

NURSING SEMINAR

NURSING ROLE'S : ACUTE CORONARY SYNDROM IN EMERGENCY DEPARTMENT AND HOW TO TRANSFERS PATIENT ?

WHAT NURSE SHOULD DO?

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**Gedung Pusat Studi Jepang Universitas Indonesia
Minggu, 9 Januari 2020**

Curriculum Vitae



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Sugiyono Ners_Hypnotherapist

348 subscribers

Background



1 MILLION

PEOPLE WHO WILL HAVE
A HEART ATTACK OR DIE
FROM CORONARY HEART
DISEASE THIS YEAR



**16.5
MILLION**

AMERICANS AGE 20 AND
OLDER WHO ARE LIVING
WITH CORONARY HEART
DISEASE

795,000

PEOPLE WHO WILL
HAVE A STROKE
THIS YEAR



356,000

CARDIAC ARRESTS THAT
OCCUR OUTSIDE A HOSPITAL
EACH YEAR



HARD NUMBERS

By AMERICAN HEART ASSOCIATION NEWS

A sampling of U.S. data from the
American Heart Association's 2018
heart disease and stroke statistics report.



103 MILLION

ADULTS WITH HIGH
BLOOD PRESSURE



6.5 MILLION

AMERICANS AGE 20 AND
OLDER WHO ARE LIVING
WITH HEART FAILURE

38 PERCENT

RISE IN THE NUMBER OF HIGH
BLOOD PRESSURE DEATHS
BETWEEN 2005 AND 2015



23 MILLION

ADULTS WITH
**TYPE 2
DIABETES**

15 PERCENT

ADULTS WHO
SMOKED IN
2015



56 MILLION

PEOPLE 40 AND OLDER
WHO ARE ELIGIBLE FOR
CHOLESTEROL-LOWERING
STATINS



38 PERCENT

ADULTS WHO
WERE OBESE
AS OF 2014



Source: "Heart Disease and Stroke Statistics-
2018 Update: A Report from the American Heart Association," Circulation (numbers rounded)

Published Jan. 31, 2018

Background

Indonesia dalam Risiko Penyakit Kardiovaskular

Penyakit kardiovaskular menjadi penyebab kematian nomor satu di Indonesia. Risiko gangguan kesehatan yang berkaitan dengan jantung dan pembuluh darah itu bahkan tertinggi ketiga di ASEAN. Berbagai faktor terkait pola hidup menjadi pemicu munculnya penyakit ini.

Penyebab Kematian Tertinggi

7 Penyakit Penyebab Kematian Tertinggi Indonesia (2016)



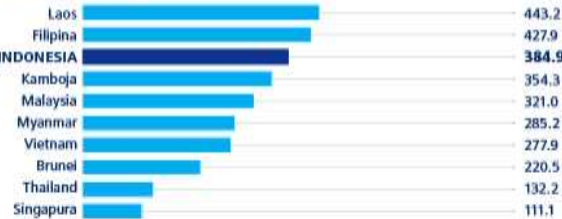
Sumber: Institute for Health Metrics and Evaluation, Evidence and Analytics

katadata.co.id



Risiko Penyakit, Tertinggi Ketiga ASEAN

Tingkat Kematian Akibat Penyakit Kardiovaskular ASEAN 2016
(Per 100.000 Orang)



Pola Hidup Orang Indonesia Rentan Terkena Penyakit Kardiovaskular

1. Kebiasaan Merokok (2011)



2. Kelebihan Berat Badan (2010)



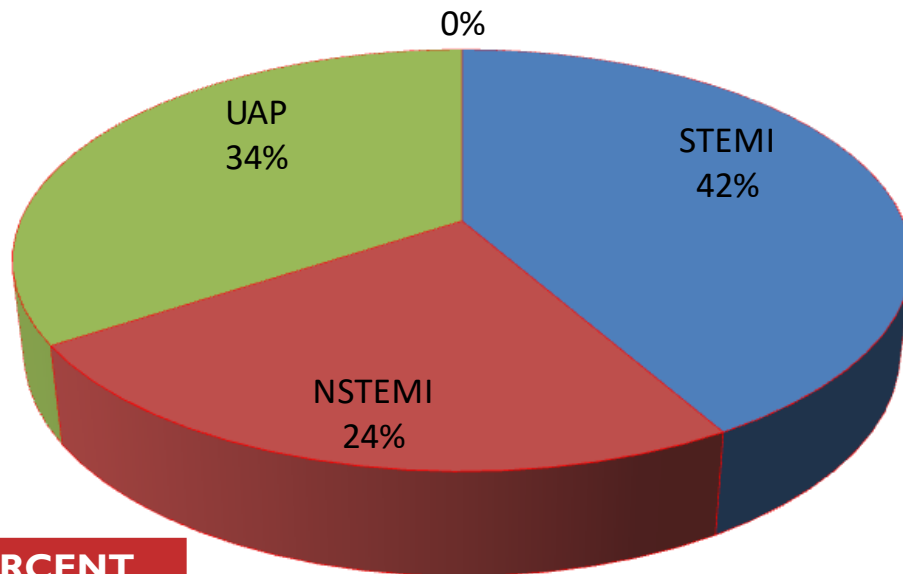
3. Darah Tinggi (2011)



Penyakit jantung dan pembuluh darah menduduki peringkat teratas di TIGA di ASEAN dan peringkat SATU di Indonesia penyebab kematian

Perlu penanganan segera pada kegawatdaruratan jantung dan pembuluh darah

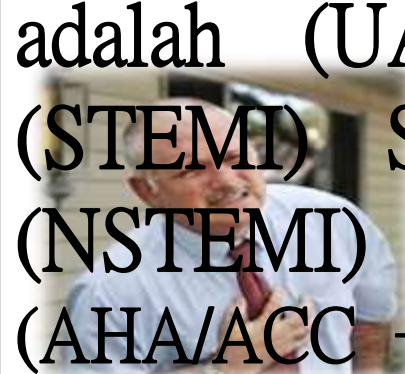
JUMLAH PASIEN ACS IGD PJNHK 2017-2018



ACS	JUMLAH	PERCENT
STEMI	1641	41.7
UAP	1347	34
NSTEMI	942	24
TOTAL	3930	100

APA ITU SINDROM KORONER AKUT (SKA)?

Spectrum kondisi dari iskemik miokard acute, dan atau infark karena mendadak aliran darah koroner terhenti, dan yang termasuk SKA adalah (UAP) Unstabel angina Pectoris, (STEMI) ST elevasi miokard infarction, (NSTEMI) non ST elevasi miokard infark . (AHA/ACC – AACS , 2015)



DEFINITION

- The term acute myocardial infarction (AMI) should be used when there is evidence of myocardial injury (defined as an elevation of cardiac troponin values with at least one value above the 99th percentile upper reference limit) with necrosis in a clinical setting consistent with myocardial ischaemia there for STEMI, NSTEMI, Q wave MI/N Q Wave MI.

