

# THE PREVALENCE OF ACUTE CORONARY SYNDROME IN RSUD AJIBARANG IN THE PERIOD OF 1<sup>ST</sup> JANUARY, 2015 – 31<sup>ST</sup> DECEMBER, 2017

NUR SETIYO N.O.V

RSUD Ajibarang, Purwokerto, Central Java, Indonesia

## Abstract

**Background :** Acute coronary syndrome (ACS) is a global disease issue. The result of RISKESDAS in 2013 showed the prevalence of ACS patient was 0.5% from the diseases that is not contagious. In Central Java the patient diagnosed by the doctor was 0.5%, while based on the data from the medical record was obtained the increasing of ACS patients from 2015 until 2017.

**Aim:** To find out prevalence of the patients' acute coronary syndrome in RSUD Ajibarang in the period of 1<sup>st</sup> January, 2015 – 31<sup>st</sup> December, 2017.

**Method :** Descriptive study with retrospective study design was used in this research. The data collection was conducted with secondary data with looking at patients medical records. The data of univariate was processed with SPSS 17.

**Result :** The results of this research were obtained 126 acute coronary syndrome cases, 97 (77%) STEMI, 18 (14.3%) NSTEMI, 11 (8.7%) UAP. The patients of male were 72 (57.1%) and the female were 54 (42.9%). Patients' age group from 25-35 years old was 5 (4%), 36-45 years old was 7 (5.6%), 46-55 years old was 34 (27%), 56-65 years old was 36 (28.6%), 66-75 years old was 31 (24.6%), 76-85 years old was 12 (9.5%), and 86-95 years old was 1 (0.8%) cases. The history of hypertension was 63 (50%) and diabetes was 29 (23%).

**Conclusion :** from the research in RSUD Ajibarang was obtained that the most ACS prevalence case was STEMI, male gender, with the age range 56-65 years old.

**Keywords:** Acute coronary syndrome (ACS), prevalence.

## Introduction

Acute coronary syndrome (ACS) is currently one of the major health problems in the world. Since 1990, ACS prevalence keeps increasing. According to the data from world health organization (WHO) in 2013, ACS became the most caused disease with 7 million people death every year in around the world, especially in developing countries.<sup>1,2,3</sup>

Clinical manifestations of ACS are unstable angina pectoris (UAP), non-ST elevation myocardial infarction (N-STEMI), and ST elevation myocardial infarction (STEMI).<sup>4</sup> Acute coronary syndrome is a serious case that is immediately diagnosed with good management to avoid morbidity and mortality. Due to the high ACS mortality rate, several different modalities have been used to improve the effectiveness of this disease identification faster.<sup>8</sup>

The result of basic health research (RISKESDAS) in 2013 showed that the prevalence of ACS patients were 0.5% from all of non-contagious patients. In central Java was obtained the result that the diagnosis patients by doctor were 0.5%, while the diagnosis patients by doctor with symptom were 1.4%.<sup>7</sup>

Most of risk factors of ACS could be divided into two. The first is risk factor that can be reversible or modifiable, that are: hypertension, cholesterol, smoking, obesity, diabetes mellitus, hyperuricemia, less physical activity, stress, and life style. Risk factors such as age, gender, and the history of disease are factors that cannot be reversible.<sup>5,6</sup>

From the perspective of epidemiological researches such as Framingham research, Multiple Risk Factors Intervention and Prospective Cardiovascular Munster (PROCAM) was known that someone's risk factor to stricken ACS was determined by the interaction of two or more factors risk. In 85% spasm of the coronary arteries patients were found atherosclerosis.<sup>1,9,10</sup>

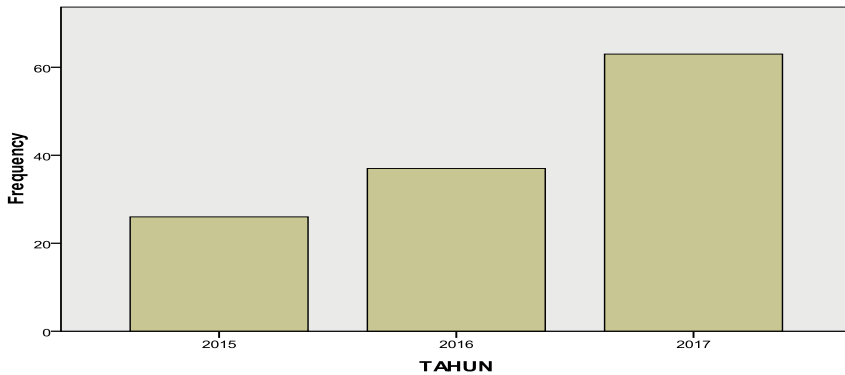
Based on the explanation above, the researcher was interested to conduct the research to know the prevalence of acute coronary syndrome in RSUD Ajibarang in the period of 1<sup>st</sup> January, 2015 – 31<sup>st</sup> December, 2017.

