# Optimalisasi Management Pasien Penyakit Jantung Koroner

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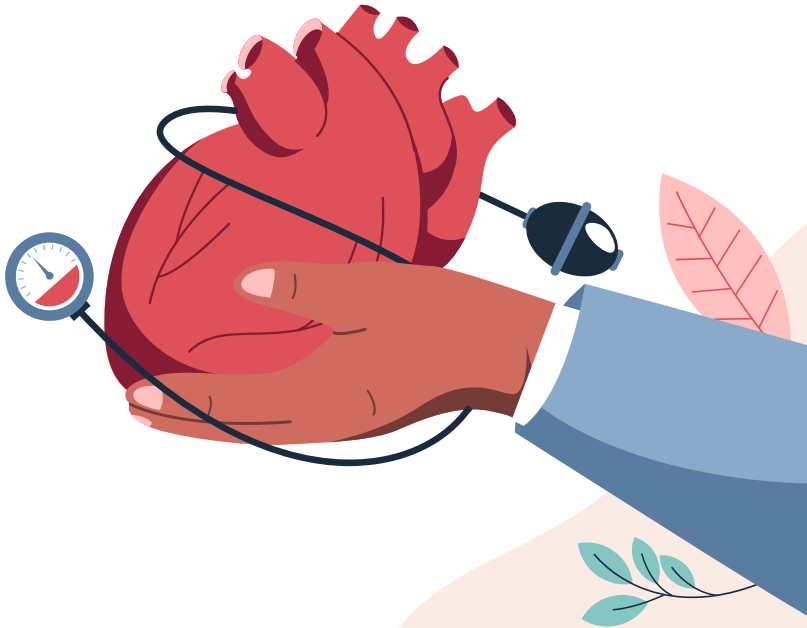

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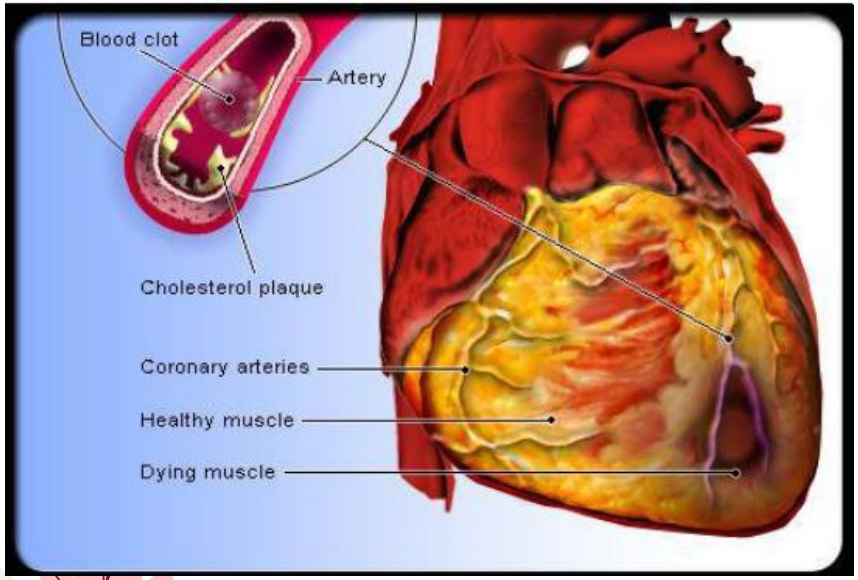
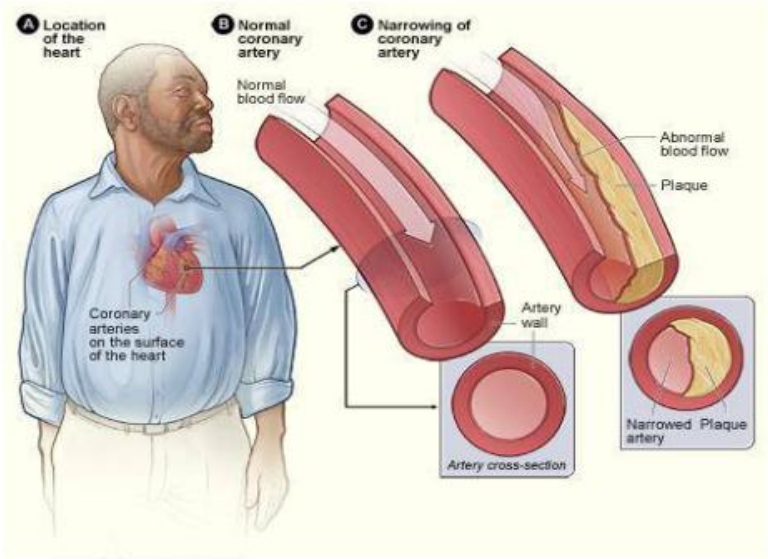
# Pendahuluan

# Penyakit Jantung Koroner (PKJ)

Merupakan proses patologis yang ditandai dengan terjadinya akumulasi plak pada arteri koronaria epikard, dapat terjadi penyumbatan secara penuh atau hanya sebagian

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# Epidemiologi

Penyakit Kardiovaskular → Ancaman tertinggi di dunia dan Indonesia

**BEBAN GLOBAL DAN NASIONAL**

## Skala Global (WHO)

Pembunuh Nomor 1 didunia

Menyebabkan 7,4 juta kematian per tahun. Diproyeksikan mencapai 23,3 juta kematian pada hahun 2030

## Skala nasional (Riskesdas)

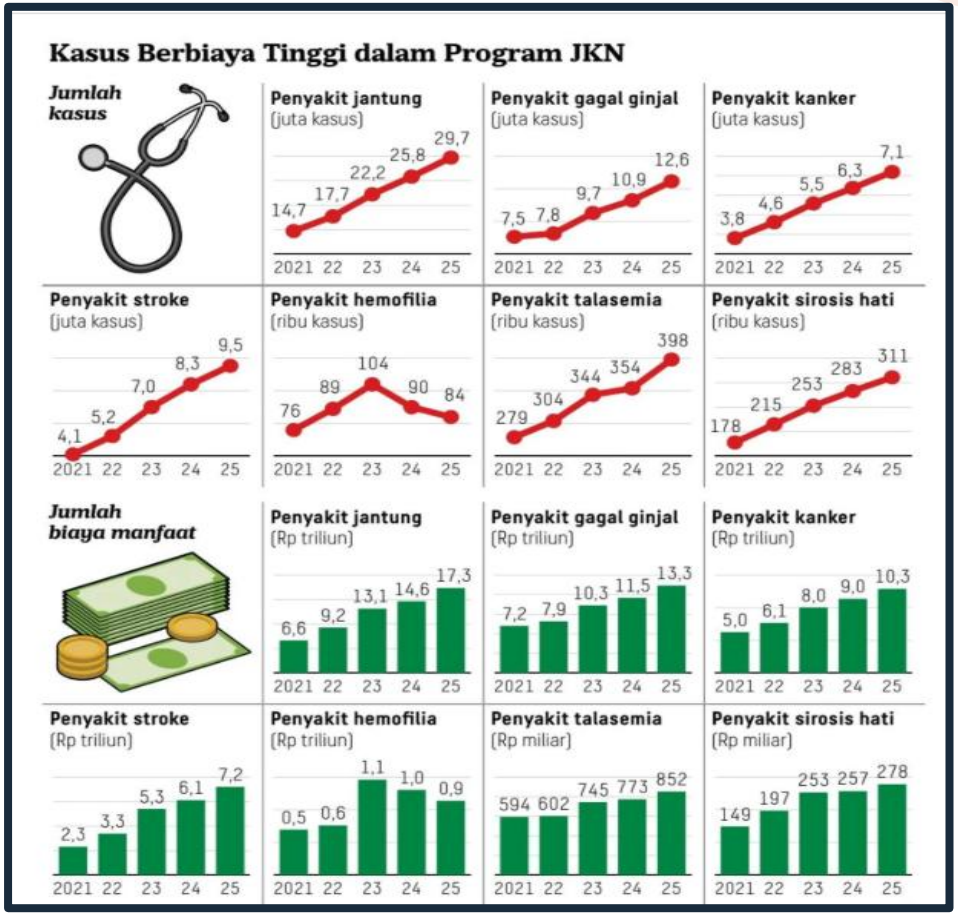
- 1,5% prevalensi
- PJK adalah penyakit kardiovaskular tertinggi di Indonesia (2,6 juta jiwa berdasarkan prognosis/gejala
- Menyumbang 245.343 kematian/tahun