FAKTOR RESIKO

DIMODIFIKASI

- **MEROKOK**
- **HIPERTENSI**
- **KOLESTROL**
- **DM (DIABETUS MELITUS)**
- **STRESS**
- **UMUR**

UNMODIFIKASI

- **JENIS KELAMIN**
- **GENETIKA**

PREDISPOSISI

- **OBESITAS**
- **INAKTIFITAS FISIK (< OLAH RAGA)**

PATOFISIOLOGI

Perubahan yang terjadi pada pembuluh darah koroner
oleh karena penumpukan plak

aterosklerosis

Gangguan pasokan darah koroner ke miokard

Area miokard kekurangan pasokan darah

iskemia

Perubahan repolarisasi listrik

ST segmen elevasi
infark miokard

Non ST segmen
elevasi infark miokard

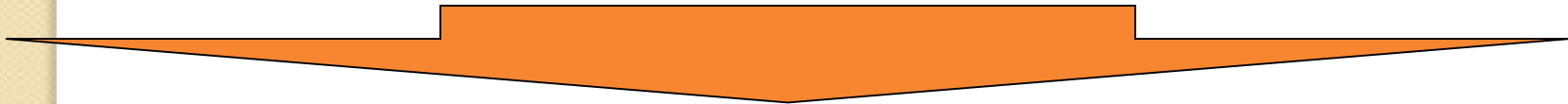
Metabolisme anaerob

LANJUTAN

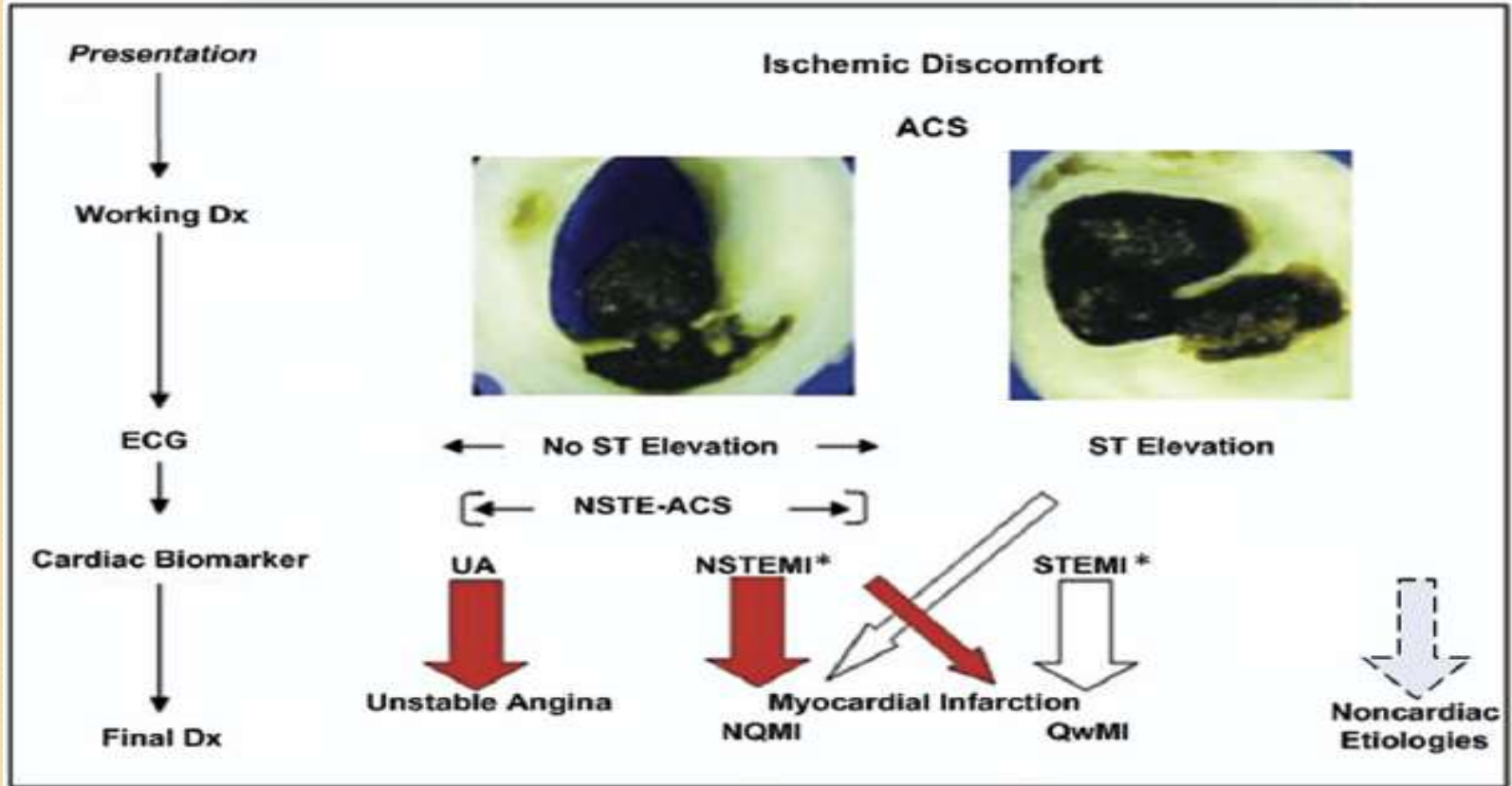
Manifestasi klinis

nyeri

PA
re



PENEGAKKAN DIAGNOSA



Bagaimana seseorang bisa dikatakan serangan jantung / ACS !!

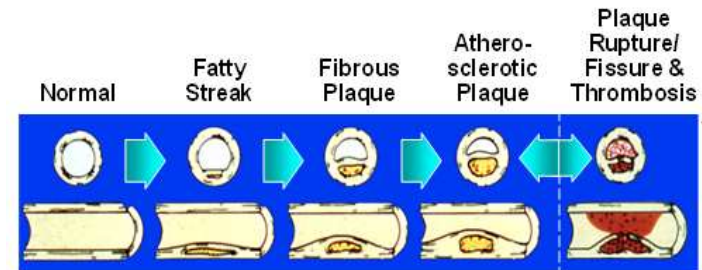
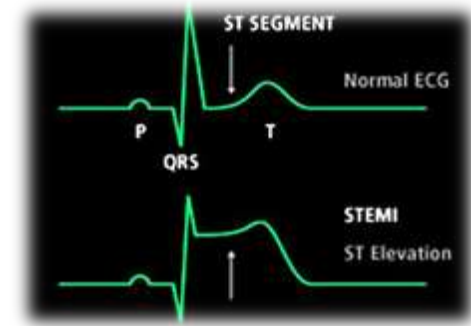
CLASSIFICATION	UAP	STEMI	NSTEMI
1. CHEST PAIN	+	+ / -	+ / -
2. ECG	N / ISCHEMIC	ST ELEVATION	N / ISCHEMIC
3. ENZYMES	N	N / INCREASED	INCREASED

WHO: Diagnosis of STEMI (2 terms): typical chest pain, ECG ST elevation, Improving enzymes

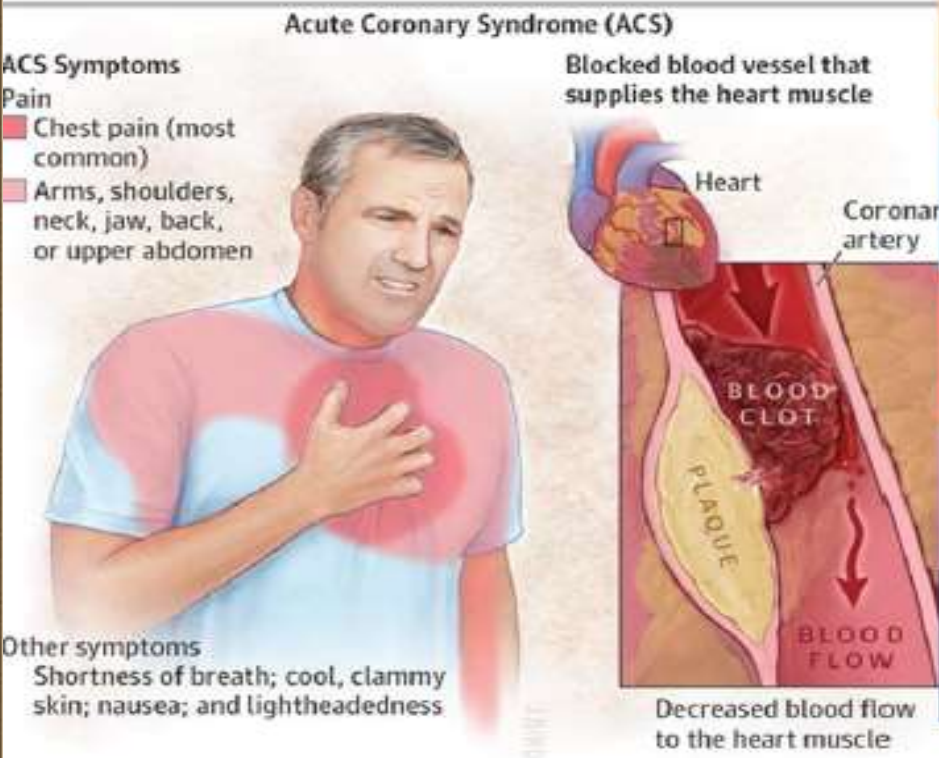
Apa itu STEMI ?

ST Elevasi Miokard Infark (STEMI) adalah rusaknya bagian otot jantung akibat insufisiensi aliran darah koroner oleh proses degeneratif maupun dipengaruhi oleh banyak faktor dengan ditandai **keluhan nyeri dada**, **peningkatan enzim jantung** dan **ST elevasi pada pemeriksaan EKG**.

STEMI adalah cermin dari pembuluh darah koroner tertentu yang **tersumbat total** sehingga aliran darahnya benar-benar terhenti, otot jantung yang dipendarahi tidak dapat nutrisi-oksigen dan mati.



1. Gejala / Keluhan



LOKASI NYERI: sulit melokalisir nyeri

DESKRIPSI NYERI: terasa berat seperti dihippit, diremas, ditekan

PENJALARAN NYERI: lengan kiri, bahu, punggung, rahang bawah, lengan

LAMA NYERI : >20 menit

GEJALA SISTEMIK: disertai mual, muntah atau keringat dingin

2. Pemeriksaan Fisik

Umumnya **NORMAL**

Pasien dapat mengalami:

Cemas

Keringat Dingin

Takipnoe

Ronki basah/halus

Takhikardia/bradikardia

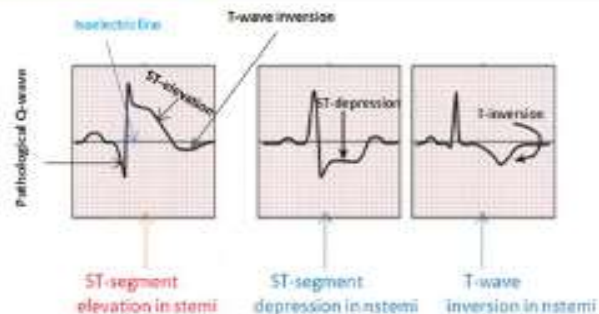
Gallop S3, murmur



3. Perubahan EKG

Klasifikasi gambaran EKG Pasien dengan SKA

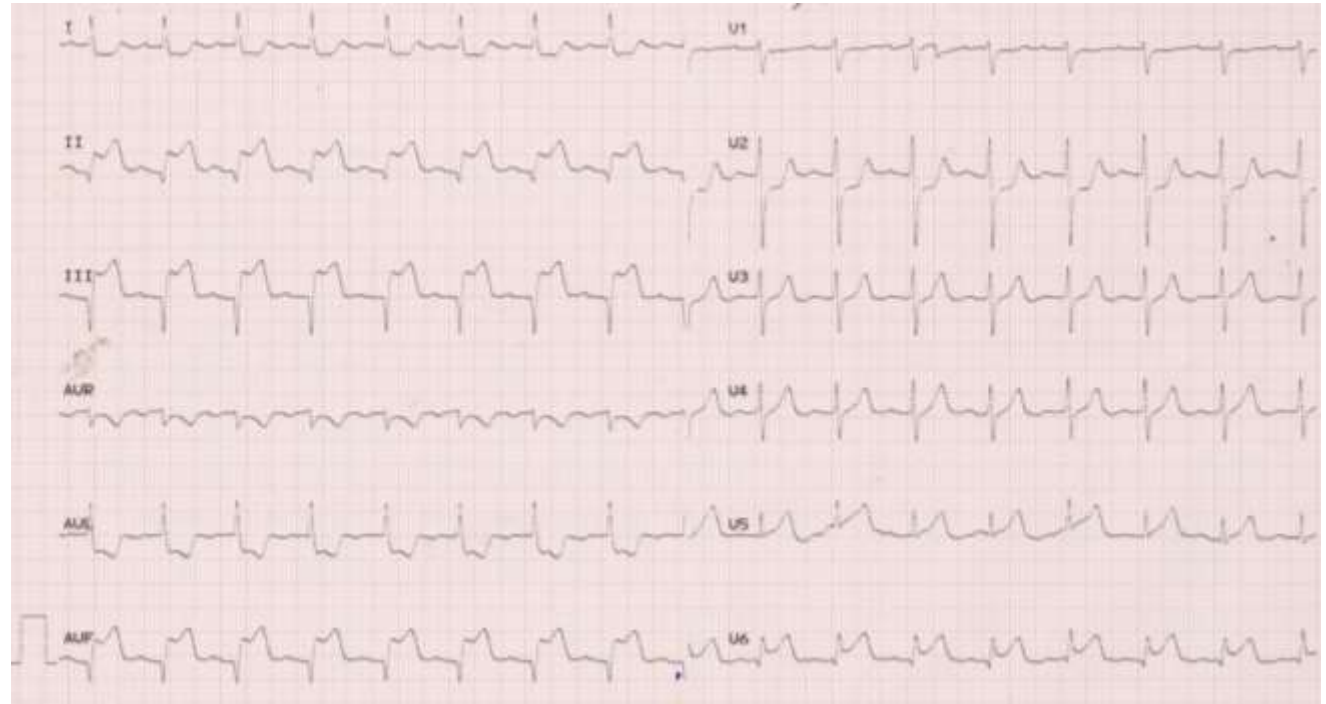
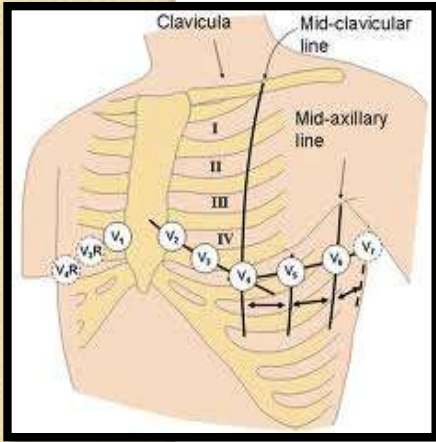
1. ST - Elevasi atau LBBB yang baru
2. ST - Depresi atau T-inverted yang dinamis
3. EKG non-diagnostik





Perekaman EKG

Sebaiknya perekaman EKG terdiri dari 17 lead meliputi :
(I,II,III,aVR,aVL,aVF,V1,V2,V3,V4,V5,V6,V7,V8,V9,V3R,V4R



ECG Basics - Posterior ECG leads

ST elevation greater than 0.5 mm in leads V7-9 is diagnostic of a Posterior wall MI

Posterior ECG lead placement



V7

Left posterior axillary line:
in the same horizontal plane as V4-V6

V8

Tip of the left midscapula:
in the same horizontal plane as V7-V9

V9

Left paraspinal region:
in the same horizontal plane as V4-V6

V1-V3

Should remain unchanged from standard 12-lead ECG

Posterior MI is suggestive by the following changes in V1-V3:

- *Horizontal ST depression
- *Tall, broad R waves (>30ms)
- *Upright T waves
- *Dominant R wave (R/S ratio >1) in V2

Please note that V6 is a good reference point for the horizontal placement of the posterior electrodes V7-9.

If you don't have access to a 15 or 18 lead ECG machine, then leave V1-3 in their normal position and use V4-6, these leads will then become V7-9.

12-Lead acute Posterior wall MI

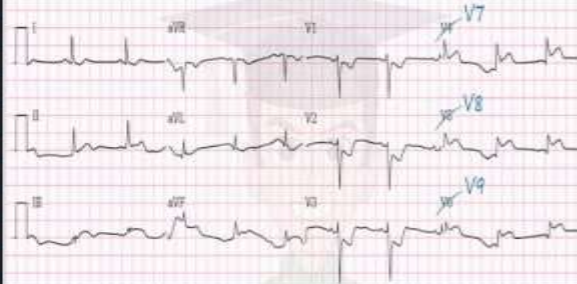
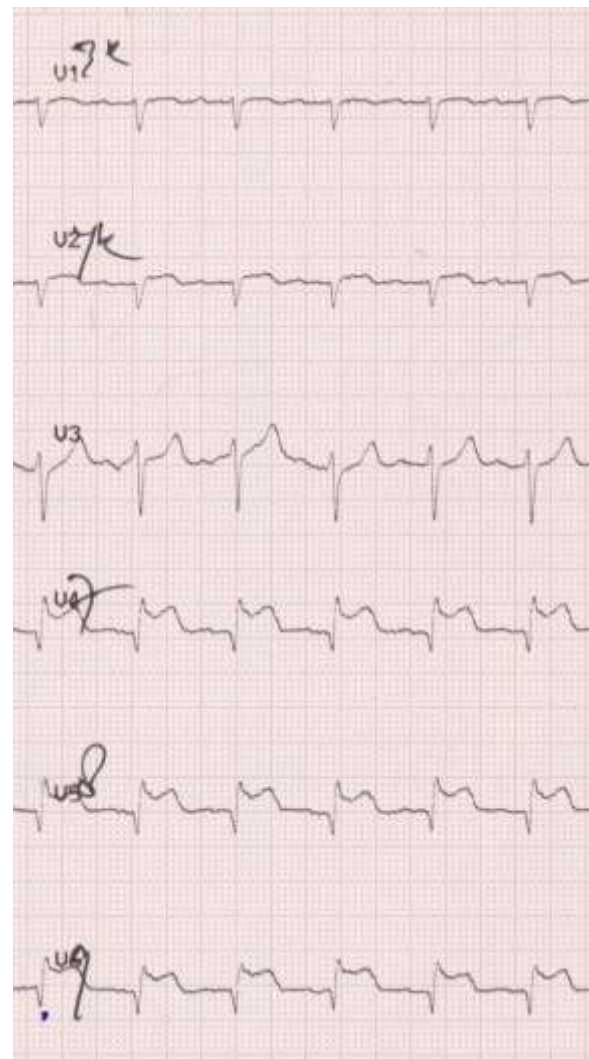


Figure 2 - Correct labeling of the Posterior ECG Labeling the Posterior ECG

Tips for recording Posterior Electrocardiograms (ECG's)

- * Arm and leg electrodes remain unchanged
- * Lead cable **V4** connects to **V7**
- * Lead cable **V5** connects to **V8**
- * Lead cable **V6** connects to **V9**
- * **REMEMBER** to **handwrite POSTERIOR LEADS** on the ECG
- * Relabel V4-V6 on the printout V7-9 (Figure-2).
- * Findings may be very subtle, only 0.5 mm.
- * Always double check your lead placement to confirmed your in the correct anatomical spaces.



1. ST - Elevasi atau LBBB yang baru

Kriteria ST Elevasi



ST elevasi sekurang-kurangnya di 2 lead yang berdekatan

Laki-laki

>40 thn ? Elevasi J poin 2 mm (0.2 mV) di V2 dan V3 dan 0.1 mV (1 mm) di lead yg lain

<40 thn ? elevasi J-poin 0.25 mV (2.5 mm) di V2 dan V3 dan 0.1 mV (1 mm) di lead yg lain

Perempuan

Perempuan ? elevasi J-poin 0.15 mV (1.5 mm) di V2 dan V3 dan 0.1 mV (1 mm) di lead yg lain

LBBB baru



Kriteria **Sgarbossa**

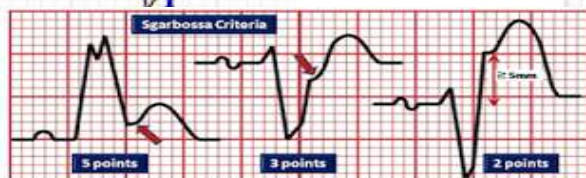
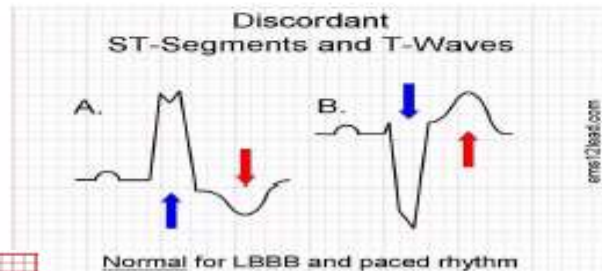
Kriteria Sgarbossa

