

Case Report: Female, 51 Years Old, with Chest Pain

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Abstract:- ST-Elevation Myocardial Infarction (STEMI) or myocardial infarction with ST-segment elevation caused by total occlusion of the coronary artery that is atherosclerotic or other causes that can cause irreversible necrosis of the heart muscle. The initial action that can be taken to prevent cardiac muscle necrosis is to administer oxygen therapy and continue with revascularization (fibrinolytic, Percutaneous Coronary Intervention). This study aims to determine the effectiveness of revascularization therapy in patients with myocardial infarction with ST elevation. This research uses a literature review by reviewing national and international journals on revascularization therapy for myocardial rescue in myocardial infarction patients with ST elevation segments.

Keywords:- STEMI, Fibrinolytic, Percutaneous Coronary Intervention

I. INTRODUCTION

According to WHO (2015), cardiovascular disease is the cause of death for up to 17.5 million people, or 31% of all deaths worldwide, and acute coronary disease, in particular, causes the death of 7.4 million people. It is estimated that about 23.3 million people will die from acute coronary disease by 2030 [1]. A common heart disease in Indonesia is acute coronary syndrome (SKA). Acute coronary syndrome includes unstable angina pectoris (UAP), myocardial infarction with ST elevation (STEMI), and myocardial infarction without ST elevation (NSTEMI) [2].

II. MATERIAL AND METHODS

A 51-year-old female patient referred from another hospital came with a complaint of left chest pain on July 23, 2024. Complaints were felt since +/- 5.5 SMRS while on dialysis at the previous hospital. The pain was felt as if it was under a heavy weight, radiating to the back and left arm, accompanied by cold sweat. BOWEL (+) DIARRHEA (slightly) Fever (-) Nausea (+) Vomiting (-) Cough (+).

Physical examination and vital signs found the patient appeared in moderate, pale, and weak pain. Blood Pressure 196/115 mmHg, Pulse 93 times per minute, regular strong palpation, Breath Rate 24 times per minute, Temperature 36.3 C, SpO2 99% on Room Air, KGD ad Random 162 mg/dL, VAS 5. Laboratory examinations found decreased hemoglobin and potassium levels and increased leukocyte, urea, creatinine, CK-MB, and Troponin T.

III. RESULTS AND DISCUSSION

The results of this study are reported below based on ECG examination at the Laboratory.

Table 1. Results of ECG examination and Laboratory

Examination Name	Result
Complete Blood	
Haemoglobin	9.8 g/dL
Leukosit	18.800 /mm3
Blood Slump Rate	31 mm/jam
MCH	25.4 pg
Neutrophil	92.9%
Lymphocytes	1.7%
Renal Function	
Urea	44.0 mg/dL
Creatinine	3.72 mg/dL
Cardiac Marker	
CKMB	34 ng/mL
Troponin T Quantitative	>2000
Electrolyte Basic	
Sodium	140 mmol/L
Potassium	2.7 mmol/L
Chloride	107 mmol/L

In the ECG examination, the elevation of the ST lead III and aVF segments was obtained (figure 1). The patient was diagnosed with ST Elevation Myocardial Infarct Inferior onset 5.5 hours + Anemia + CKD on HD Regular + Hypokalemia + Emergency Hypertension.