## Methods

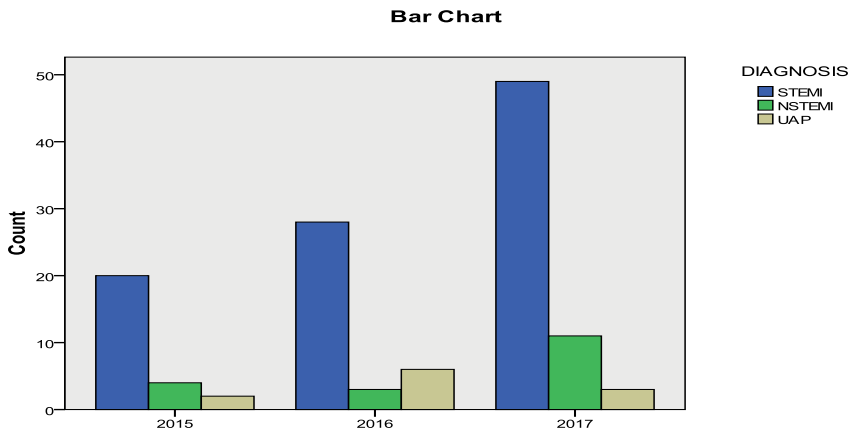
The design that is used in this research was descriptive study with retrospective study design. The data collection was conducted with secondary data with looking at patients medical records in the period of 1<sup>st</sup> January, 2015 – 31<sup>st</sup> December, 2017. The data of univariate was processed with SPSS 17 programme.

### Result

Based on the research that was conducted in RSUD Ajibarang in the period of 1<sup>st</sup> January, 2015 – 31<sup>st</sup> December, 2017, recorded as much as 137 cases while record medical data that could be reached was 126 cases where 11 data uncompleted. From 126 cases, 97 cases (77.0%) were STEMI, 18 (14.3%) cases were NSTEMI, and 11 cases (8.7%) were UAP. STEMI was a case with the highest prevalence, and UAP was the lowest prevalence.