## Pergeseran Usia Muda

Ancaman Usia Muda

Meski identik dengan lansia (>60 tahun), prevalensi pada kelompok usia produktif (35-59 tahun) terus mengalami peningkatan tajam

# Jumlah Kasus dan Pembiayaan JKN untuk Penyakit Katastropik




BPJS

# Etiologi

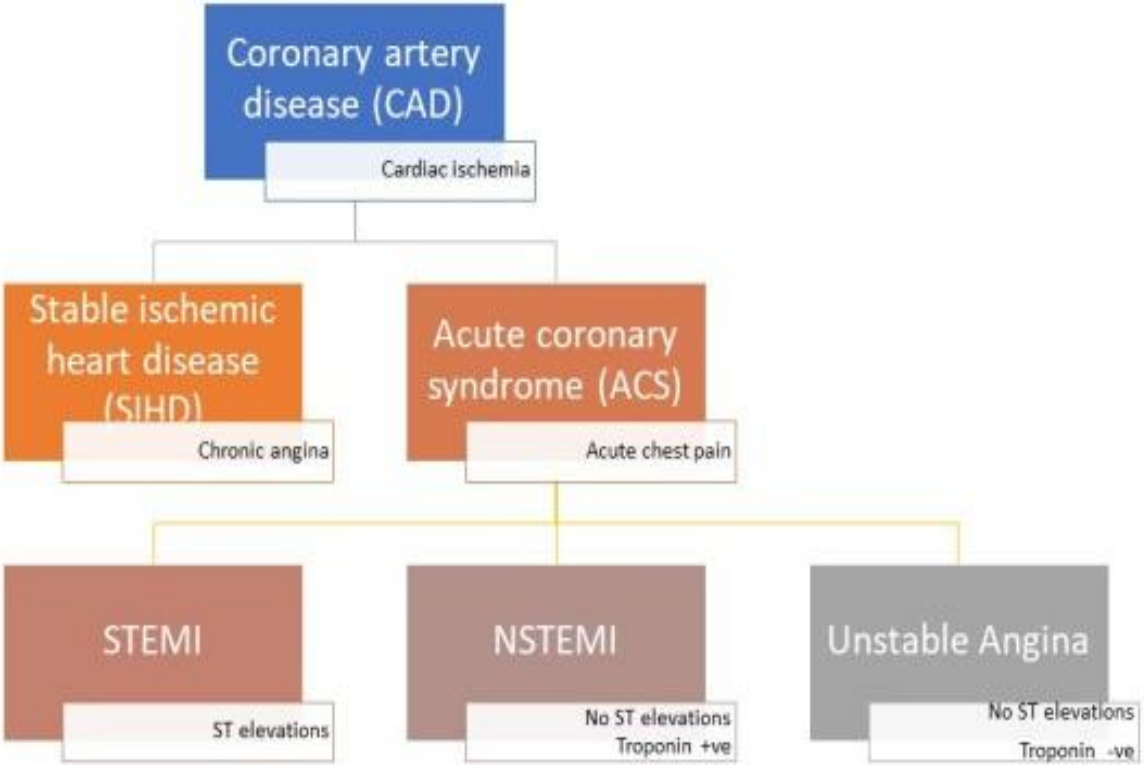
## Dapat Dimodifikasi (Modifiable)

- **Dislipidemia:** Kolesterol LDL ↑, HDL ↓ (<40 mg/dl), Trigliserida ↑. (Faktor primer).
- **Hipertensi:** Tekanan darah ≥ 140/90 mmHg memberikan tekanan mekanis perusak endotel.
- **Diabetes Melitus:** Glukosa tinggi memicu resistensi insulin dan stres oksidatif.
- **Merokok:** Toksisitas radikal bebas dan karbon monoksida merusak permeabilitas pembuluh darah.
- **Gaya Hidup:** Obesitas dan kurangnya aktivitas fisik.

## Tidak Dapat Dimodifikasi (Non-Modifiable)

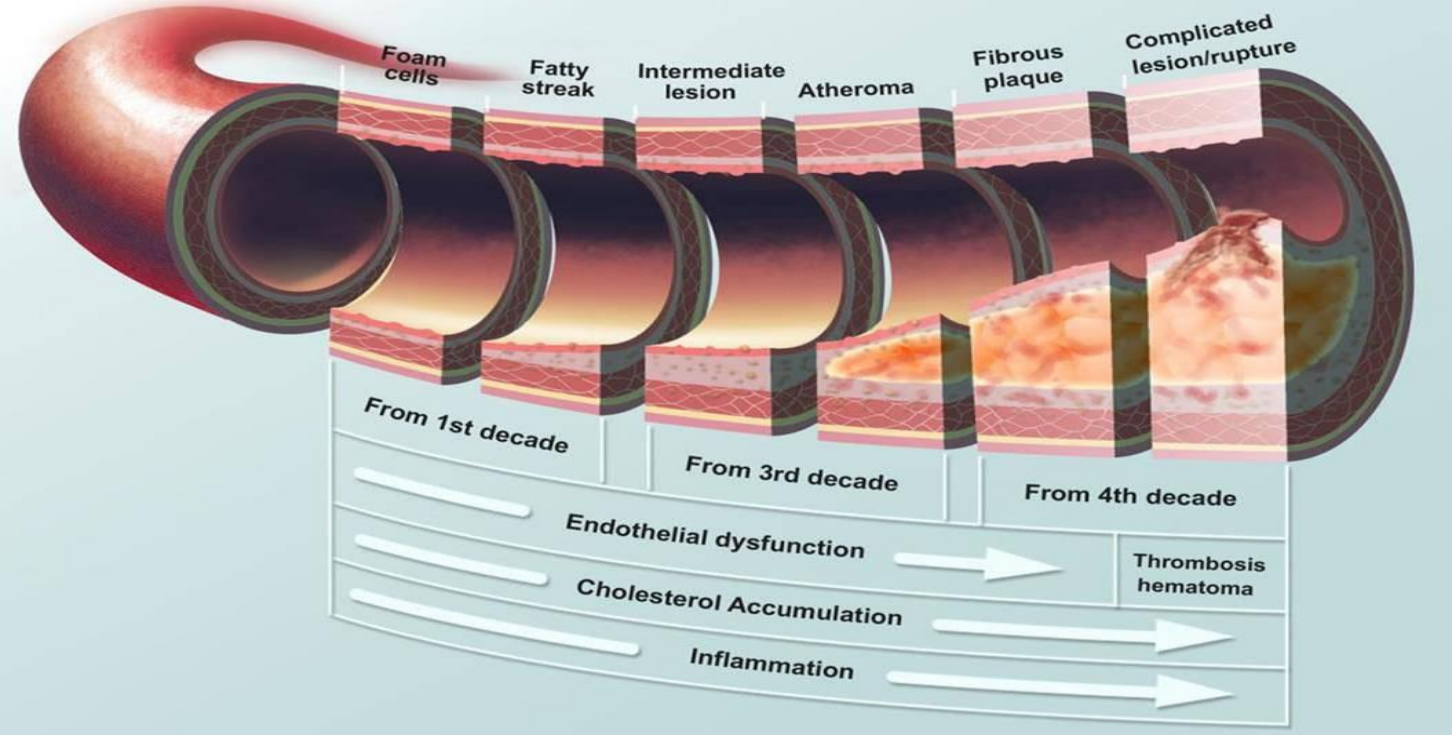
- **Usia Lanjut:** Pria ≥ 45 tahun, Wanita ≥ 55 tahun.
- **Riwayat Keluarga:** Genetik PJK dini (Ayah <55 tahun, Ibu <65 tahun).
- **Jenis Kelamin:** Pria lebih rentan pada usia muda dibandingkan wanita.