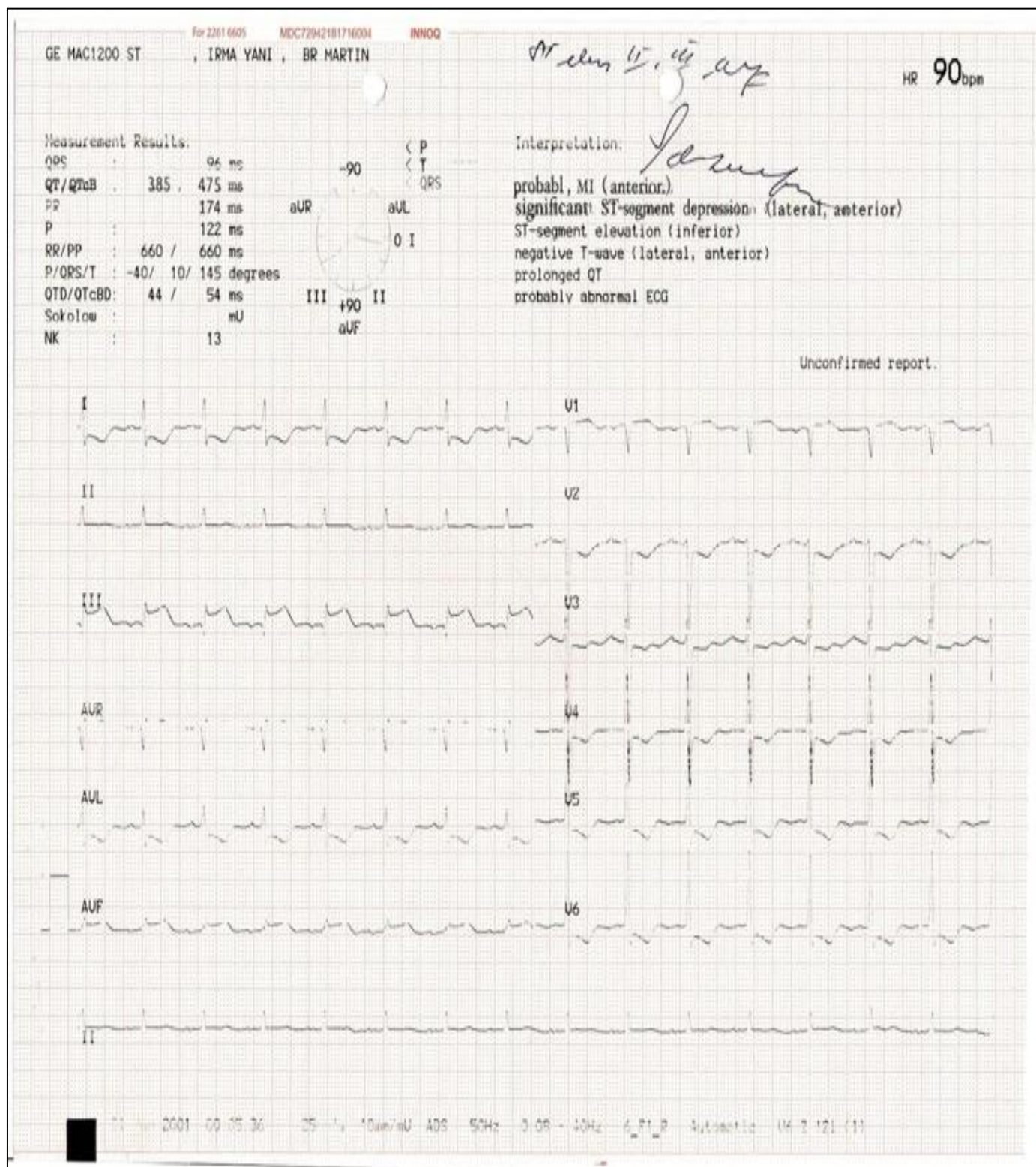


Fig 1: ECG Images of Inferior STEMI Patients

➤ The Patient has Been Given Initial Management at the Previous Hospital, Namely:

- Loading Dose Clopidogrel 300mg + Aspirin 160mg;
- Inject Ranitidine 50mg/iv;
- Inject Ondansetron 4mg/iv.

➤ The Management at Murni Teguh Memorial Hospital is

- Drip Nicardipine 10mg in 10cc NaCl 0.9% road 3cc/hour;
- Loading Dose Plavix 300mg + Crestor 40mg;
- Drip KCL 50mEq in 300cc NaCl 0.9% is used up in 12 hours;
- Primary Percutaneous Coronary Intervention.