Concordant ST elevasi $> 1\text{mm}$ pada lead positive QRS complex (score 5)

Concordant ST depresi $> 1\text{ mm}$ in V1-V3 (score 3)

Excessively discordant ST elevasi $> 5\text{ mm}$ pada lead negative QRS complex (score 2)

TOTAL SCORE ≥ 3 : 90% spesifik didiagnosa infark miokard



Sgarbossa ECG Criteria for LBBB	
Concordant STE $\geq 1\text{mm}$	5 points
STD $\geq 1\text{mm}$ in V1 - V3	3 points
Discordant STE $\geq 5\text{mm}$	2 points

Table 3 Atypical electrocardiographic presentations that should prompt a primary percutaneous coronary intervention strategy in patients with ongoing symptoms consistent with myocardial ischaemia

Bundle branch block

Criteria that can be used to improve the diagnostic accuracy of STEMI in LBBB⁵⁰:

- Concordant ST-segment elevation ≥ 1 mm in leads with a positive QRS complex
- Concordant ST-segment depression ≥ 1 mm in V_1 – V_3
- Discordant ST-segment elevation ≥ 5 mm in leads with a negative QRS complex

The presence of **RBBB** may confound the diagnosis of STEMI

Ventricular paced rhythm

During RV pacing, the ECG also shows LBBB and the above rules also apply for the diagnosis of myocardial infarction during pacing; however, they are less specific

Isolated posterior myocardial infarction

Isolated ST depression ≥ 0.5 mm in leads V_1 – V_3 and ST-segment elevation (≥ 0.5 mm) in posterior chest wall leads V_7 – V_9

Ischaemia due to left main coronary artery occlusion or multivessel disease

ST depression ≥ 1 mm in eight or more surface leads, coupled with ST-segment elevation in aVR and/or V_1 , suggests left main-, or left main equivalent- coronary obstruction, or severe three vessel ischaemia

©ESC 2017

ECG = electrocardiogram; LBBB = left bundle branch block; RBBB = right bundle branch block; RV = right ventricular; STEMI = ST-segment elevation myocardial infarction.

Initial Diagnosis, ESC 2017

Recommendations	Class ^a	Level ^b
ECG monitoring		
12-lead ECG recording and interpretation is indicated as soon as possible at the point of FMC, with a maximum target delay of 10 min. ^{36,38}	I	B
ECG monitoring with defibrillator capacity is indicated as soon as possible in all patients with suspected STEMI. ^{44,45}	I	B
The use of additional posterior chest wall leads (V ₇ –V ₉) in patients with high suspicion of posterior MI (circumflex occlusion) should be considered. ^{8,46–49}	IIa	B
The use of additional right precordial leads (V ₃ R and V ₄ R) in patients with inferior MI should be considered to identify concomitant RV infarction. ^{8,43}	IIa	B
Blood sampling		
Routine blood sampling for serum markers is indicated as soon as possible in the acute phase but should not delay reperfusion treatment. ⁸	I	C



Prehospital Activation of Hospital Resources (PreAct) ST-Segment–Elevation Myocardial Infarction (STEMI): A Standardized Approach to Prehospital Activation and Direct to the Catheterization Laboratory for STEMI

Recommendations From the American Heart Association’s Mission: Lifeline Program

Michael C. Kontos, MD; Michael R. Gunderson, EMT-P, FAEMS; Jessica K. Zegre-Hemsey, PhD, RN; David C. Lange, MD; William J. French, MD; Timothy D. Henry MD; James J. McCarthy, MD; Claire Corbett, MMS, MBA, EMT-P; Alice K. Jacobs, MD; James G. Jollis, MD; Steven V. Manoukian, MD; Robert E. Suter, MD; David T. Travis, MPH; J. Lee Garvey, MD



January 21, 2020
Vol 9, Issue 2

Table. Strategies Recommended by Mission:Lifeline to Reduce Delays in Reperfusion for Primary Percutaneous Coronary Intervention for STEMI Patients

Acquiring PH-ECGs
Transmission of the PH-ECG to the emergency physician and/or cardiologist for potential activation of the CCL team before hospital arrival
Paramedic interpretation of the PH-ECG and clinical presentation to consider activation of the CCL team from the field
Establishing EMS destination policies and protocols that bypass hospitals without percutaneous coronary intervention capabilities in favor of an STEMI Receiving Center when STEMI is suspected in the field on the basis of the PH-ECG and clinical presentation
Strategies for rapid evaluation, guideline recommended therapies and transfer to STEMI receiving hospital for patients initially presenting at referral hospitals (focusing on door-in-door-out time)
Direct activation of the CCL by the Emergency Department
If STEMI is strongly suspected, consideration of taking patients directly to the CCL without prior admission to the Emergency Department, when appropriate

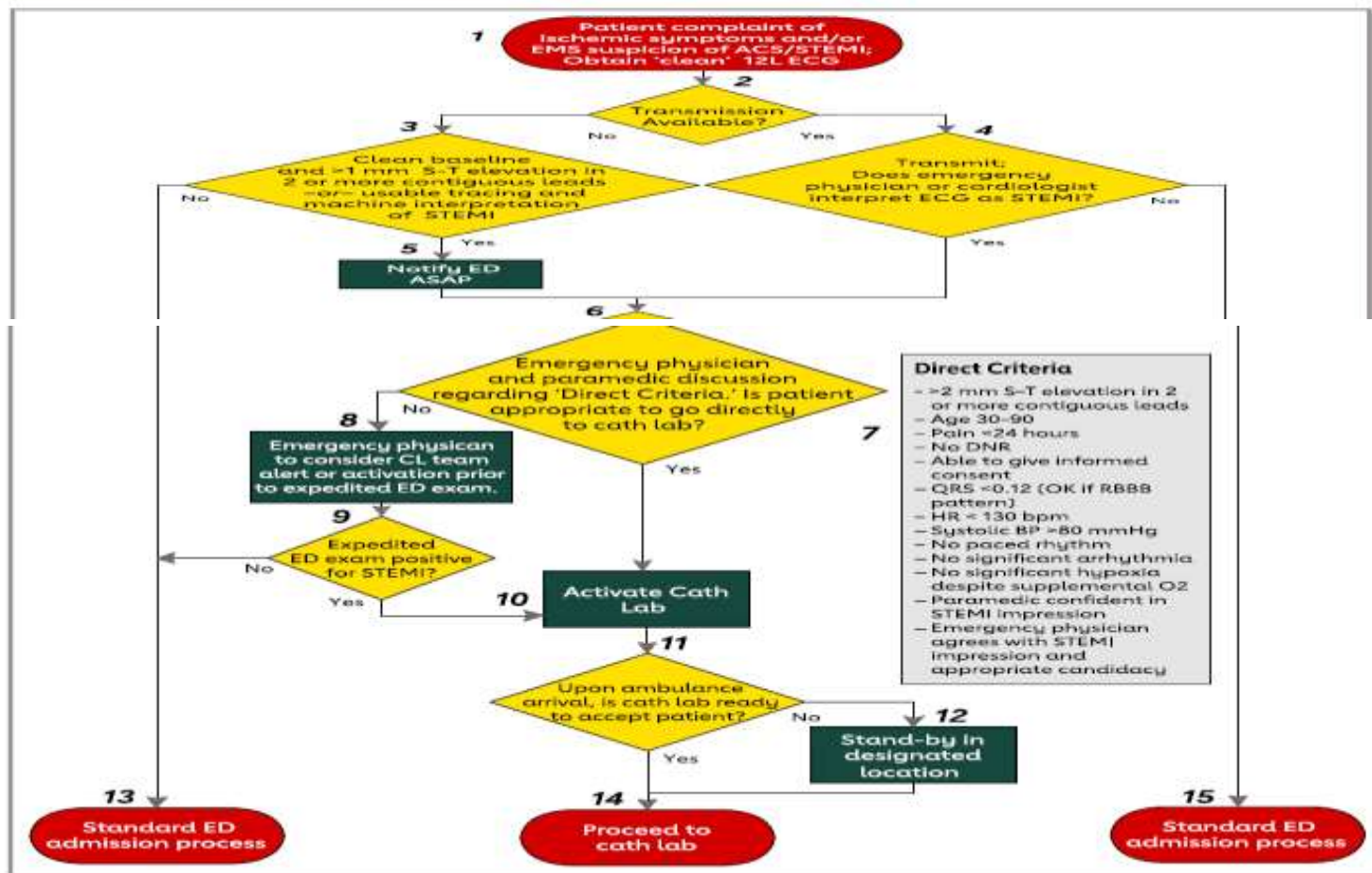


Figure. The Prehospital Activation of Hospital Resources algorithm. ACS indicates acute coronary syndrome; ASAP, as soon as possible; BP, blood pressure; CCL, cardiac catheterization laboratory; DNR, do not resuscitate; ED, emergency department; EMS, emergency medical services; HR, heart rate; RBBB, right bundle branch block; STEMI, ST-segment-elevation myocardial