Total ACS cases in every years

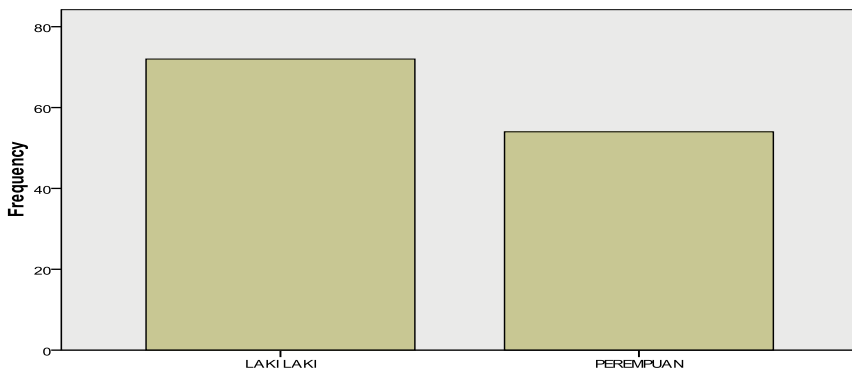


## The Case Distribution Based on Risk Factor

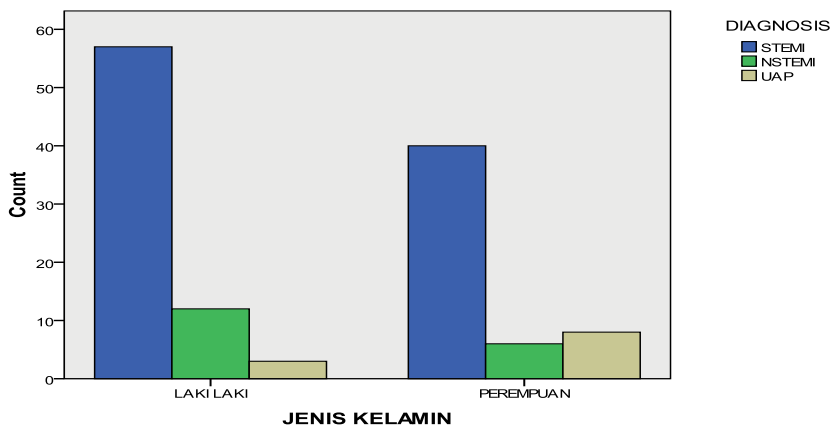
### Gender

ACS prevalence case based on gender was obtained male was 72 cases (57.1%) and females was 54 cases (42.9%) from the total cases. Male STEMI patients were 57 cases (58.8%) and female STEMI patients were 40 cases (41.2%) from the total diagnosis patients. NSTEMI prevalence cases with male patients were 12 cases (66.7%) and female patients were 6 cases (33.3%) from the total NSTEMI patients. UAP prevalence cases with male patients were 3 cases (27.3%) and female patients were 8 cases (72.7%) from the total UAP patients.

Distribution of gender



Bar Chart



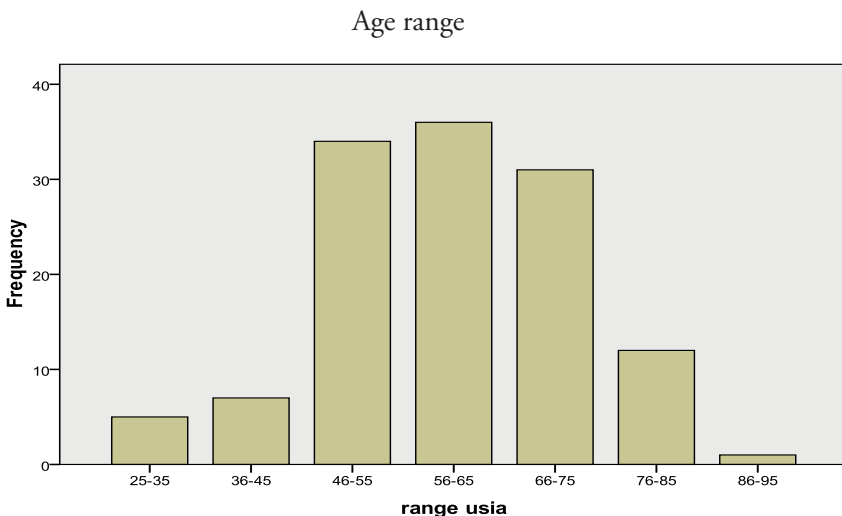
### Age

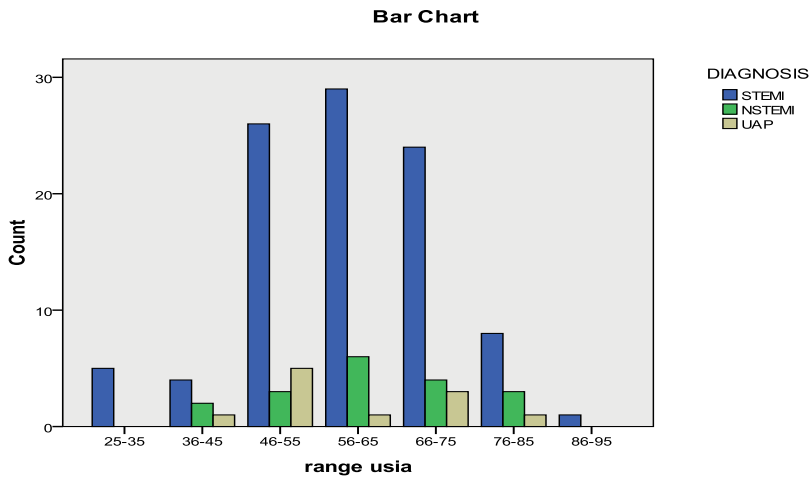
From 126 ACS data cases, ACS prevalence case from the age of 25-35 years old were 5 cases (4.0%), 36-45 years old were 7 cases (5.6%), 46-55 years old were 34 cases (27.0%), 56-65 years old were 36 cases (28.6%), 66-75 years old were 31 cases (24.6%), 76-85 years old was 12 cases (9.5%), and 86-95 years old was 1 case (0.8%). The highest prevalence was the age of 56-65 years old, followed by the age of 46-55 years old, and the age of 66-75 years old. The lowest age was 28 years old and the higher age was 91 years old.

