–older–clinical presentation.

INTRODUCTION

The incidence of Acute Coronary Syndrome (ACS) in the young patients is increasing recently. Several studies reported that young patients have distinct clinical characteristics and risk factors as compare with older patients.^{1,2} It is important to elucidate the clinical features of ACS in young patients since it may have distinct prognostic impact in these populations. Furthermore, risk factors associated with premature coronary artery disease may differ from those in the older counterparts. Interplay between multiple risk factors have been suggested in ACS, however, whether this also occurs in the young patients need to be elucidated.

The role of ethnic differences in the pattern of cardiovascular risk factors has been suggested.^{3,4} If the age factor is excluded such as in the young population, then the ethnicity may be more prominent in influencing the risk factors. Therefore, the aim of this study is to assess the prevalence, risk factors

and clinical presentation of ACS in young Indonesian patients in comparison with the older patients.

PATIENTS AND METHODS

We conducted a cross sectional study between September 2008-May 2009 in intensive cardiovascular care unit (ICCU) of Dr. Sardjito Hospital. We enrolled consecutive patients admitted with acute coronary syndrome. We divided the patients into two groups, i.e. young ACS (those with age \leq 45 years) and older ACS (those with age $>$ 45 years). We compared cardiovascular risk factors and clinical presentation from both groups.

Diabetes mellitus was defined as having a history of diabetes mellitus diagnosed and/or treated with medication and/or diet or fasting blood glucose 126 mg/dl or greater. Hypertension was defined as having a history of hypertension or systolic blood pressure greater than 140 mmHg or diastolic blood

pressure greater than 90 mmHg at least on two occasions, or those receiving any anti hypertensive drugs. Dyslipidemia was defined as history of dyslipidemia diagnosed and/or treated by a physician or total cholesterol greater than 200 mg/dl, low density lipoprotein greater than 130 mg/dl, or high-density lipoprotein greater than 40 mg/dl on examination.

Statistics analysis

Descriptive statistics were used to describe the patients' characteristics. Differences between groups were analyzed using chi-square test, *p* value <0.05 were considered significantly different. Statistical analyses were conducted using SPSS 20.

RESULTS

A total of 148 patients were enrolled in this study. Table 1 show the demographic and baseline characteristics of the patients.

In our study there were 20 (13.5%) young ACS and 128 (86.5%) old ACS patients. Mostly young ACS patients are men (90%). Proportion of diabetes mellitus in young ACS was not different from that in older ACS patients (20% vs. 18.8%; *p*=0.55). Hypertension was not different either (50% vs. 53.1%; *p*=0.49). Sixty percent of young ACS patients were smoker, however its proportion did not differ from older ACS patients (*p*=0.84). There were no significant differences of dyslipidemia in young ACS and older ACS patients (50% vs. 59.4%; *p*=0.29).

Table 1. Patients Characteristics

Characteristics	The young ACS (n = 20)	The older ACS (n = 128)	P value
Age, mean±SD years	42.5 ± 3.1	59.0 ± 7.7	
Male, n (%)	18 (90)	100 (78.1)	0.178
Diabetes mellitus, n (%)	4 (20)	24 (18.8)	0.550
Hypertension, n (%)	10 (50)	68 (53.1)	0.491
Dyslipidemia, n (%)	10 (50)	76 (59.4)	0.290
Smoker, n (%)	12 (60)	59 (57.3)	0.849
STEMI, n (%)	11 (55)	59 (46.1)	0.650
Non-STEMI, n (%)	3 (15)	30 (23.4)	0.650
Unstable Angina, n (%)	6 (30)	39 (30.5)	0.650
Killip Class I, n (%)	14 (70)	96 (75)	0.408