4. Pemeriksaan Laboratorium

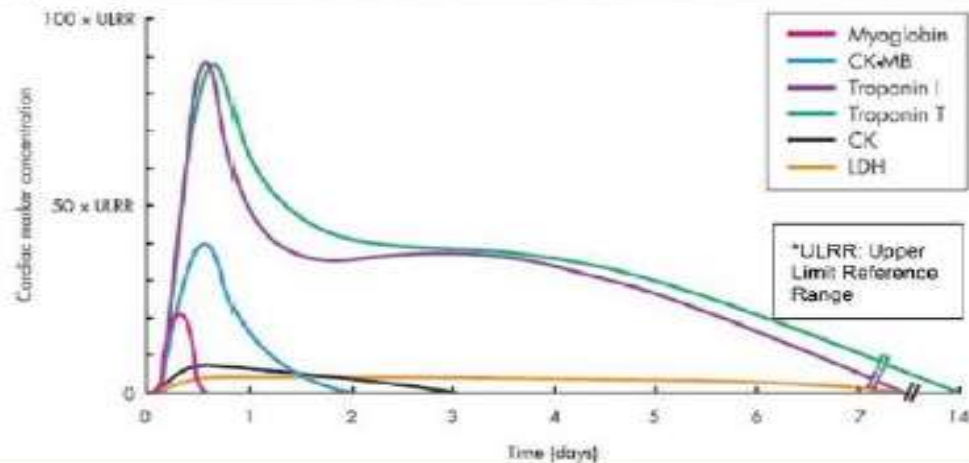
Cardiac Marker

CKMB

Troponin T

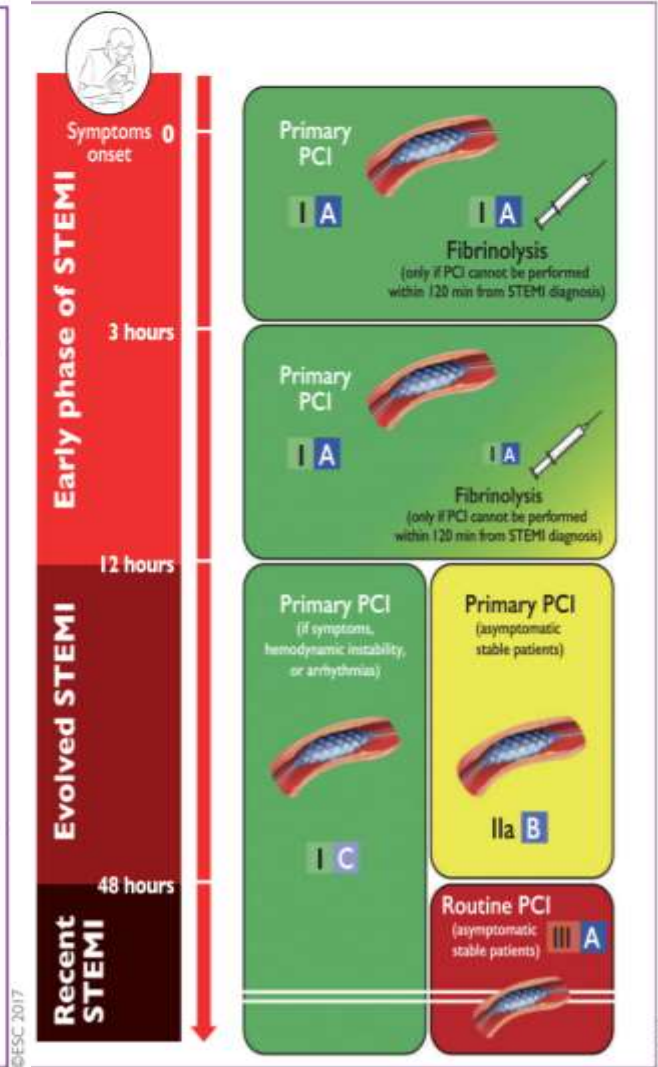
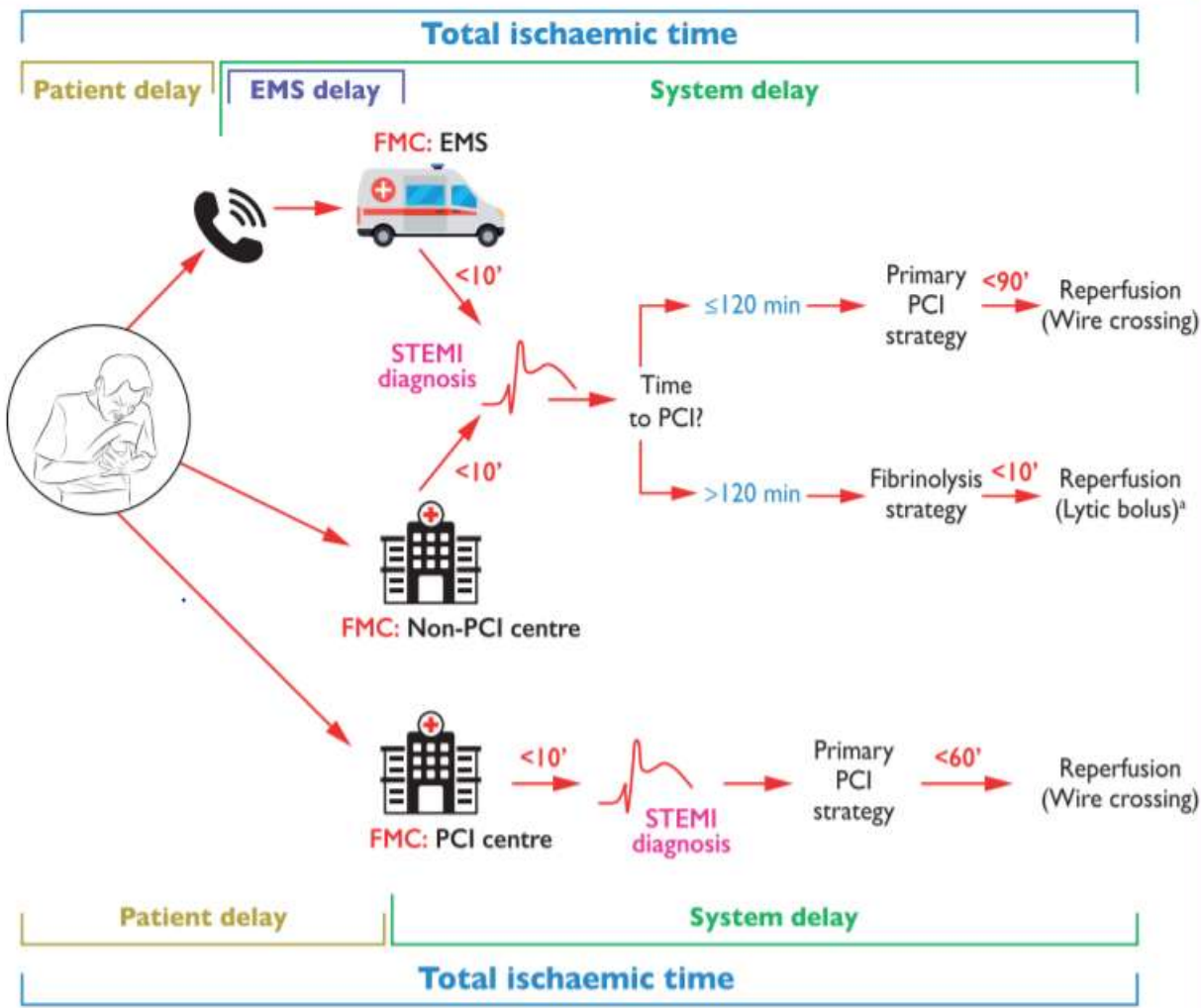
Troponin I

Figure 2: Time Course of Elevation of Serum Cardiac Biomarkers after STEMI



CARDIAC MARKERS & TIME COURSE AFTER ONSET OF MI

Marker	Abnormal activity detectable(hr)	Peak value of abnormality(hr)	Duration of abnormality(days)
CK-MB	3-8	10-24	2-3
LD	8-12	72-144	8-14
AST	6-12	24-48	4-6
MYOGLOBIN	1-3	6-9	1
TROPONIN I	3-8	24-48	3-5
TROPONIN T	3-8	72-100	5-10



"Door-In to Door-Out" Delay in Patients with Acute ST-Segment Elevation Myocardial Infarction Transferred for Primary Percutaneous Coronary Intervention in a Metropolitan STEMI Network of a Developing Country

Iwan Dakota, MD, PhD, FIHA, FESC, FACC¹ Surya Dharma, MD, PhD, FIHA, FAPSC, FESC, FSCAI¹ Hananto Andriantoro, MD, PhD, FIHA¹ Isman Firdaus, MD, PhD, FIHA, FAPSC, FACC, FESC, FSCAI¹ Siska Suridanda Danny, MD, FIHA¹ Dian Zamroni, MD, FIHA¹ Basuni Radi, MD, PhD, FIHA¹

Abstract

Background Routine performance measures of primary percutaneous coronary intervention (PCI) within an ST-segment elevation myocardial infarction (STEMI) network are needed to improve care.

Objective We evaluated the door-in to door-out (DI–DO) delays at the initial hospitals in STEMI patients as a routine performance measure of the metropolitan STEMI network.

Patients and Methods We retrospectively analyzed the DI–DO time from 1,076 patients with acute STEMI who were transferred by ground ambulance to a primary PCI center for primary PCI between 4 October 2014 and 1 April 2019. Correlation analysis between DI–DO times and total ischemia time was performed using Spearman's test. Logistic regression analyses were used to find variables associated with a longer DI–DO time.

