



Principles of Prevention of Cardiovascular Disease

Fundamental Principles

- **Identify major cardiovascular risk factors**
(LDL cholesterol, HDL cholesterol, triglycerides, blood pressure, diabetes mellitus, smoking, family history of MI or stroke, age: men > 45 years, women > 55 years)
- **Determine patient's cardiovascular risk category**
- **Adjust intensity of treatment of risk factors to patient's risk category**

Risk Categories

High Risk

- Established CVD (CAD, PAD, aortic or carotid disease)
- Diabetes mellitus, particularly in combination with microalbuminuria
- Multiple risk factors (10-year risk for CHD > 20%)
 - Calculate 10-year risk with risk algorithm
Framingham: www.nhlbi.nih.gov
PROCAM: www.chd-taskforce.com
 - Some countries require 10-year risk > 30% to define high risk
 - Some authorities include diabetes mellitus in 10-year risk assessment

Intermediate Risk

- ≥ 2 risk factors and 10-year risk 10-20%
- Metabolic syndrome
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 - Abdominal obesity (geographic region specific)
 - Fasting TG ≥ 150 mg/dl (1.7 mmol/L)
 - HDL < 40 mg/dl (1.0 mmol/L) men
< 50 mg/dl (1.3 mmol/L) women
 - BP $\geq 130/85$ mmHg
 - Glucose ≥ 110 mg/dl (6.0 mmol/L)]

Lower (0-1 risk factor) to moderate (≥ 2 risk factors) risk
with 10-year risk < 10%

Risk Factor Management

Major risk factors

- Lifestyle modification, e.g. smoking cessation, weight reduction, healthy diet, regular exercise
- Blood pressure targets
 - High-risk patients: BP < 130/85 mmHg
 - Other risk categories: BP < 140/90 mmHg
- LDL cholesterol targets
 - High-risk patients: < 100 mg/dl (2.6 mmol/L)
 - Intermediate-risk patients: < 130 mg/dl (3.4 mmol/L)
 - Lower- to moderate-risk patients: < 160 mg/dl (4.1 mmol/L)
- Low HDL cholesterol: raise HDL cholesterol
 - lifestyle modification first
 - reduce global risk
- Diabetes mellitus: glycohemoglobin < 7%

Other risk factors

- Anti-platelet treatment: consider low-dose aspirin in patients with 10-year risk for CHD \geq 10%
- Fasting TG \geq 150 mg/dl (1.7 mmol/L):
 - Lifestyle modification first
 - Achieve LDL cholesterol targets
 - Consider fibrates or nicotinic acid in high-risk patients

Metabolic syndrome

- Lifestyle modification first
- Achieve blood pressure targets
- Achieve LDL cholesterol targets
- Consider also fibrates or nicotinic acid in higher risk patients
- Low-dose aspirin for patients with 10-year risk \geq 10%