The age distribution based on diagnosis classification was obtained STEMI prevalence cases from the age of 25-35 years old were 5 cases (5.2%), 36-45 years old were 4 cases (4.1%), 46-55 years old were 26 cases (26.8%), 56-65 years old were 29 cases (29.9%), 66-75 years old were 24 cases (24.7%), 76-85 years old was 8 cases (8.2%), and 86-95 years old was 1 case (1.0%) from the total patients that were STEMI diagnosis.

NSTEMI prevalence cases from the age of 36-45 years old were 2 cases (11.1%), 46-55 years old were 3 cases (16.7%), 56-65 years old were 6 cases (33.3%), 66-75 years old were 4 cases (22.2%), 76-85 years old was 3 cases (16.7%), and 86-95 years old was 1 case (1.0%) from the total patients that were NSTEMI diagnosis.

UAP prevalence cases from the age of 36-45 years old were 1 case (9.1%), 46-55 years old were 5 cases (45.5%), 56-65 years old were 1 case (9.1%), 66-75 years old were 3 cases (27.3%), 76-85 years old was 1 case (9.1%), and 86-95 years old was 1 case (1.0%) from the total patients that were UAP diagnosis.

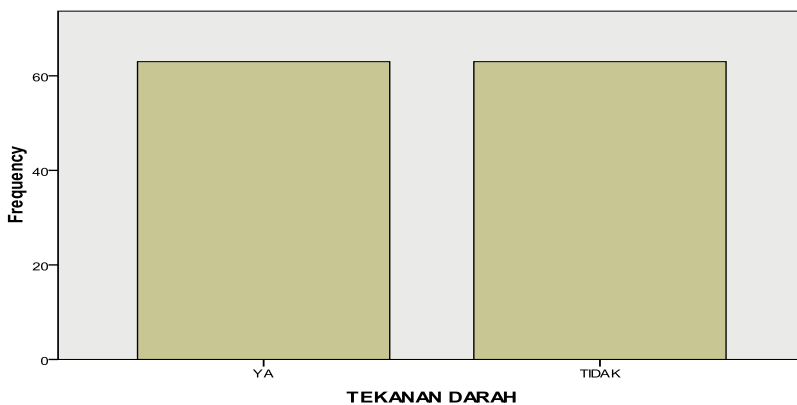


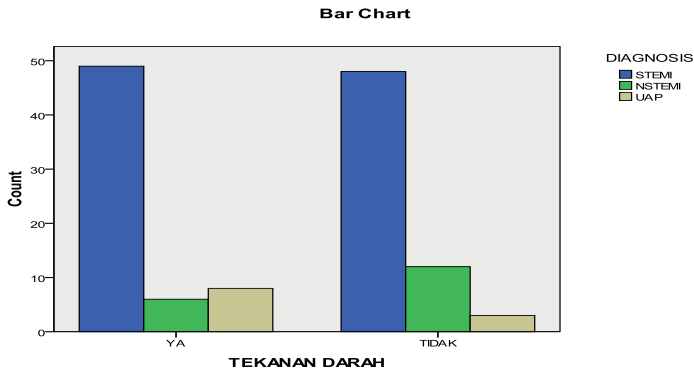


### History of hypertension

ACS prevalence cases with history of hypertension compared to the patients who did not have history of hypertension were same that were 63 cases (50.0%). While the patients who did not have history of hypertension based on STEMI diagnosis occupied first sequence with 49 cases (48.5%), continued by UAP cases with 8 cases (12.7%) and NSTEMI cases with 6 cases (9.5%).

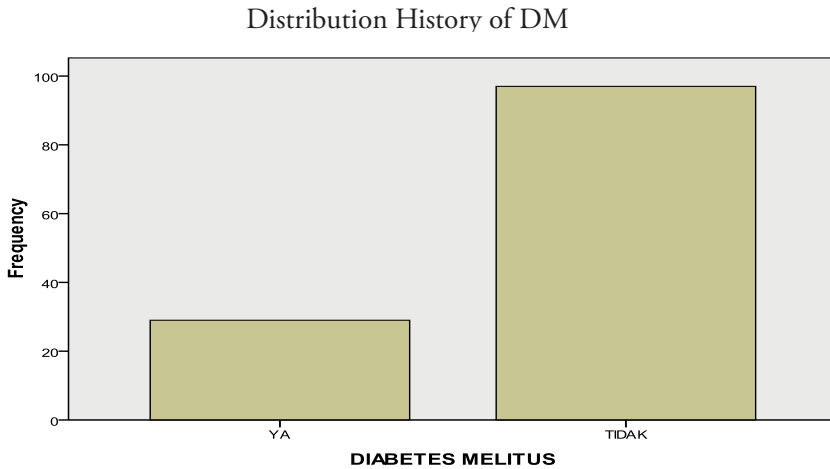
### Distribution History of hypertension