Results Median DI–DO time was 180 minutes (25th percentile to 75th percentile: 120–252 minutes). DI–DO time showed a positive correlation with total ischemia time ($r=0.4$, $p<0.001$). The median door-to-device time at the PCI center was 70 minutes (25th percentile to 75th percentile: 58–88 minutes). Multivariate analysis showed that women patients were independently associated with DI–DO time >120 minutes (odds ratio 1.55, 95% confidence interval 1.03 to 2.33, $p=0.03$).

Conclusion The DI–DO time reported in this study has not reached the guideline recommendation. To improve the overall performance of primary PCI in the region, interventions aimed at improving the DI–DO time at the initial hospitals and specific threat for women patients with STEMI are possibly the best efforts in improving the total ischemia time.

Keywords

- DI–DO
- STEMI care
- primary PCI

Study Limitation

Transportation time

Distance

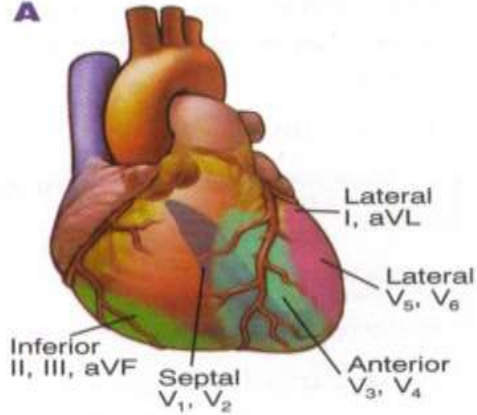
PCI performance- central

Time intervals of the processes
of care were unavailable

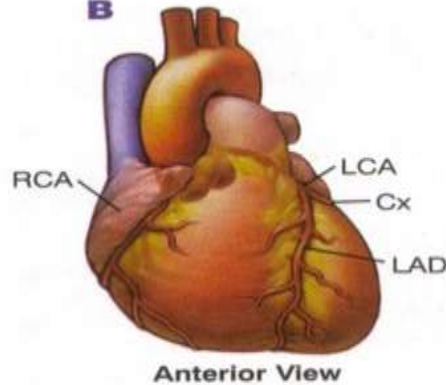


INFARCT AREA

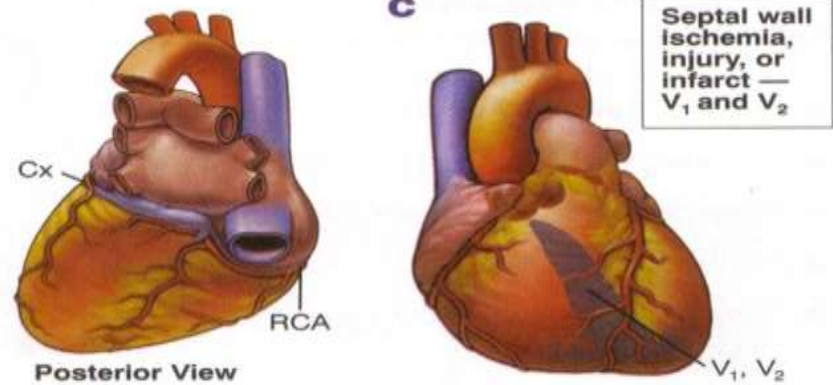
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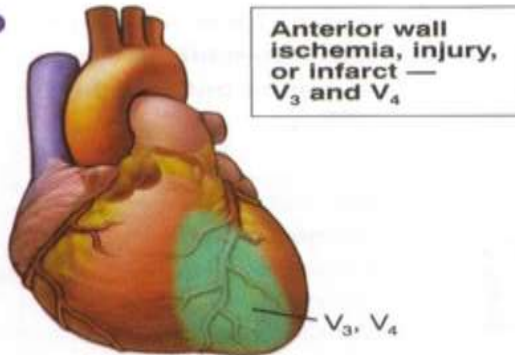
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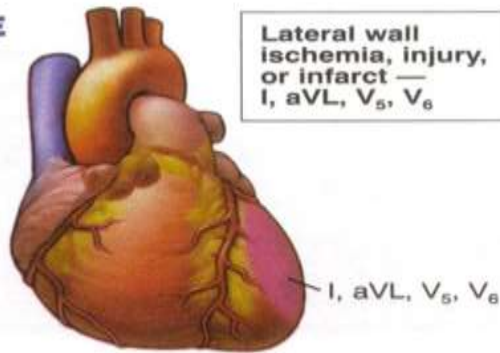
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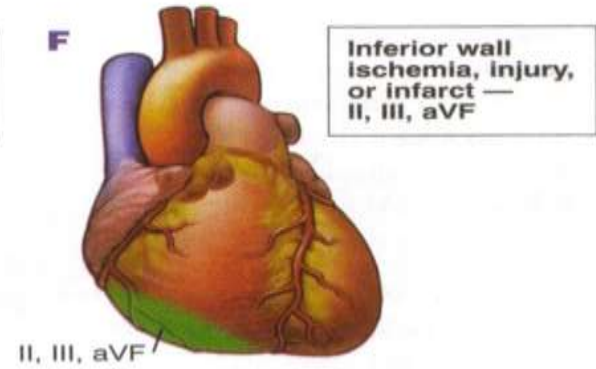
D



E



F



Emergency Medical System

- The ambulance system has a critical role in the early management of STEMI patients and it is not only a mode of transport but also a system to enhance
- Early initial diagnosis
- Triage
- And Treatment.

ACCURACY IN ED TRIAGE FOR SYMPTOMS OF ACUTE MYOCARDIAL INFARCTION

Authors: Susan F. Sanders, PhD, APRN, ACNS-BC, CEN, and Holli A. DeVon, PhD, RN, FAHA, FAAN, Statesboro, GA, and Chicago, IL

Introduction: More than 6 million people present to emergency departments across the United States annually with symptoms of acute myocardial infarction (AMI). Of the 1 million patients with AMI, 350,000 die during the acute phase. Accurate ED triage can reduce mortality and morbidity, yet accuracy rates are low. In this study we explored the relationship between patient and nurse characteristics and accuracy of triage in patients with symptoms of AMI.

Methods: This retrospective, descriptive study used patient data from electronic medical records. The sample of 286 patients was primarily white, with a mean age of 61.44 years (standard deviation [SD], ± 13.02), and no history of heart disease. The sample of triage nurses was primarily white and female, with a mean age of 45.46 years (SD, ± 11.72) and 18 years of nursing experience. Nineteen percent of the nurses reported having earned a bachelor's degree.

Results: Emergency nurse triage accuracy was 54%. Patient race and presence of chest pain were significant predictors of accuracy. Emergency nurse age was a significant predictor of accuracy in triage, but years of experience in nursing was not a significant predictor.

Discussion: Of the 9 variables investigated, only patient race, symptom presentation, and emergency nurse age were significant predictors of triage accuracy. Inconsistency in triage decisions may be due to other conditions not yet explored, such as critical thinking skills and executive functions. This study adds to the body of evidence regarding ED triage of patients with symptoms of AMI. However, further exploration into decisions at triage is warranted to improve accuracy, expedite care, and improve outcomes.

Key words: Triage; Accuracy; Gender; Race/ethnicity; AMI; Experience

- The Results:
Emergency nurse triage accuracy was 54%.
Patient race and presence of chest pain were significant predictors of accuracy.
Emergency Nurse age was a NOT significant predictor of accuracy in triage.

IMPROVEMENT OF DOOR-TO-ELECTROCARDIOGRAM TIME USING THE FIRST-NURSE ROLE IN THE ED SETTING

Author: Laura Stanfield, DNP, RN, NE-BC, CEN, Burlington, NC

Contribution to Emergency Nursing Practice

- Presents support for first-nurse training and for the importance of the emergency nurse's presence in the ED lobby
- Provides an example to emergency nurses for how quality improvement projects can lead to a positive culture change
- Guides future studies toward specific patient populations on which the first nurse can have impact

Abstract

Introduction: This quality improvement project compared door-to-electrocardiogram (ECG) times for patients presenting with symptoms suggestive of acute coronary syndrome within a community hospital emergency department before and after first-nurse (emergency nurse stationed in the ED waiting room) training.

Method: Door-to-ECG time was compared before and after the educational intervention using Acute Coronary Treatment and Intervention Outcomes Network (ACTION) registry data reported by the facility.

Results: Statistical significance was not achieved using a t-group t-test. However, when comparing monthly means, data trend lines showed favorable improvement for door-to-ECG time after the intervention.

Discussion: Limitations included using only those patients in the ACTION registry and not accounting for RN turnover with first-nurse education. Future studies should focus on all patients presenting with symptoms of acute coronary syndrome as well as other patients presenting with time-sensitive needs to determine the efficacy of the first-nurse role.

Key words: Triage; First nurse; Waiting room; Door-to-ECG time; Acute coronary syndrome; ACS

RESULT :

- Door-to-ECG time was compared before and after the educational intervention using Acute Coronary Treatment
- Showed favorable improvement for door-to-ECG time after the intervention.

INITIAL ECG ACQUISITION WITHIN 10 MINUTES OF ARRIVAL AT THE EMERGENCY DEPARTMENT IN PERSONS WITH CHEST PAIN: TIME AND GENDER DIFFERENCES

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CE Earn Up to 11.0 Hours. See page 114.

