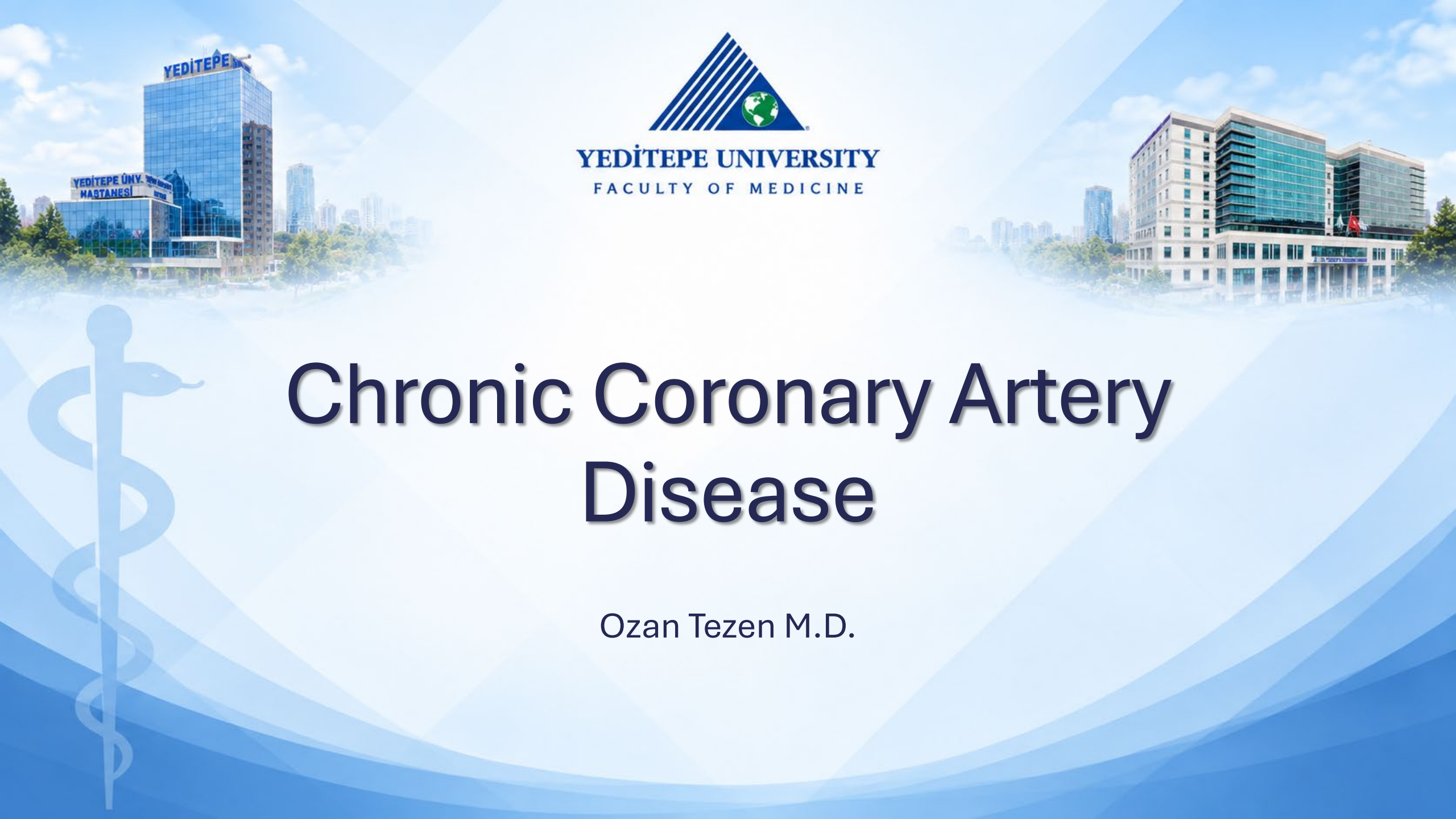




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Chronic Coronary Artery Disease

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WHAT IS CHRONIC CORONARY SYNDROME?