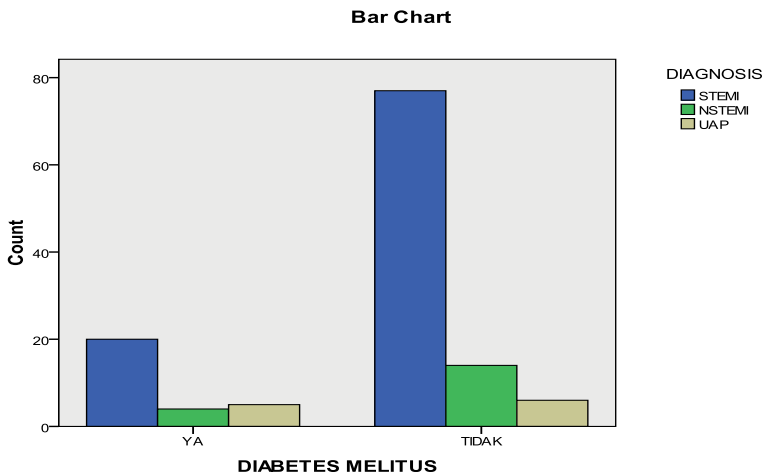




### History of Diabetes Mellitus

Inversely proportional with ACS patients who have history of diabetes mellitus, ACS patients with diabetes mellitus were just 29 (23.0%), while patients who have not history of diabetes mellitus were 97 cases (77%). With the detailed were 20 (20.6%) STEMI cases, 5 (45.5%) UAP cases, and 4 (22.2%) NSTEMI cases.





## Discussion

This research was conducted to find out the prevalence of acute coronary syndrome in RSUD Ajibarang based on historical medic. The sample was distributed based on classification of diagnose and risk factor.

The sample was 126 cases consisted of 97 STEMI cases (77%), 18 NSTEMI cases (14.3%), and 11 UAP cases (8.7%). STEMI was the highest prevalence cases and UAP was the lowest prevalence cases. In this case was the same with the previous research by Antoniadis et al.<sup>11</sup> in Mediterranean Island of Cyprus that showed ACS diagnose prevalence that was the highest was STEMI with 45%, followed by NSTEMI with 43%, and UAP with 13.7%. Beside, European Society Cardiology (ESC) guidelines pictured diagnose of patients with chest pain complaint in emergency department were 5-10% STEMI, 15-20% NSTEMI, 10% UAP, 15% other heart disease, and 50% not heart disease.<sup>12</sup>

The result of ACS cases distribution based on gender was male were higher than female where male patients were 72 (57.1%) and female patients were 54 (42.9%). Gender distributions based on diagnose classification were obtained STEMI prevalence cases on male were 57 cases (58.8%). NSTEMI prevalence cases on male were 12 cases (66.7%). UAP prevalence cases on male were 3 cases (27.3%).

Gender was one of factor risks where atherosclerosis was more susceptible on male than female.<sup>13</sup> This thing was the same with previous research by Antoniadis et al.<sup>11</sup> in Mediterranean Island of Cyprus that frequency of male patients were higher than female where from 408 cases consisted of male 356 cases (87.3%) and female 52 cases (12.7%).



The distribution result based on age was obtained the highest prevalence was the age of 56-65 years old 36 cases (28.6%), followed by the age of 46-55 years old 34 cases (27.0%), and the age of 66-75 years old 31 cases (24.6%). Age was risk factor that could play a role in increasing ACS incident case where ACS cases rarely happened on patients under <40 years old.<sup>13</sup> Based on the data, the increasing of ACS prevalence was started from the age of 56-65 years old, and the highest STEMI and NSTEMI prevalence cases at the age of 56-65 years old, while the higher UAP prevalence case at the age of 45-55 years old. This thing was almost same with previous research by Antoniadou et al.<sup>11</sup> in Mediterranean Island of Cyprus that the higher frequency of STEMI and NSTEMI at the age of 50-59 years old.