# Klasifikasi PJK




Rai Dilawar Shahjehan, dkk.2024. **Coronary Artery Disease. ncbi**

# Patofisiologi → sumbatan aterosklerosis



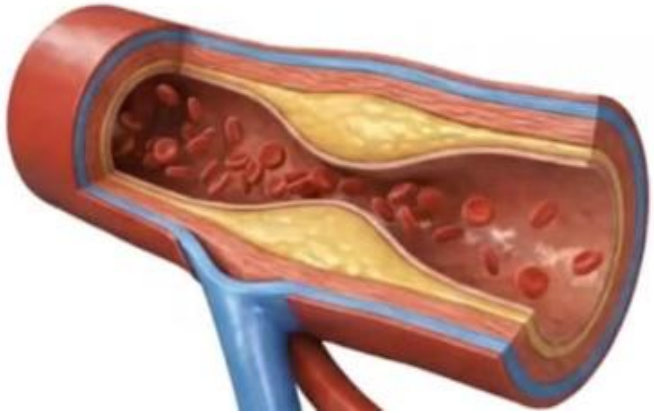

https://pressbooks.lib.vt.edu/cardiovascularpathophysiology

# Manifestasi Klinis PJK

Spektrum Ancaman: dari asimtomatik hingga gawat darurat

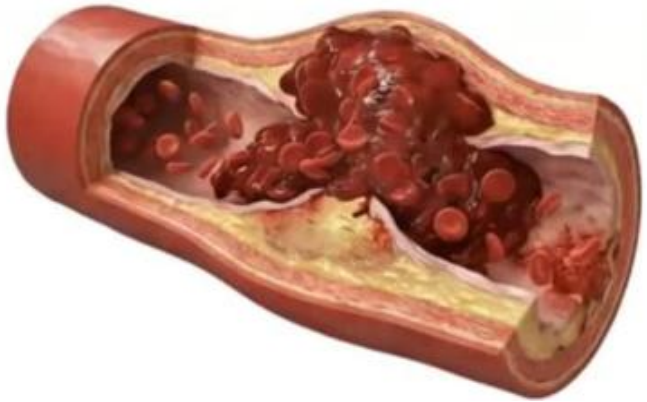
## Penyakit Jantung Koroner Stabil (Angina Pektoris Stabil)

- **Karakteristik Plak:** Plak aterosklerosis berukuran besar namun stabil dengan tudung fibrosa tebal.
- **Gejala:** Nyeri dada (angina) muncul saat aktivitas fisik atau stres emosional (karena ketidakseimbangan suplai dan tingginya demand oksigen).
- **Peredaan:** Nyeri mereda dengan istirahat atau obat nitrogliserin.