Chronic Coronary Syndrome is more than a fixed stenosis

- **Chronic coronary syndromes arise from chronic structural and/or functional abnormalities of the coronary arteries and/or microcirculation.**
- **They may cause transient myocardial ischaemia, usually triggered by exertion, emotion or other stress.**
- **Patients may present with angina, chest discomfort, dyspnoea — or may be asymptomatic.**
- **CCS may remain stable for long periods, but can destabilize into an ACS.**

The clinical spectrum of CCS

- **Stress-induced angina or equivalent**
with obstructive CAD
- **Angina / ischaemia without obstructive CAD**
ANOCA / INOCA
- **Stabilized after ACS, PCI or CABG**
- **LV dysfunction / heart failure**
of ischaemic origin
- **Asymptomatic CAD**
detected by anatomical or functional testing
- Patients may move between chronic and acute coronary presentations over time.

CHRONIC ≠ ACUTE

- Before asking “Does this patient have coronary artery disease?”
- ask:
- “Could this be an acute coronary syndrome?”



CHRONIC OR ACUTE?

Typical symptoms of chronic coronary syndrome

• Angina

- Usually provoked by exertion, emotion or other stress
- Typically lasts minutes
- Relieved by rest
- Relief may be accelerated by sublingual nitroglycerin

• Exertional dyspnoea

- May be an anginal equivalent
- Especially relevant in older patients and women

Symptoms are reproducible rather than random.

When should I suspect an acute coronary syndrome?

- Recent-onset angina
- Increasing frequency
- Increasing intensity
- Change in usual pattern
- Symptoms occurring with less exertion than before
- Rest or prolonged symptoms

A changing pattern is not «stable angina».



Initial evaluation of suspected CCS

- **History**

- Symptom characteristics
- Cardiovascular risk factors
- Previous CAD / MI / PCI / CABG
- Comorbidities

- **Physical examination**

- Blood pressure
- BMI
- Signs of anaemia, valvular disease, HF
- Peripheral vascular disease

- **12-lead ECG**

- Resting ECG may be normal
- Look for prior MI, conduction disease, ischaemic changes

- **Basic laboratory tests**

- CBC
- Creatinine / eGFR
- Glucose / HbA1c
- Lipid profile

What about troponin?

- Troponin is not a routine diagnostic test for stable CCS.
- Measure hs-cTn when clinical instability or ACS is suspected.
- Low-level hs-cTn may be detectable in stable patients, but this does not by itself diagnose ACS.

Stable, reproducible symptoms → think CCS
Changing or escalating symptoms → think ACS





HOW DO WE CONFIRM THE DIAGNOSIS?



Start with clinical likelihood

- **Symptoms + age + sex + cardiovascular risk factors**



Clinical likelihood of obstructive CAD



Need for further testing?

- **Very low likelihood:** testing may be deferred
- **Moderate / high likelihood:** non-invasive imaging
- **Very high likelihood / high-risk presentation:** consider ICA

2024 ESC Guidelines for the management of chronic coronary syndromes

Developed by the task force for the management of chronic coronary syndromes of the European Society of Cardiology (ESC)

1

Symptom score (0–3 points)

Chest pain characteristics

Type and locationConstricting discomfort located retrosternally or in neck, jaw, shoulder or arm (1 point)

Aggravated byPhysical or emotional stress (1 point)

Relieved byRest or nitrates within 5 min (1 point)

Dyspnoea characteristics

Shortness of breath and/or trouble catching breath aggravated by physical exertion (2 points)

Symptom score

Main symptom either:

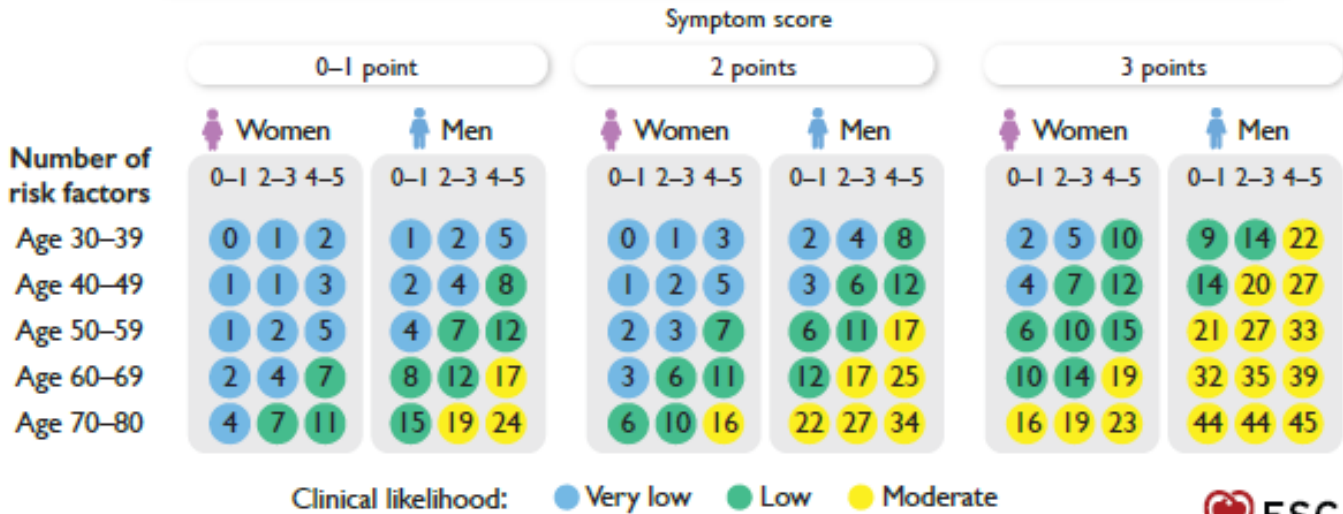
Chest pain (0–3 points)
or
Dyspnoea (2 points)

2

Number of risk factors for CAD (0–5):
Family history, smoking, dyslipidaemia, hypertension and diabetes

3

Estimate the Risk Factor-weighted Clinical Likelihood (RF-CL) of obstructive CAD



Anatomy or function?

- **CCTA — “Is there coronary atherosclerosis?”**
 - Best for low–moderate clinical likelihood
 - Excellent to rule out obstructive CAD
 - Also detects non-obstructive CAD
- **Functional imaging — “Is there myocardial ischaemia?”**
 - Stress echocardiography
 - Stress CMR
 - SPECT / PET
 - More useful when ischaemia burden matters

Where does exercise ECG fit?

- **Exercise ECG is useful for:**
 - Exercise tolerance
 - Symptom reproduction
 - BP response
 - Arrhythmias
 - Risk assessment
- It is no longer the preferred test to rule out CAD when imaging is available

When should I go directly to invasive coronary angiography?

- **Very high clinical likelihood**
 - **Severe or low-threshold angina**
 - **High-risk findings on non-invasive testing**
 - **Symptoms refractory to guideline-directed medical therapy**
-
- ICA is not the default first diagnostic test for stable CCS.

DO NOT TEST JUST TO FIND A STENOSIS



A simple diagnostic strategy

- **Suspected CCS**



Assess stability



Estimate clinical likelihood



Very low → defer testing

Low–moderate → CCTA

Moderate–high → functional imaging

Very high / high risk → ICA

- **Always consider ANOCA/INOCA if symptoms persist despite no obstructive CAD.**



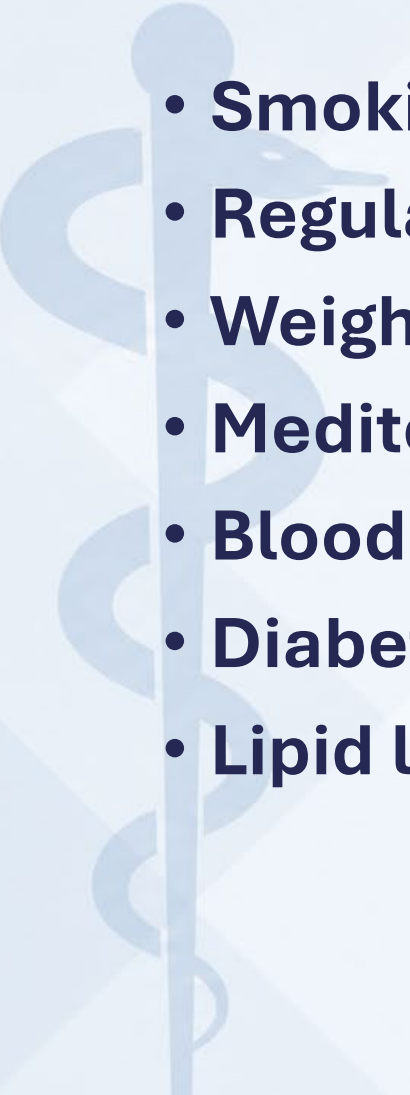
TREATMENT OF CHRONIC CORONARY SYNDROME



Three goals of treatment

- 
- **Prevent cardiovascular events**
 - **Relieve symptoms**
 - **Improve quality of life**