Introduction: The American Heart Association recommends all patients presenting to the emergency department with complaints of chest pain/anginal equivalent symptoms receive an initial ECG within 10 minutes of presentation. The Synthesized Twelve-lead ST Monitoring & Real-time Tele-electrocardiography (ST SMART) study is a prospective randomized clinical trial that enrolls all subjects who call 911 for ischemic complaints in Santa Cruz County, California. ST SMART is a 5-year study ending in 2008. The primary aim of the ST SMART study is to determine whether subjects who receive prehospital ECG have more timely hospital intervention and better outcomes.

Objective: The aims of this secondary analysis of a subset of ST SMART study data were to determine (1) the rate of adherence to the American Heart Association goal in smaller community hospitals in less populous areas of receiving initial hospital ECG within the recommended 10 minutes and (2) whether there were gender differences in meeting this goal.

Methods: The dataset included patients 30 years of age and older who were transported by ambulance to 1 of 2 rural hospitals in Santa Cruz County. All patients received an initial hospital ECG after arrival at the emergency department.

Results: In this analysis of 425 patients (mean age, 70.4 years; 53% male), the mean time for all patients from ED arrival to initial ECG was 43 minutes (± 145). The mean time to initial ECG was 34 minutes (± 125) in male patients versus 53 minutes (± 165) in female patients (Mann-Whitney test, $P = .001$). Forty-one percent of all patients presenting with ischemic symptoms received an initial ECG within 10 minutes of arrival. Forty-nine percent of male patients versus 32% of female patients received an initial ECG in 10 minutes or less (Fisher exact test, $P = .000$).

Conclusion: In this analysis, the majority of patients with ischemic symptoms did not receive an ECG within 10 minutes of hospital presentation as recommended in evidence-based guidelines. There is a significant delay in door to time-to-ECG for women. ED nurses are in a unique position to initiate efforts to establish processes to decrease time to initial ECG for patients with ischemic symptoms. Attention to timely ECG acquisition in women may improve treatment of acute coronary syndromes in this group.

Key words: Acute coronary syndromes; Emergency department; Electrocardiogram

RESULT :

1. There is a significant delay in door to time-to-ECG for women
2. ED nurses are in a unique position to initiate efforts to establish processes to decrease time to initial ECG for patients with ischemic symptoms.
3. ECG acquisition in women may improve treatment of acute coronary syndromes

INTERVENSI DIAGNOSTIK PADA STEMI ONSET < 12 JAM

- Pasien dengan STEMI biasanya terjadi total oklusi arteri koroner epicardia
- Tujuan utama dari penatalaksanaan awal adalah terapi reperfusi segera dengan pemberian **terapi fibrinolitik** (reperfusi farmakologi) atau **PPCI/ PRIMARY PERCUTANEOUS CORONARY INTERVENTION**

DOOR TO BALON < 90 MENIT

DOOR TO NEEDLE < 30 MENIT

**TRIASE PRE-HOSPITAL PASIEN INFARK MIKARD AKUT
(JAKARTA CARDIOVASCULAR CARE UNIT NETWORK SYSTEM)**



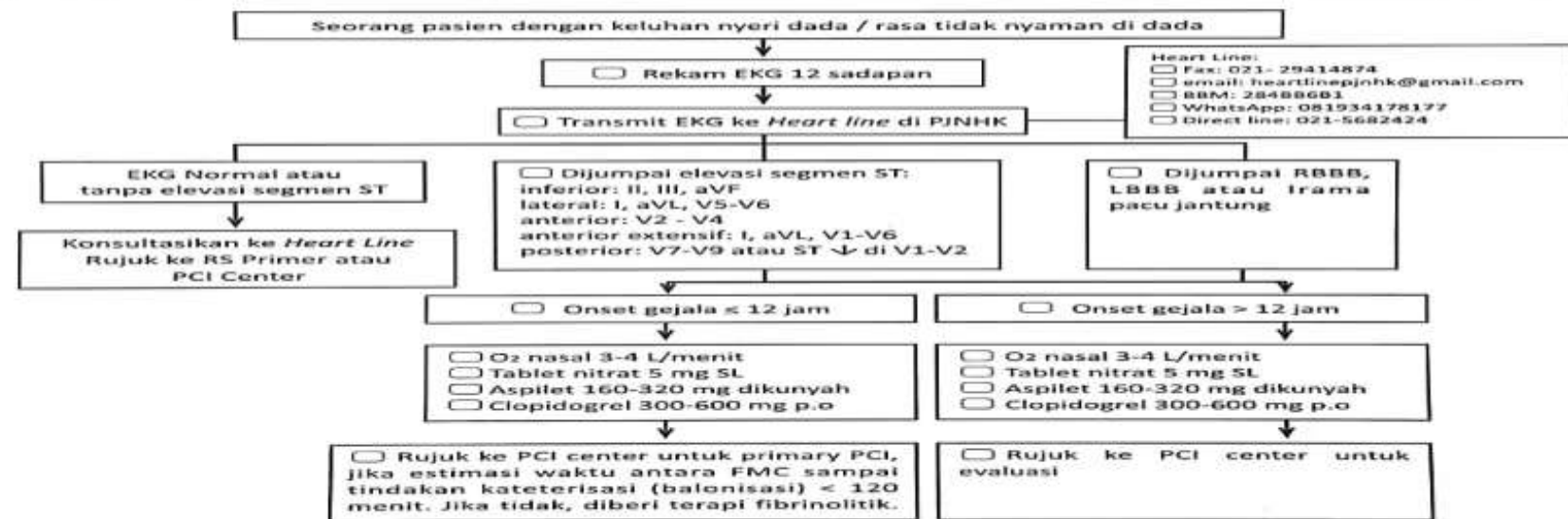
KEMENTERIAN
KESEHATAN
REPUBLIK
INDONESIA



PUSAT
JANTUNG
NASIONAL
National Cardiovascular Center
Pusat Jantung

Nama: Tn./Ny./Nona _____
Tanggal lahir/usia: _____
Nama fasilitas pelayanan kesehatan primer: _____

(Waktu) Awal timbul gejala : _____ Meminta pertolongan medis : _____ Jam ambulans tiba/sampai di IGD : _____ Jam ambulans berangkat merujuk : _____ Jam berangkat sendiri ke RS : _____ Jam tiba di RS : _____ Jam mentransmit EKG : _____	(jam:menit) : _____	Keluhan utama: _____	Riwayat Medis & Pengobatan: _____
		Pemeriksaan Fisik: Kesadaran: _____ TD _____ / _____ mmHg Denyut Jantung _____ x/menit Laju nafas _____ x/menit Irama: SR/ST/SB/AF/SVT/VT/VF/AV Block	



Gambar 1. Triase pre-hospital pasien IMA pada Jakarta Cardiovascular Care Unit Network System.

IGD= instalasi gawat darurat, RS= rumah sakit, EKG= elektrokardiografi, TD= tekanan darah, SR= sinus rhytm, SB= sinus bradycardia, ST= sinus tachycardia, AF= atrial fibrillation, SVT= supra-ventricular tachycardia, VT= ventricular tachycardia, VF= ventricular fibrillation, AV= atrioventricular, PJNHK= Pusat Jantung Nasional Harapan Kita, RBBB= right bundle branch block, LBBB= left bundle brach block, PCI= percutaneous coronary intervention, FMC= first medical contact, p.o= per os(oral), SL= sublingual. Lembar asli dikirim ke RS rujukan, lembar kopi ditinggal di RS asal.

Acute Coronary Syndromes Algorithm – 2015 Update

1

Symptoms suggestive of ischemia or infarction

2

EMS assessment and care and hospital preparation:

- Monitor, support ABCs. Be prepared to provide CPR and defibrillation
- Administer aspirin and consider oxygen, nitroglycerin, and morphine if needed
- Obtain 12-lead ECG; if ST elevation:
 - Notify receiving hospital with transmission or interpretation; note time of onset and first medical contact
- Notified hospital should mobilize hospital resources to respond to STEMI
- If considering prehospital fibrinolysis, use fibrinolytic checklist