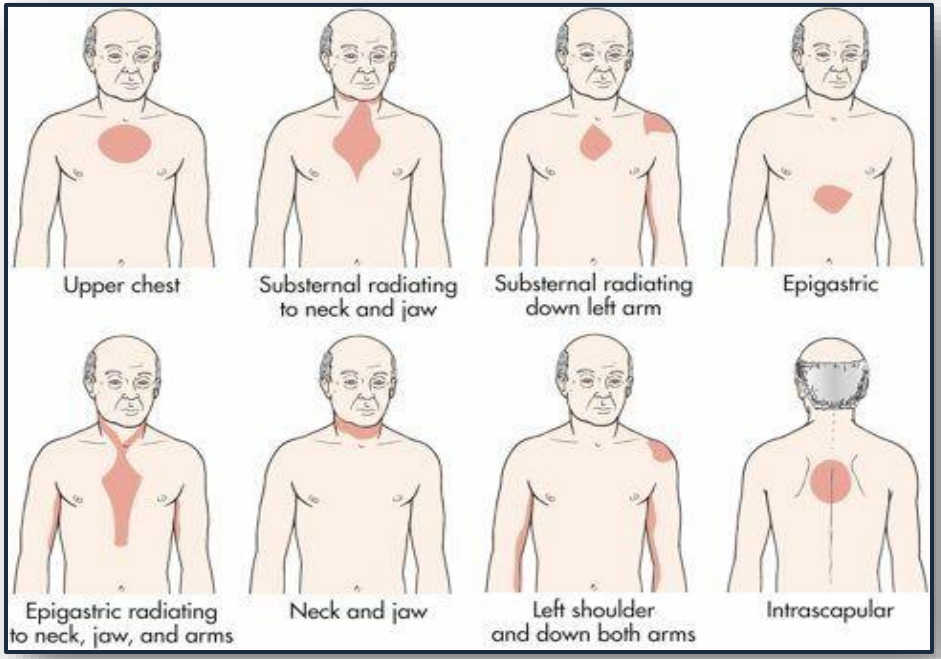


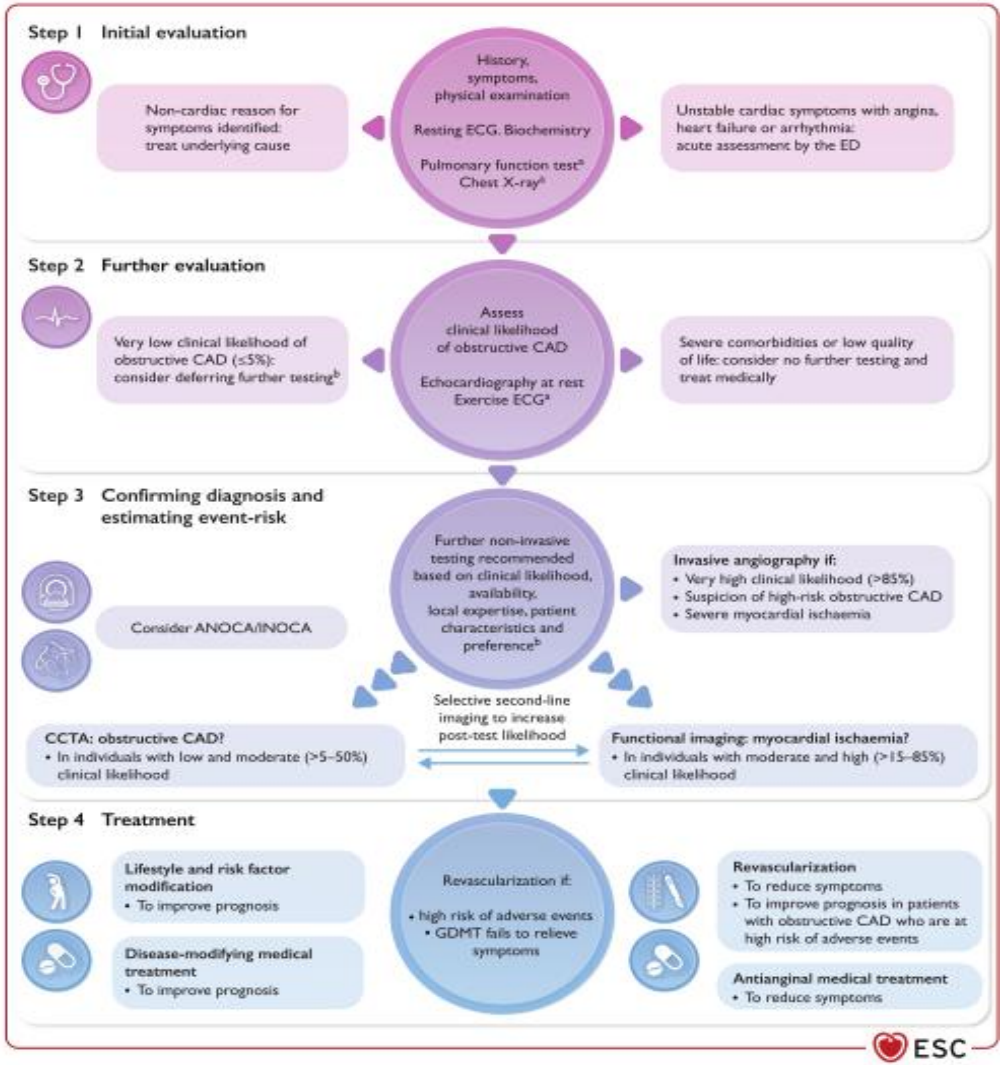
## Sindrom Koroner Akut (SKA / Serangan Jantung)

- **Karakteristik Plak:** Plak rapuh yang mengalami ruptur, menghasilkan trombus akut.
- **Gejala:** Aliran darah terhenti mendadak. Menimbulkan nyeri dada hebat saat istirahat, keringat dingin, iskemia, atau infark miokard (kerusakan otot jantung permanen seperti STEMI/NSTEMI).



| Angina Klasik | |
|---|---|
| Onset | Nyeri dada akut mendadak atau bertahap. |
| Provokasi | Dengan Aktivitas Fisik/ stres emosi |
| Kualitas | Nyeri difus, rasa berat seperti dihimpit, ditekan, diremas, panas atau dada terasa penuh |
| Durasi | Lebih dari 20 menit pada ACS |
| Lokasi | Didaerah retrosternal dan pasien sulit melokalisir nyeri |
| Radiasi | Ke lengan kiri, leher, area interskapuler, bahu, atau epigastrium |
| Gejala Penyerta | Diaforesis/kulit berkeringat dingin, pucat wajah, jantung berdebar, dispnea, disorientasi, kebingungan, gelisah, pingsan, mual dan muntah |






# Management Pasien PJK

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02

# Treatment

# Tujuan

- Pencegahan serangan berulang
- Penurunan angka mortalitas
- Peningkatan kualitas hidup pasien

# MANAJEMEN PJK

**Acute Coronary Syndrome**

**Inisial terapi :**

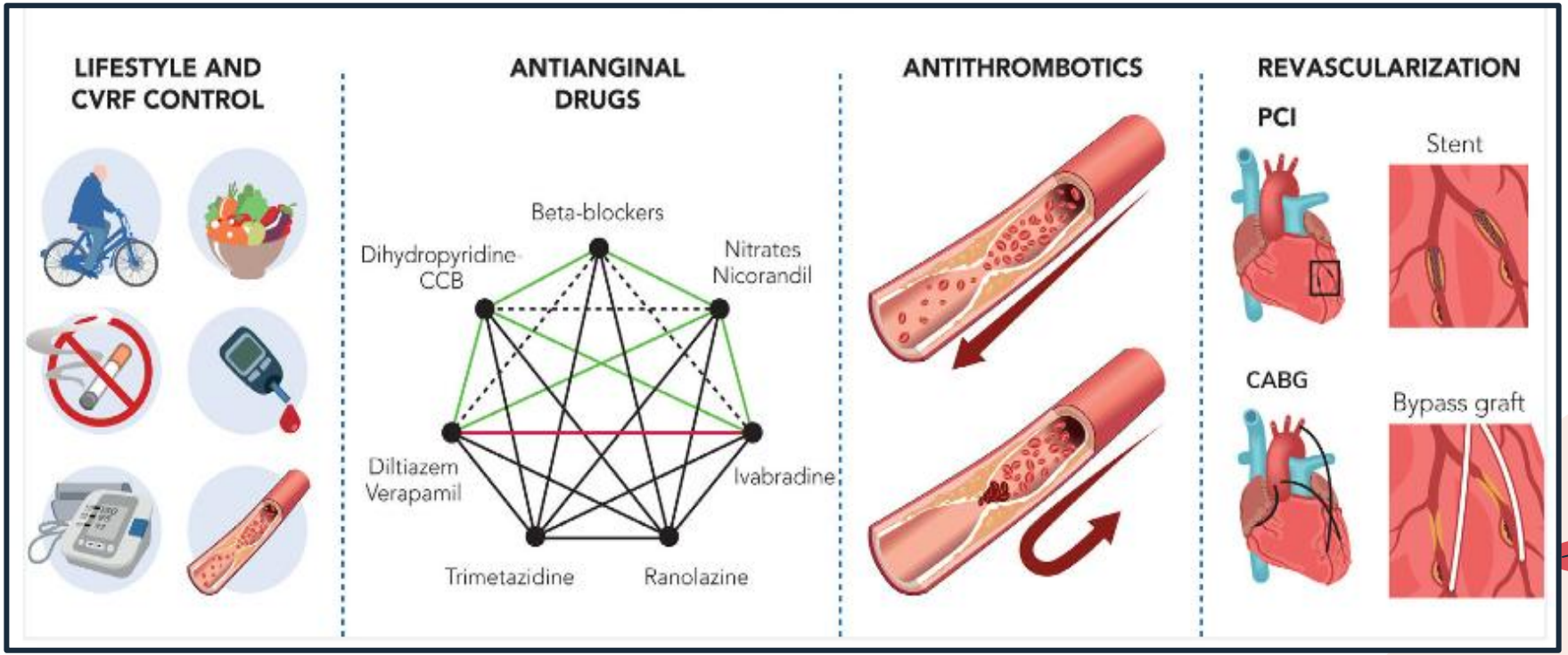
- Antiplatelet (Dual) : Asetosal 160mg + Clopidogrel 300mg/Ticagrelor 180mg
- Nitrat : ISDN 5 mg Sublingual, dapat diulang tiap 15 menit
- Oksigen : jika saturasi kurang dari 90%
- Morfin dosis 2 mg, sebagai vasodilator (antiiskemik)