Prevention is treatment

- 
- **Smoking cessation**
 - **Regular physical activity**
 - **Weight management**
 - **Mediterranean-style diet**
 - **Blood pressure control**
 - **Diabetes management**
 - **Lipid lowering**

Lifestyle modification is part of guideline-directed therapy — not an optional add-on.



LDL-C lowering changes prognosis

- **LDL-C <55 mg/dL and $\geq 50\%$ reduction from baseline**
- **High-intensity statin $\rightarrow$ first line**
- **If target not reached:
add ezetimibe $\rightarrow$ consider/add PCSK9-based therapy as indicated**

Antithrombotic therapy: who needs it?

- **Prior MI / remote PCI**
 - lifelong single antiplatelet therapy
- **Significant obstructive CAD without prior MI/revascularization**
 - aspirin is recommended
- **After PCI**
 - DAPT for a limited period
 - then single antiplatelet therapy
- Always balance ischaemic benefit against bleeding risk.

Antianginal therapy is mainly for symptom control

- β -blocker and/or CCB
- Short-acting nitrate for acute relief
- **Add / combine according to heart rate, BP and comorbidities**
 - long-acting nitrates
 - ranolazine
 - selected other agents
- Antianginal effect $\neq$ proven prognostic benefit

Disease-modifying vs. symptom-modifying therapy

Reduce events / improve prognosis	Relieve symptoms
Smoking cessation	β -blockers
LDL-C lowering	CCBs
Antithrombotic therapy	Nitrates
BP / diabetes control	Ranolazine
RAAS blockade when indicated	Other antianginals

THE CORNERSTONE OF CCS TREATMENT IS MEDICAL THERAPY





WHEN DO WE REVASCULARIZE?



Revascularization has two main goals

- **1. Improve symptoms**
 - Persistent angina despite guideline-directed medical therapy
 - Functionally significant obstructive CAD
- **2. Improve prognosis**
 - Selected high-risk patients
 - Selected high-risk coronary anatomy
- The indication depends on the patient — not simply on the presence of a stenosis.

Does PCI improve survival in most stable patients?



Not routinely.

- In stable patients without left main disease or severe LV dysfunction, an initial invasive strategy has not shown a clear early survival advantage over optimized medical therapy.
- Therefore, most patients can initially be managed with GDMT.

Who may benefit prognostically from revascularization?

- Significant left main disease
- Selected multivessel disease
- Multivessel disease with severe LV dysfunction
- Selected complex / high-risk coronary anatomy

What if symptoms persist despite medical therapy?

- **Persistent angina**



Is medical therapy optimized?



Is there functionally significant obstructive CAD?



Revascularization to improve symptoms

- Symptom benefit is a valid reason for revascularization.



A STENOSIS IS NOT AN INDICATION FOR PCI



A simple treatment algorithm

- **Confirmed CCS**



Lifestyle + risk-factor modification



Disease-modifying medical therapy



Antianginal therapy if symptomatic



Reassess symptoms and risk

- **Symptoms controlled + no high-risk features**
→ **Continue GDMT**
- **Persistent symptoms OR high-risk anatomy / prognosis**
→ **Consider ICA and revascularization**

TAKE-HOME MESSAGES

- **1. Distinguish chronic from acute coronary syndromes.**
- **2. Prevention and guideline-directed medical therapy are the foundation of CCS treatment.**
- **3. Coronary angiography and revascularization are selective strategies — not the default treatment of stable disease.**

In the world, the most
genuine guide for everything,
civilization, life, and success
is knowledge, science.
Seeking a guide outside of
knowledge and science is
negligence, ignorance, and
deviation.

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Thank you for listening.