The result of distribution case based on risk factor showed that all ACS patients have risk factor were age and gender. Beside, according to other risk factor reference ACS incident was influenced by hypertension. Based on the data, ACS prevalence case with hypertension history was 63 cases (50%). Based on diagnose classification, it was just obtained a half cases that STEMI, NSTEMI, and UAP diagnose have hypertension history where it was gotten prevalence case in STEMI 49 cases (77.8%), UAP 8 cases (12.7%), and NSTEMI 6 cases (9.5%). The data was different to Biancha T, dkk<sup>14</sup> in RSUP Kandau Manado that from 126 ACS cases, it was obtained 87 cases (69%) with hypertension history.

The limitation of this research was the researcher only get a little amount of samples or data because of incomplete data from the patient's medical record.

## **Conclusion**

Based on the medical record data, the prevalence of ACS cases increases from year to year, with the highest prevalence was STEMI case, male sex, aged 56-65 years.

## **References**

1. Wong WD. Epidemiological studies of CHD and the evolution of preventive cardiology. *Nature*. 2014;11:276-89.
2. Mendis S. Global target 1: A 25% relative reduction in overall mortality from cardiovascular diseases, cancer, diabetes or chronic respiratory diseases. In: Armstrong T, editor. *Global Status Report on Non Communicable Disease*. Switzerland: WHO, 2014; p. 9-20
3. Institute of Public Health in Ireland. *Coronary Health Disease Briefing*. Ireland: Health Research Board, 2012; p. 1-6.

4. Ekaputra RAR, Akbar MR, Garina LA. Hubungan indeks masa tubuh dengan fraksi ejeksi ventrikel kiri pada pasien sindroma koroner akut [Disertasi]. Bandung: Universitas Islam Bandung; 2015.
5. Grundy SM, Pasternak R, Greenland P, Smith S, Fuster V. Assesment of cardiovascular risk by use of multiple-risk-factor assessment equations. 1999. *Circulation*, 100: 1481-92.
6. Buraserl G, Goda A, Sulo G, Stefa J, Roshi E, Kark J. conventional risk factors and acute coronary syndrome during a periode of socioeconomic transition: population-based case-control study in Tirana, Albania. 2007. *Croat Med J*; 48:225-33.
7. Mihardja LK, Delima, Soetiarto F, Suhardi, Kristanto AY. Penyakit tidak menular. In: Kementerian Kesehatan Republik Indonesia, penyunting. Riset Kesehatan Dasar. Jakarta: Badan Penelitian dan Pengembangan Kesehatan Kementerian-an Republik Indonesia, 2013; p. 83-99.
8. McCaig LF, Burt CW. 2001). *National Hospital Ambulatory Medical Care Survey*: 1999 emergency department summary. *Adv.Data* 320, 1-34.
9. Lee JA, Rotty L, Wantania FE. Profil lipid pada pasien dengan penyakit jantung koroner di BLU RSUP Prof. Kandou tahun 2012. *eCl*. 2015;3:485-9.
10. Deckelbaum L. Heart attacks and coronary artery disease. In: Zaret BL, Moser M, Cohen LS, editors. *Yale University School of Medicine Heart Book* (1<sup>st</sup> ed). United States: Yale University School of Medicine, 1992; p. 133-48.
11. Antoniadou L, Christodoulides T, Georgiou P, Hadjilouca C, Christodoulou E, Pappasavvas E, et al. Epidemiology of acute coronary syndromes in the Mediterranean Island of Cyprus (CYPACS study, Cyprus study of acute coronary syndromes). *Hellenic J Cardiol*. 2014;55:139-49.
12. *European heart journal*. Task force for the management of acute coronary syndromes in patients presenting without persistent ST-Segment Elevation of the European Society of Cardiology (ESC). 2015 Aug 29 [2016 Jan 4].
13. Brown CT. Penyakit aterosklerotik koroner. In: Hartanto H, Susi N, Wulansari P, Mahanani DA, penyunting. *Patofisiologi - Konsep Klinis Proses-Proses Penyakit* (6th ed). Jakarta: EGC, 2005; p. 576-612.
14. Biancha T, Edmond LJ, Victor FFJ. Prevalensi sindrom koroner akut di RSUP Prof. Dr. R. D. Kandou Manado periode 1 januari 2015 – 31 desember 2014. *Jurnal e-clinic* , volume 4. Nomor 1. Januari-Juni 2016.