**Merujuk ke pusat rujukan untuk terapi lebih lanjut**

- Terapi antikoagulan (UFH/Enoxaparin/Fondaparinux)
- Terapi reperfusi (PCI) pada STEMI dan NSTEMI High Risk
- Pemeriksaan lebih lanjut (laboratorium, X-ray, Cardiac enzym dll)

2023 ESC Guidelines for the management of acute coronary syndromes
(European Heart Journal; 2023 – doi:10.1093/eurheartj/ehad191)

# Chronic Coronary Syndrom (CCS)




Mengurangi Gajala iskemia dan mencegah kejadian kardiovaskular Mayor (event prevention

| Lifestyle interventions for risk-factor control | |
|---|---|
| Smoking and substance abuse | • Use pharmacological and behavioural strategies to assist in smoking cessation<br>• Avoid e-cigarettes<br>• Abstain from substance abuse |
| Obesity and being overweight | • Obtain and maintain a healthy weight (BMI 18.5–25 kg/m$^2$)<br>• Reduce weight through recommended energy intake and increased physical activity and through pharmacological/surgical interventions in selected patients |
| Hyperlipidaemia | • Ultimate LDL-C goal of <1.4 mmol/L (55 mg/dL) and a ≥50% reduction in LDL-C vs. baseline is recommended |
| Diabetes | • HbA1c < 7.0% (53 mmol/mol) |
| Arterial hypertension | • SBP 120–129 mmHg, provided the antihypertensive treatment is well tolerated |
| Diet and alcohol consumption | • Limit alcohol consumption to <100 g/week<br>• Diet high in vegetables, fruit, and wholegrains (Mediterranean diet)<br>• Limit saturated fat to <10% of total calorie intake |
| Physical activity and exercise | • 30–60 min moderate activity, >5 days/week<br>• Reduce sedentary time and engage in at least light activity throughout the day |



# Mengubah Lifestyle→ Kontrol Faktor resiko

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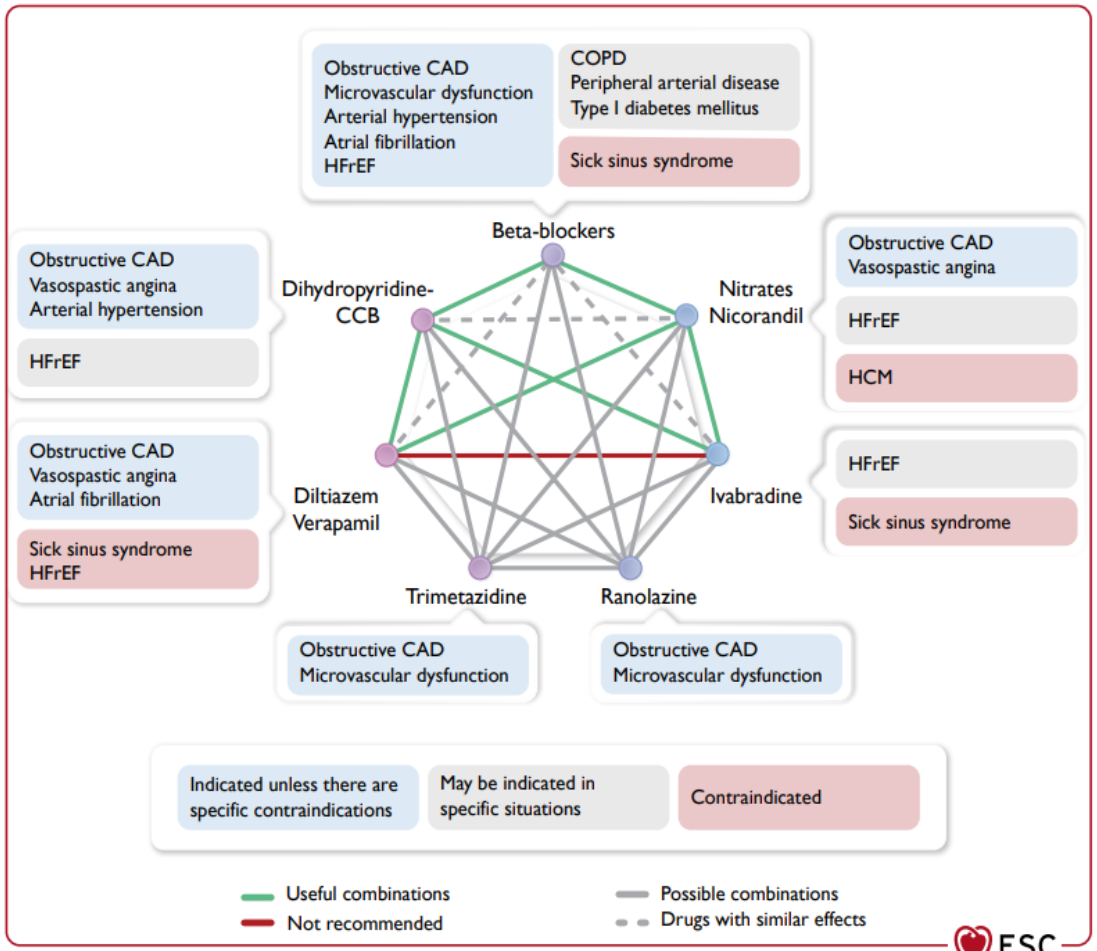
# Anti Iskemia (Mengurangi Gejala)