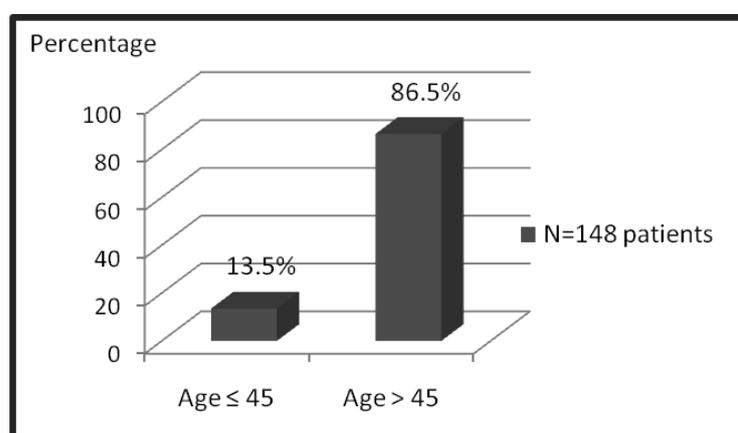


Figure 1. Proportion of young and non young ACS patients

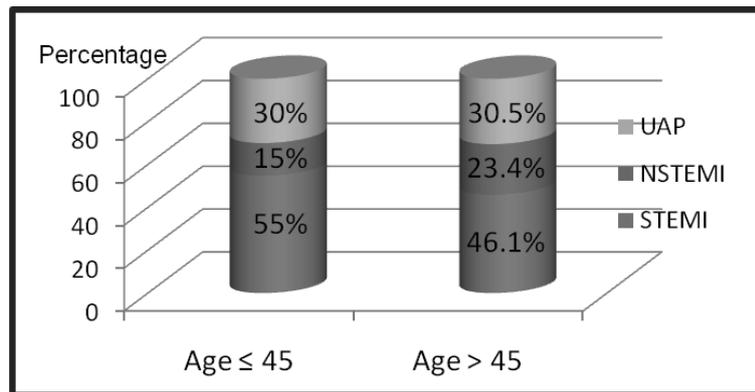


Figure 2. The types of ACS among young and non young patients

Young ACS patients mostly experienced STEMI than NSTEMI and unstable angina (55% vs. 15% vs. 30%; respectively), but there were no significant differences when compared to the pattern of older ACS patients ($p=0.65$). Thirty percent of young ACS patients presented with Killip class II or higher indicated the presence of left ventricular dysfunction, however there were no significant differences between groups ($p=0.40$).

DISCUSSION

The result of this study shows that the risk factors of ACS do not differ between young and older ACS patients. The pattern of risk factors of young ACS patients were smoker (60%), hypertension (50%) and dyslipidemia (50%), whereas in the older ACS patients the risk factors are dyslipidemia (59.4%), smoker (57.3%) and hypertension (53%). Statistically, the pattern is not different. The most frequent clinical spectrum of ACS in young and older patients in this study is STEMI, followed by unstable angina and NSTEMI. As a whole, this study indicates that there are no different in the pattern of the risk factors and clinical spectrum of ACS in young and older patients.

In our study, the proportion of young patient among ACS is 13.5%. Compared with other studies investigating young patients with ACS such as GRACE study, Thai ACS registry, Spain registry and Oman registry^{5,6,7,8}, our study shows higher proportion. GRACE study reported the proportion of young patients was 6.3%⁵, whereas Thai, Spain and Oman registries reported 5.8%, 7% and 7.6% respectively^{6,7,8}. Thus our study comprises twice higher than other studies proportion. Other studies indicate that risk factors for developing ACS differ between young and older patients.^{1,2} Based on these studies, the high prevalent risk factors in young patients are smoking, hyperlipidemia, obesity and the presence of family history. In contrast, hypertension is low prevalent among young patients. Our study shows that hypertension is a significant risk factor with high prevalence in young patients. Almost half of the young patients in our study is also hypertensive. Based on basic health national survey in the year of 2007, approximately 31.7% Indonesian above 18 years old suffer from hypertension.⁹ This indicates that the majority of patients with ACS has early exposure to risk factors in young age.

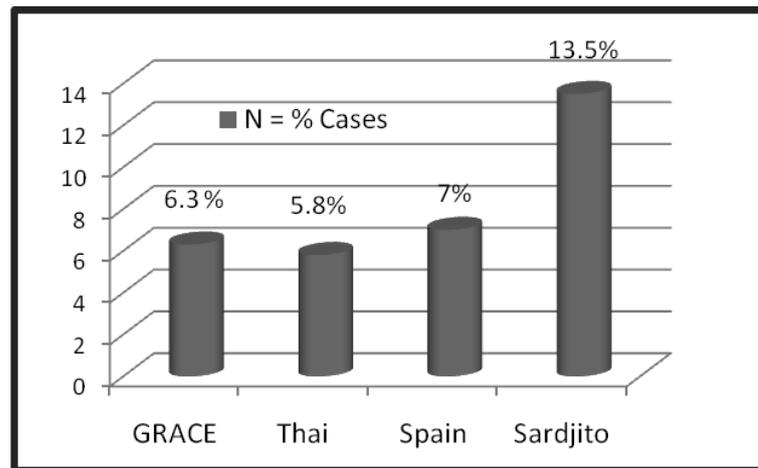


Figure 3. Prevalence of the young ACS patients in various studies

In this study, smoking is the most common risk factors in the young patients with ACS. Based on global adult tobacco survey (GATS) 2011, the total number of active smoking among Indonesian citizen above 15 years old is 34.8%.¹⁰ Among smokers, 67% are males and 2.7% are females. From this survey, the active smoker is those at age 25-44 years and 45-64 years. Our study indicate the proportion of active smoker in all patients is higher as compared with GATS and basic health national survey.^{9,10} This may explain the high proportion of active smoker among young patients in our study.

The prevalence of dyslipidemia among young patients with ACS is slightly lower (50% vs. 59.4%) as compared with older patients. However this difference is not significant. This finding is similar to other studies which showed that dyslipidemia is one of the most common risk factors in young patients with ACS.^{5,6,7,8} The proportion of diabetes mellitus in this study is 20% which is similar to the proportion in previous studies. Compared to the proportion of DM in older patients, the young patients have slightly higher but non-

significant. Older patients with ACS may have multiple risk factors as compared to young patients.

In this study we note that there is no difference in the pattern of risk factor for ACS in young patients as compared to older patients. Furthermore, no significant difference also occurs in term of clinical presentation and clinical spectrums.

CONCLUSION

In this study we found that there were no significant differences in risk factors, clinical presentation and clinical spectrums between young ACS and non young ACS patients. The need for prevention program in both groups should not be difference.

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