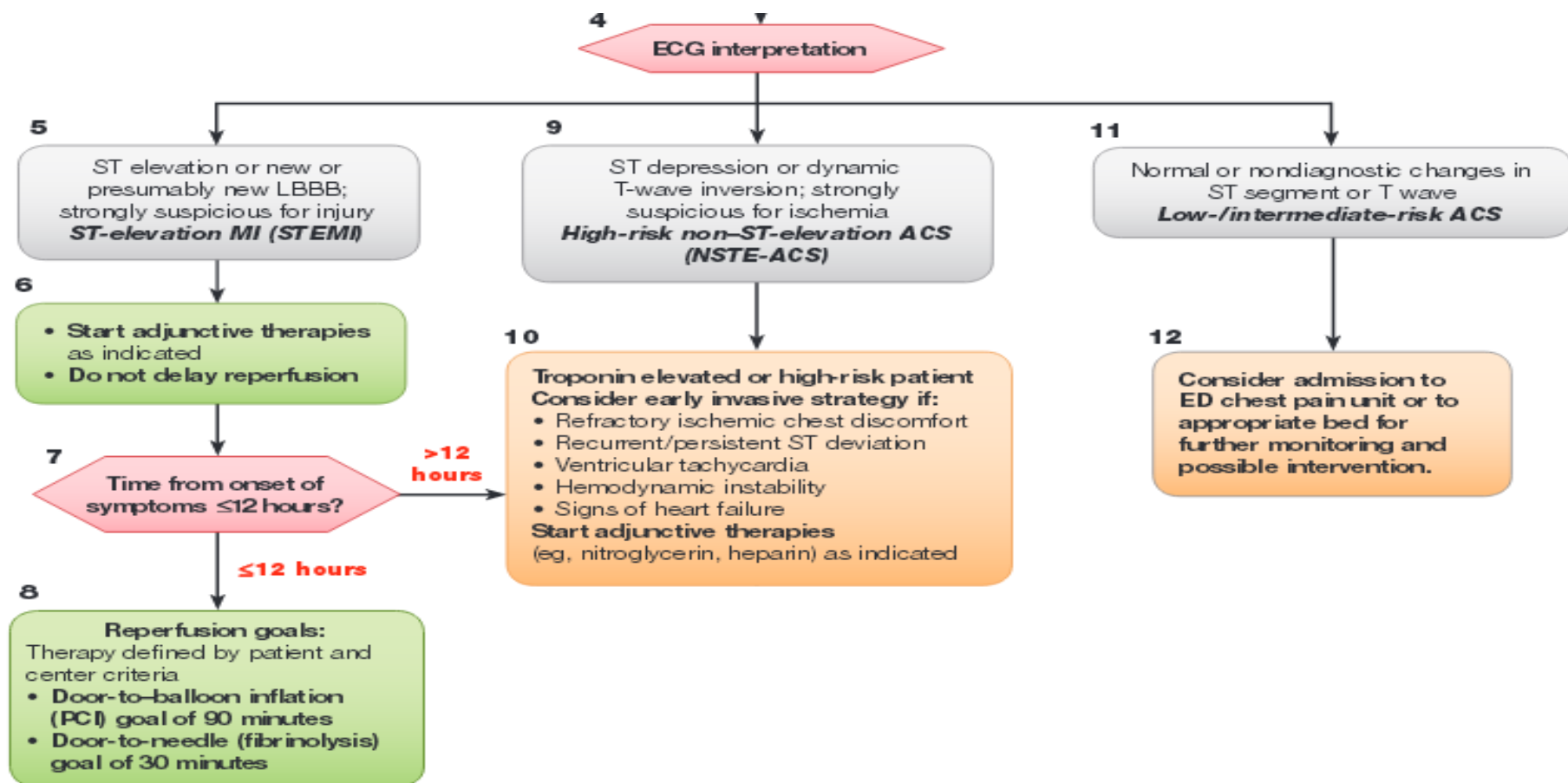
3

Concurrent ED assessment (<10 minutes)

- Check vital signs; evaluate oxygen saturation
- Establish IV access
- Perform brief, targeted history, physical exam
- Review/complete fibrinolytic checklist; check contraindications
- Obtain initial cardiac marker levels, initial electrolyte and coagulation studies
- Obtain portable chest x-ray (<30 minutes)

Immediate ED general treatment

- If O₂ sat <90%, start **oxygen** at 4 L/min, titrate
- **Aspirin** 160 to 325 mg (if not given by EMS)
- **Nitroglycerin** sublingual or spray
- **Morphine** IV if discomfort not relieved by nitroglycerin



Persiapan Pasien Pro PCI di Emergency (Ners)

- Menilai A, B, C
- Tanda-tanda vital, monitor EKG
- Informasi dan edukasi pasien dan keluarga
- Administrasi, mempersiapkan “Informed Consent”
- Pemeriksaan Penunjang (LAB)
- Monitor EKG, hemodinamik & Defibrilator
- DAPT (Aspirin 320 mg kunyah, clopidogrel 600 mg loading atau ticagrerol 180 mg)
- Obat- obat resusitasi kardiopulmoner
- Menghubungi petugas Cathlab dan ruangan)
- Dokumentasi catatan Medis dan Asuhan keperawatan

Persipan Pasien pre PCI in ED

- Total Bed Rest
- Edukasi dan Informasi PCI
- Ganti Baju pasien khusus
- Puasakan Pasien
- Cukur rambut area yang akan dilakukan tindakan (radial, dan Femoral/kemaluan)
- Pasang Condom cateter/ DC- Cateter)
- Pasang Iv akses Tangan KIRI dan CAIRAN

FORM PEMBERIAN FIBRINOLITIK

JAM	BP	HR	EKG	KETERANGAN
.....				Awasi Perdarahan

JAM : setiap 5 mnt / 3 mnt kp

BP : setiap 5 mnt / 3 mnt kp

HR : setiap 5 mnt / 3 mnt kp

EKG : setiap 5 mnt / 3 mnt kp. Catat adanya aritmia

KETERANGAN : setiap 5 mnt / 3 mnt kp. Catat kapan mulai, selesai / ditunda fibrinolitik. Keluhan pasien (Nyeri dada, adanya tanda perdarahan, alergi,) pemberian Th.

Jenis-jenis obat fibrinolitik



A. **Fibrin selektif** yang ditandai dengan aktifitas fibrin plasminogen dan tingginya laju melisis bekuan

Contoh : t-PA, rt-PA, Tenecteplase



B. **Fibrin non selektif** yang ditandai dengan plasminogenolisis sistemik dan fibriogenolisis yang agak lambat lajunya melisis bekuan dan lebih lama derajat lysis di sistemik,

Contoh : Streptokinase, Urokinase

Obat fibrinolisis

	Initial treatment	Antitrombin co-therapy
Streptokinase	1.5 juta unit dalam D5W / NaCl 0.9% selama 30-60 mnt	Tanpa atau dengan IV heparin dlm 24 - 48 jam
Alteplase (tPA)	15 mg iv bolus + 0,3 MG BOLUS ENOXOPARIN 0,75 mg/kgBB selama 30 min then 0,5 mg/kgBB selama 60 min.+ 0,6 MG ENOXOPARIN SC Total dosis tidak boleh lebih dari 100 mg	IV heparin selama 24 - 48 jam
Reteplase (r-PA)	10 U + 10 U. IV Bolus diberikan dalam 30 menit	IV heparin for 24 to 48 h
Tenecteplase (TNK-tPA)	Dosis tunggal IV bolus 30 mg jika < 60 kg. 35 mg jika 60 to < 70 kg. 40 mg jika 70 to < 80 kg. 45 mg jika 80 to < 90 kg. 50 mg jika >90 kg.	IV heparin for 24 - 48 jam

Exterior



Interior



SYARAT AMBULANCE



- Penderita dapat terlentang
- Luas dan tinggi untuk resusitasi pasien
- Fasilitas komunikasi (alarm dan on call)
- Identitas jelas

SYARAT ALAT DAN OBAT



- Alat resusitasi oksigen
- Alat suction
- Obat-obatan dan infus
- Ekg transmitter
- Monitor Defibulator dan Jelly pad
- External pacing connection to Defib
- Obat-obatan Life saving (Epineprine, Sulfas atrophine, Amiodaron)

KEMAMPUAN PETUGAS

NURSE AND DOCTOR

- Kemampuan medis berupa pengetahuan maupun ketrampilan :
- *BLS (Basic Life Support* atau Bantuan Hidup Dasar) dan *ALS (Advanced Life Support* atau Bantuan Hidup Lanjut)
- Mampu interpretasi ECG 12 Lead

Nursing Problem



Pain

Anxiety

Risk Cardiac Out
PutDecrease

Intolarence
Acivity

RISK
INJURY/BLEEDING

Nursing Care Base on type of myocardial infarktion

Type	Leads	Artery involved	Potensial Complication	Nursing consideration
Septal	V1-V2	LCA, LAD	Kerusakan di septum, his bundle Kemungkinan terjadi bundle brach blocks	Kaji adanya gambaran QRS yang lebar, ulang EKG apabila terjadi gangguan hemodinamik.
Anterior	V1-V4	LAD, LCx	Kerusakan di bagian dinding anterior ventrikel kiri Disfungsi ventrikel kiri Edema Paru Ventrikular aritmia Heart Block/BBB	Kaji fungsi paru Hati2 pemberian cairan Monitoring ketat irama jantung Monitoring adanya aritmia
Lateral	V5-V6/laVL	LCX	Kerusakan di bagian dinding lateral LV Disfungsi ventrikel kiri	Monitoring fungsi paru
Inferior	II, III, aVF	RCA	Kerusakan dinding inferior ventrikel kiri,dinding posterior Heart Block	Monitor gambaran EKG. kaji adanya blok jantung atau irama bradikardi
RV infark	II,III,aVF, V3R,V4R	RCA	Dinding ventrikel kanan. Dinding inferior, posterior LV Hipotensi,JVP distention with clear lung, blok jantung	Hati-hati pemberian NTC atau morphin Pemberian teraphi cairan
Poserior	V7 V8, V9	RCA, LCx	Kerusakan dinding posterior Disritmia	Monitor EKG

SUMMARY

Emergency Care Nursing in ED

- Management—including diagnosis and treatment—of STEMI starts from the point of first medical contact
- It is recommended that a regional reperfusion strategy should be established to maximize efficiency- PCI
- Need role nurses ED for management ACS from enter Hospital to Cathlab.
- Be A Good Team work all staff
- Discharge planning

CONCLUSION

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TERIMA KASIH



**Mari Sayangi Jantung
Kita...**