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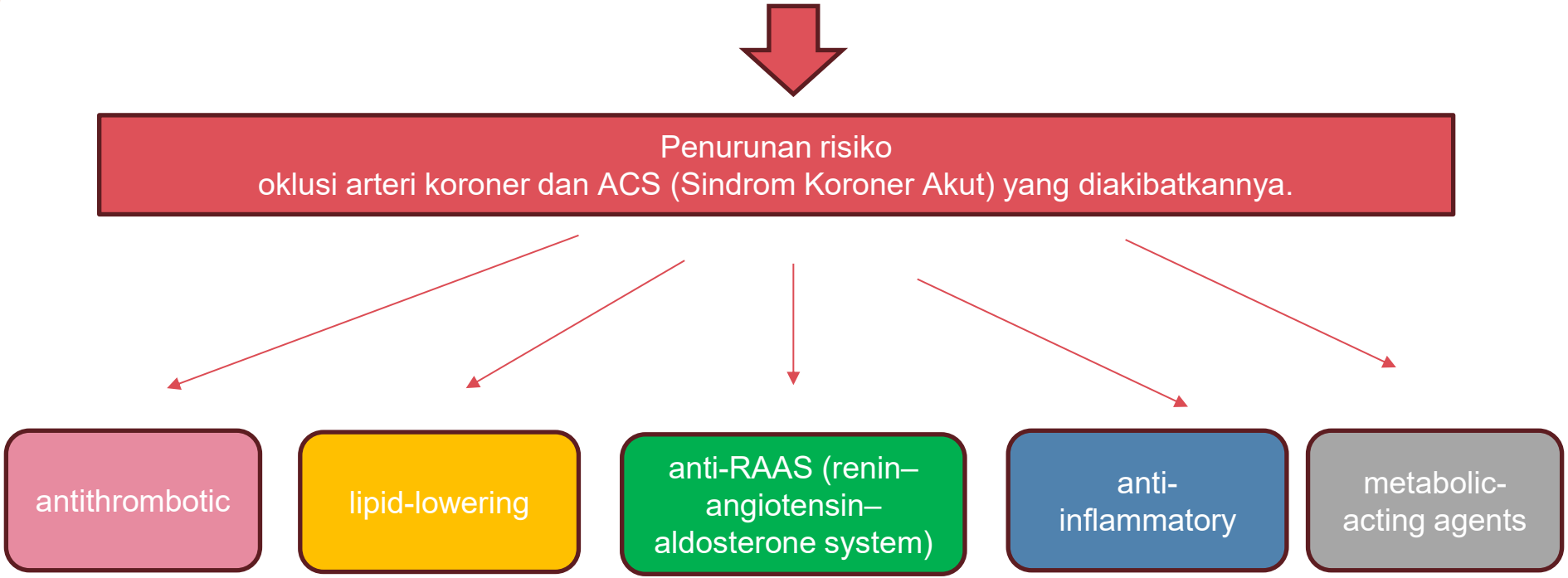
# Medical Therapy for Event Prevention

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# Antitrombotic

**Recommendation Table 17 — Recommendations for antithrombotic therapy in patients with chronic coronary syndrome (see also Evidence Table 17)**

| Recommendations | Class[a] | Level[b] |
|---|---|---|
| **Long-term antithrombotic therapy in patients with chronic coronary syndrome and no clear indication for oral anticoagulation** | | |
| In CCS patients with a prior MI or remote PCI, aspirin 75–100 mg daily is recommended lifelong after an initial period of DAPT.[558,559] | I | A |
| In CCS patients with a prior MI or remote PCI, clopidogrel 75 mg daily is recommended as a safe and effective alternative to aspirin monotherapy.[562,564–566,649] | I | A |
| After CABG, aspirin 75–100 mg daily is recommended lifelong.[558,559,629] | I | A |
| In patients *without* prior MI or revascularization but with evidence of significant obstructive CAD, aspirin 75–100 mg daily is recommended lifelong.[557–559] | I | B |
| Adding a second antithrombotic agent to aspirin for extended long-term secondary prevention should be considered in patients at enhanced ischaemic risk[c] and without high bleeding risk[d] (options and definitions in *Table 8* and in the Supplementary data online, *Tables S2 and S3*).[592–594] | IIa | A |
| In CCS or stabilized post-ACS patients who underwent PCI and were initially treated with ticagrelor-based DAPT, who remain at high ischaemic risk and are not at high bleeding risk, ticagrelor monotherapy 90 mg b.i.d. may be considered as an alternative to dual or other single antiplatelet therapy.[563,570–573] | IIb | C |

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| | | |
|---|---|---|
| **Antithrombotic therapy post-percutaneous coronary intervention in patients with chronic coronary syndrome and no indication for oral anticoagulation** | | |
| In CCS patients with no indication for oral anticoagulation, DAPT consisting of aspirin 75–100 mg and clopidogrel 75 mg daily for up to 6 months is recommended as the default antithrombotic strategy after PCI-stenting.[650–654] | I | A |
| In patients at high bleeding risk[d] but not at high ischaemic risk,[c] it is recommended to discontinue DAPT 1–3 months after PCI and to continue with single antiplatelet therapy.[587,591] | I | A |
| Stopping DAPT after 1–3 months from PCI-stenting may be considered in patients who are not at high bleeding risk nor at high risk of ischaemic events.[588,655–657,c,d] | IIb | B |
| In CCS patients undergoing high-thrombotic risk stenting (e.g. complex left main stem, 2-stent bifurcation, suboptimal stenting result, prior stent thrombosis, previously known CYP2C19 *2/*3 polymorphisms), prasugrel or ticagrelor (in addition to aspirin) may be considered instead of clopidogrel, for the first month, and up to 3–6 months. | IIb | C |
| **Long-term antithrombotic therapy in patients with chronic coronary syndrome and an indication for oral anticoagulation** | | |
| In CCS patients with a long-term indication for OAC, an AF therapeutic dose of VKA alone or, preferably, of DOAC alone (unless contraindicated) is recommended lifelong.[609,627] | I | B |
| **Antithrombotic therapy post-percutaneous coronary intervention in chronic coronary syndrome patients with an indication for oral anticoagulation** | | |
| In patients with an indication for OAC who undergo PCI, initial low-dose aspirin once daily is recommended (loading dose when not on maintenance dose) in addition to OAC and clopidogrel. | I | C |
| In patients who are eligible for OAC, DOAC (unless contraindicated) is recommended in preference to VKA.[619,658] | I | A |
| After uncomplicated PCI in CCS patients with concomitant indication for OAC:<br>• early cessation of aspirin (≤1 week);<br>• followed by continuation of OAC and clopidogrel:<br>o up to 6 months in patients not at high ischaemic risk;[c] or<br>o up to 12 months in patients at high ischaemic risk;[c]<br>• followed by OAC alone;<br>is recommended.[616–619,622,627,659] | I | A |
| Continuation of aspirin up to 1 month after PCI, in addition to OAC and clopidogrel, should be considered in patients at high ischaemic risk[c] or with anatomical/procedural characteristics judged to outweigh the bleeding risk.[620–622,e] | IIa | B |
| When concerns about high bleeding risk prevail over concerns about stent thrombosis or ischaemic stroke:<br>rivaroxaban 15 mg daily should be considered in preference to rivaroxaban 20 mg daily for the duration of concomitant antiplatelet therapy;[616] | IIa | B |
| dabigatran 110 mg twice daily should be considered in preference to dabigatran 150 mg twice daily for the duration of concomitant antiplatelet therapy.[617] | IIa | B |
| In patients with an indication for VKA in combination with single or dual antiplatelet therapy, targeting VKA intensity to an INR in the lower part of the recommended range and to a time in therapeutic range >70% should be considered.[615,660–663] | IIa | B |
| The use of ticagrelor or prasugrel is generally not recommended as part of triple antithrombotic therapy with aspirin and an OAC. | III | C |
| **Antithrombotic therapy post-coronary artery bypass grafting** | | |
| It is recommended to initiate aspirin post-operatively as soon as there is no concern over bleeding.[629,630] | I | B |