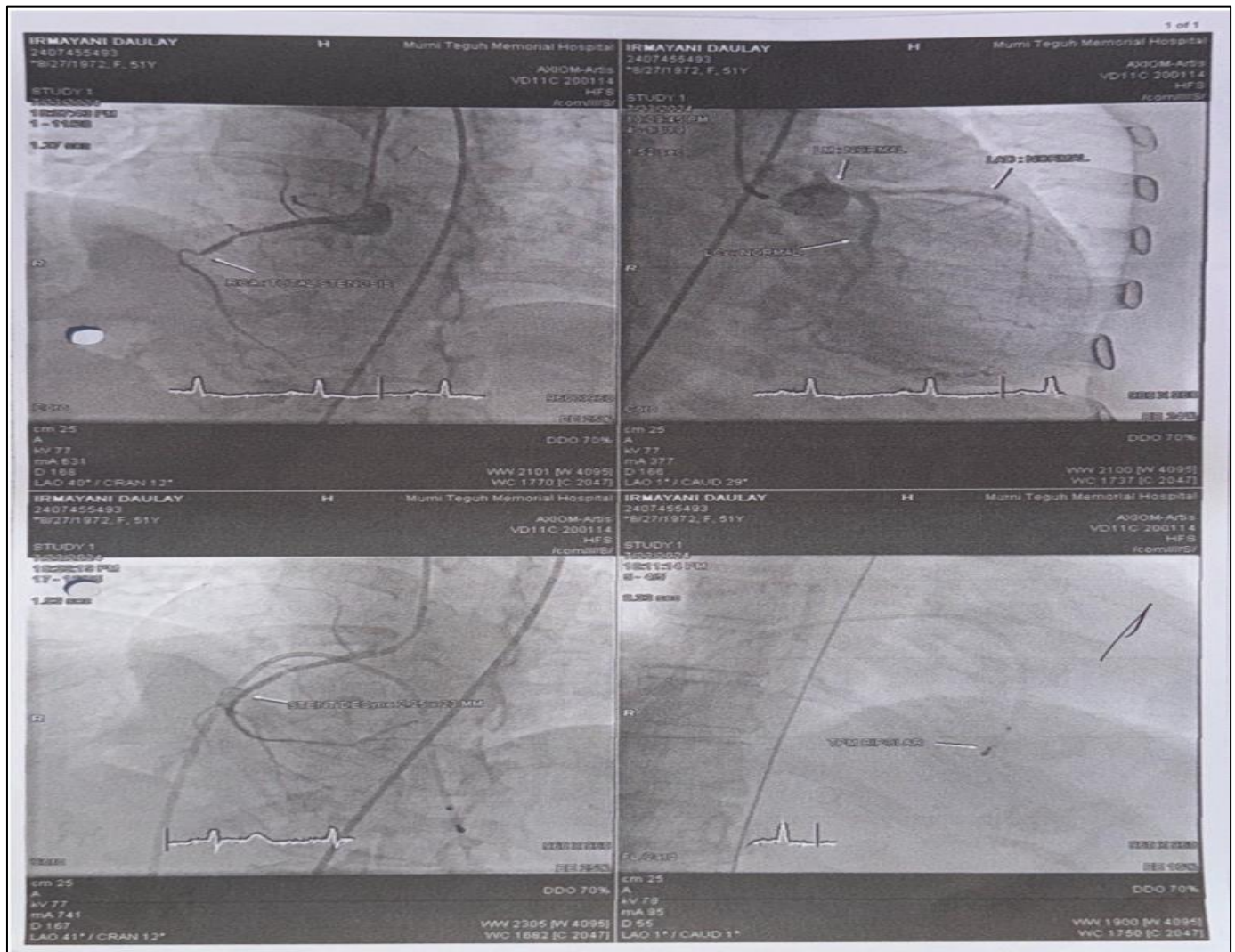


Fig 2: Angiography and Percutaneous Coronary Intervention

Figure 2 shows that patients underwent Angiography with the result of total stenosis of the Right Coronary Artery and continued with a Percutaneous Coronary Intervention 1 stent in the Right Coronary Artery.

Acute coronary syndrome is a major cardiovascular problem with high hospitalization rates and mortality rates [3]. Based on anamnesis, physical examination, electrocardiogram (ECG) examination, and cardiac marker examination, SKA is divided into:

- STEMI (ST-segment Elevation Myocardial Infarction)
- NSTEMI (Non-ST segment Elevation Myocardial Infarction)
- UAP (Unstable Angina Pectoris) [4]

The STEMI diagnosis is established based on complaints of acute angina pectoris accompanied by persistent ST-segment elevation in two adjacent leads. Initiation of revascularization management does not require waiting for the results of improving heart markers [4]. Causes of atherosclerotic STEMI in the coronary arteries or other causes that can cause an imbalance between the supply and oxygen needs of the myocardium [5].

Table 2: Infark Location Based on ECG Tap

Iskemi or Infark Location	ECG Tapping
Previous	V1-V4
Lateral	V5-V6, I, aVL
Inferior	II, III, aVF
Posterior	V7-V9
Right Ventricular	V3R-V4R

The management of STEMI patients requires good time management because if there is a delay in reperfusion to the coronary arteries, it can cause the expansion of the infarction area, and the possibility of mortality will increase [6, 7]. The shorter the treatment and treatment time, the lower the degree of myocardial necrosis [8].

In PCI procedures, an adequate catheter line is required to reach the coronary artery. Two accesses are often used today: the access point *transfemoral artery* (TFA) and pathways *trans-radial artery* (TRA) to insert cardiac catheterization. Cardiologists use the TFA line to insert catheters from the femoral artery, but deep, terminal blood vessels can cause invasive bleeding to become a complication of the vessel. Currently, the TRA pathway is

widely used because of the lower likelihood of complications. Although TRA is more widely used, one must consider several factors to select an entry point, including advanced age-related vascular disease, increased subclavian artery bends, root aortic dilation, calcification, and diffuse atherosclerosis [9-11].

The use of contrast in PPCI causes nephrotoxicity and can lead to complications of contrast-induced nephropathy (CIN). The ongoing PPCI procedure puts patients at high risk of acute kidney injury due to exposure to a contrast-induced acute kidney injury (CI-AKI). The use of contrast agents has a negative impact due to the increase in the thrombogenic state and decreased renal perfusion due to vasoconstriction, inflammation, and toxicity of the contrast medium used. This complication is prevented by administering intravenous saline hydration, which reduces the possibility of kidney replacement therapy or mortality [12, 13].

IV. CONCLUSION

A 51-year-old female patient with complaints of chest pain. From the ECG results, the elevation in the ST segment on lead III, aVF with an onset of 5.5 hours appears. The patient underwent *Primary Percutaneous Coronary Intervention* by installing one stent in the *Right Coronary Artery*.

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