# Antitrombotic

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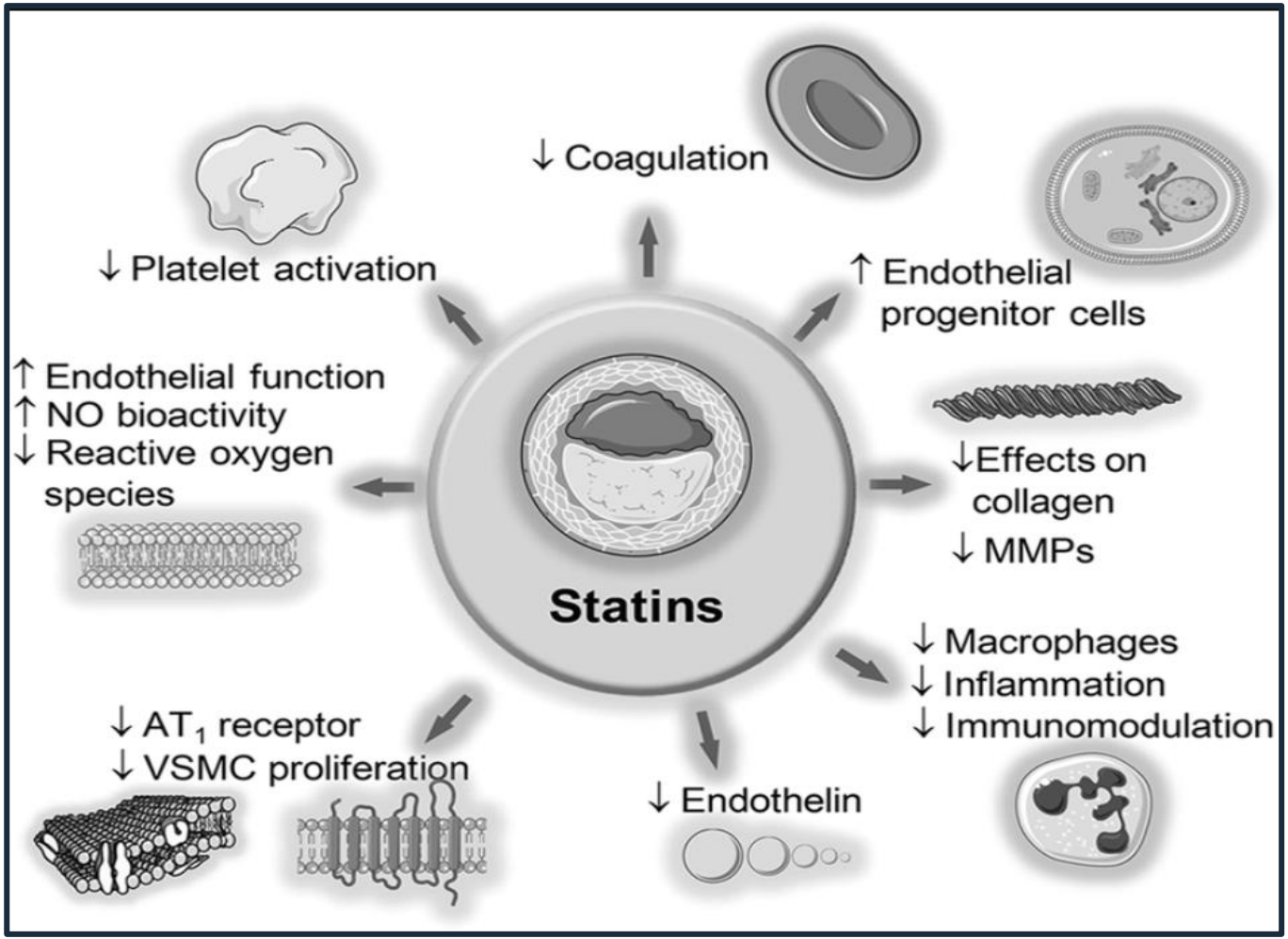
# Lipid Lowering

| High-Intensity Statin Therapy | Moderate-Intensity Statin Therapy | Low-Intensity Statin Therapy |
|---|---|---|
| Daily dose lowers LDL on average by ≥50% | Daily dose lowers LDL on average by approximately 30-49% | Daily dose lowers LDL on average by <30% |
| Atorvastatin 40-80 mg<br>Rosuvastatin 20-40 mg | Atorvastatin 10-20 mg<br>Rosuvastatin 5-10 mg<br>Simvastatin 20-40 mg<br>Pravastatin 40-80 mg<br>Lovastatin 40 mg<br>Fluvastatin XL 80 mg<br>Fluvastatin 40 mg BID<br>Pitavastatin 2-4 mg | Simvastatin 10 mg<br>Pravastatin 10-20 mg<br>Lovastatin 20 mg<br>Fluvastatin 20-40 mg |

2023 ESC Guidelines for the management of acute coronary syndromes (European Heart Journal; 2023 – doi:10.1093/eurheartj/ehad191)

**Recommendation Table 18 — Recommendations for lipid-lowering drugs in patients with chronic coronary syndrome (see also Evidence Table 18)**

| Recommendations | Class[a] | Level[b] |
|---|---|---|
| Lipid-lowering treatment with an LDL-C goal of <1.4 mmol/L (55 mg/dL) and a ≥50% reduction in LDL-C vs. baseline is recommended.[64,670,671] | I | A |
| A high-intensity statin up to the highest tolerated dose to reach the LDL-C goals is recommended for all patients with CCS.[670,671] | I | A |
| If a patient's goal is not achieved with the maximum tolerated dose of statin, combination with ezetimibe is recommended.[674] | I | B |
| For patients who are statin intolerant and do not achieve their goal on ezetimibe, combination with bempedoic acid is recommended.[680] | I | B |
| For patients who do not achieve their goal on a maximum tolerated dose of statin and ezetimibe, combination with a PCSK9 inhibitor is recommended.[675,676] | I | A |
| For patients who do not achieve their goal on a maximum tolerated dose of statin and ezetimibe, combination with bempedoic acid should be considered. | IIa | C |
| For patients with a recurrent atherothrombotic event (not necessarily of the same type as the first event) while taking maximally tolerated statin therapy, an LDL-C goal of <1.0 mmol/L (<40 mg/dL) may be considered.[675,676] | IIb | B |




Angeli, Fabio. 2012. **Statins in acute coronary syndrome: very early initiation and benefits. Sage Journal**

# Anti-RAAS (renin-angiotensin-aldosterone system)

meningkatkan morbiditas dan mengurangi mortalitas, infark miokard, stroke,dan gagal jantung pada pasien dengan disfungsi ventrikel kiri, riwayat penyakit vascular dan diabetes melitus risiko tinggi.

**Recommendation Table 21 — Recommendations for angiotensin-converting enzyme inhibitors in patients with chronic coronary syndrome (see also Evidence Table 21)**

| Recommendations | Class[a] | Level[b] |
|---|---|---|
| In CCS patients, ACE-Is (or ARBs) are recommended in the presence of specific comorbidities, such as hypertension, diabetes, or heart failure.[683–685] | I | A |
| ACE-Is should be considered in CCS patients at very high risk of cardiovascular events.[686,687,690,691] | IIa | A |

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Sebuah meta-analisis, termasuk 24 uji coba dan 61.961 pasien, mendokumentasikan bahwa, pada pasien CCS tanpa gagal jantung, penghambat RAAS mengurangi kejadian kardiovaskular dan kematian jika dibandingkan dengan plasebo

Studi observasional baru → terapi ACE-I/ARB dikaitkan dengan manfaat kelangsungan hidup jangka panjang yang signifikan pada pasien pasca-PCI untuk STEMI/infark miokard non-elevasi segmen ST (NSTEMI).

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# Metabolic-acting agents

**Recommendation Table 19 — Recommendations for sodium–glucose cotransporter 2 inhibitors and/or glucagon-like peptide-1 receptor agonists in patients with chronic coronary syndrome (see also Evidence Table 19)**

| Recommendations | Class[a] | Level[b] |
|---|---|---|
| **CCS patients with type 2 diabetes** | | |
| SGLT2 inhibitors with proven CV benefit[c] are recommended in patients with T2DM and CCS to reduce CV events, independent of baseline or target HbA1c and independent of concomitant glucose-lowering medication.[86,688,695,697,700] | I | A |
| GLP-1 receptor agonists with proven CV benefit[d] are recommended in patients with T2DM and CCS to reduce CV events, independent of baseline or target HbA1c and independent of concomitant glucose-lowering medication.[710,711] | I | A |
| **CCS patients without type 2 diabetes** | | |
| The GLP-1 receptor agonist semaglutide should be considered in overweight (BMI ≥27 kg/m$^2$) or obese CCS patients without diabetes to reduce CV mortality, MI, or stroke.[465] | IIa | B |



Pada pasien dengan gagal jantung dengan EF yang menurun (HFrEF) atau EF yang terjaga (HFpEF), dapagliflozin dan empagliflozin menurunkan risiko memburuknya gagal jantung atau kematian kardiovaskular dengan atau tanpa DM tipe 2.

Uji coba SELECT: pemberian subkutan mingguan agonis reseptor GLP-1 semaglutida dengan dosis 2,4 mg: titik akhir kardiovaskular utama—gabungan kematian akibat penyebab kardiovaskular, infark miokard nonfatal, atau stroke nonfatal—berkurang secara signifikan, dengan HR sebesar 0,80 (95% CI,0,72–0,90; P < 0,001).

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# Anti-inflammatory

**Recommendation Table 20 — Recommendations for anti-inflammatory drugs in patients with chronic coronary syndrome (see also Evidence Table 20)**

| Recommendation | Class[a] | Level[b] |
|---|---|---|
| In CCS patients with atherosclerotic CAD, low-dose colchicine (0.5 mg daily) should be considered to reduce myocardial infarction, stroke, and need for revascularization.[714–716] | IIa | A |



COLCOT (Colchicine Cardiovascular Outcomes Trial) → kolkisin dosis rendah (0,5 mg setiap hari) vs plasebo pada 4745 pasien dengan MI (<30 hari) → resiko kematian akibat cardiovascular dan angina tidak stabil akibat revaskularisasi lebih rendah dibanding plasebo

Uji coba LODOCO2 (Kolkisin Dosis Rendah 2) → Titik akhir primer (kematian kardiovaskular, infark miokard spontan,stroke iskemik, atau revaskularisasi yang didorong oleh iskemia) lebih rendah dibandingkan placebo dan titik akhir sekunder utama (kematian kardiovaskular, infark miokard non-fatal, atau stroke non-fatal) berkurang sebesar 28% (4,2% pada kolkisin vs. 5,7% pada plasebo

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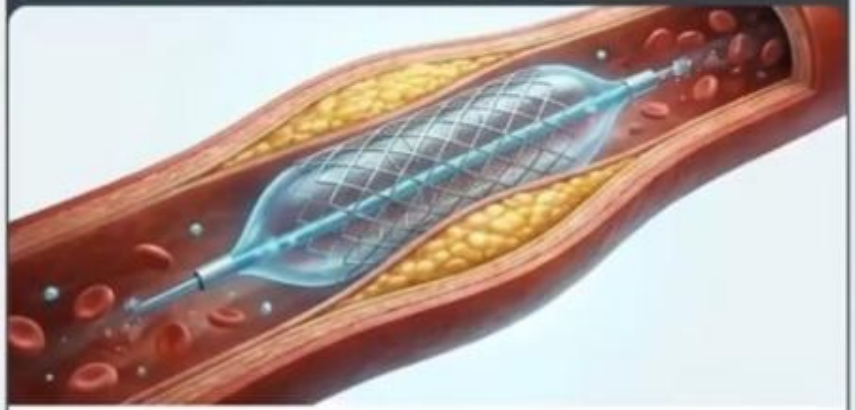
TINDAKAN INTERVENSI → Tindakan invasive untuk revaskularisasi jantung

Indikasi Tindakan: berdasarkan derajat sumbatan lumen arteri (stenosis berat>70%) atau pasien dengan sindrom koroner akut

## 1. Percutaneous Coronary Intervention (PCI)



- **Prosedur:** Angioplasti koroner dengan pengembangan balon untuk membuka sumbatan.
- **Pemasangan Stent:** Tabung jaring (cincin) ditinggalkan di dalam arteri untuk menahan dinding pembuluh darah agar tetap terbuka.

## 2. Coronary Artery Bypass Graft (CABG)

- **Prosedur:** Pembedahan bypass jantung terbuka. Membuat jalur aliran darah baru melewati area arteri yang tersumbat total.
- **Indikasi:** Lesi pembuluh darah majemuk (multivessel disease) atau sumbatan pangkal arteri.

# 03

# PERAN APOTEKER

# PERAN APOTEKER

- Memantau efektivitas terapi
- Memantau efek samping obat
- Mengidentifikasi DRP (interaksi obat-obat dan duplikasi terapi)
- Merekomendasikan alternatif yang tepat untuk terapi yang gagal atau sub-optimal
- Memantau pemberian terapi obat
- Melakukan edukasi dan konseling pasien (farmakologi dan non farmakologi)
- Kepatuhan terhadap Pedoman dan Formularium
- Kolaborasi Interprofesi → strategi terapi yang aman, efektif dan cost effective bagi pasien

J Pharm Technol. 2014 Sep 23;31(2):64–68. doi: 10.1177/8755122514551756

# Impact of Clinical Pharmacist Interventions on 30-Day Readmission Rate in Hospitalized Patients With Acute Myocardial Infarction

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outcome was the all-cause 30-day readmission rate for AMI patients. **Results**: Out of 71 patients screened, 50 patients were included in the study. Only 3 of the 50 patients included were readmitted (6.0%). The prestudy rate from October 2012 to October 2013 was 11.6%, or 58 readmissions out of 498 AMI admissions. Although the study group was much smaller in size, a 6% readmission rate is encouraging and offers potential for a future intervention. **Conclusion**: Clinical pharmacist services for AMI patients, including counseling, interventions, and a follow-up phone call after discharge, may benefit decreasing the 30-day AMI readmission rate; however, further studies are needed.

# CONCLUSION

- PJK merupakan sebuah proses kronis, adanya faktor resiko kardiovaskular mempercepat kejadian PJK
- PJK dapat berupa keadaan akut (ACS) ataupun Kronis
- Tatalaksana medis membutuhkan kepatuhan jangka Panjang dan kolaborasi tim multidisiplin
- Apoteker berperan penting dalam meningkatkan kualitas hidup, kapatuhan minum obat dan outcome klinis pasien PJK

# TERIMA KASIH