

Managing Global and Life Time Risk

11.02.2013

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foundation for
cardiovascular
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P.E. 10.09.1953: Anamnesis

- 59 year old women from Russia presenting at the outpatient clinic
- Developed mild dyspnea in the last 2 months
- Left thoracic pressure while sitting, sometimes during extended walks
- Feels often lonely, children just moved out
- No thoracic pain, no vertigo, no palpitations, no edemas, no orthopnea
- Stable weight

P.E. 10.09.1953: Medical history

- Status post left thoracic contusion (ski stick), 2010
- Status post augmentation mammoplasty, 2005
- Status post sectio caesarea (2x)

P.E. 10.09.1953: Cardiovascular risk factors

- smoker, 15 py
- Mother died after myocardial infarction at the age of 48 years
- no known diabetes mellitus, no arterial hypertension, no dyslipidemia

P.E. 10.09.1953: Clinical examination

- Height: 156 cm<, weight: 65 kg; BMI: 26.7 kg/m²
- Blood pressure: right: 135/80 mmHg; left: 138/78 mmHg
- Heart murmurs absent
- Normal lung auscultation
- No edemas, HJR negative

P.E. 10.09.1953: Laboratory work

•Hematology

•Hb:	129	g/l	(117-153)
•Thrombocytes:	313	G/l	(143-400)
•Leucocytes	6.99	G/l	(3.0-9.6)

•Natrium 141 mmol/l

•Potassium 4.0 mmol/l

•Creatinine 58 umol/l (44-80)

•proBNP 41 ng/l (<287)

•Glucose 4.3 mmol/l (<11.1)

•HbA1c 5.6 % (4.8-5.9)

•Cholesterin, total 6.1* mmol/l (<5.0)

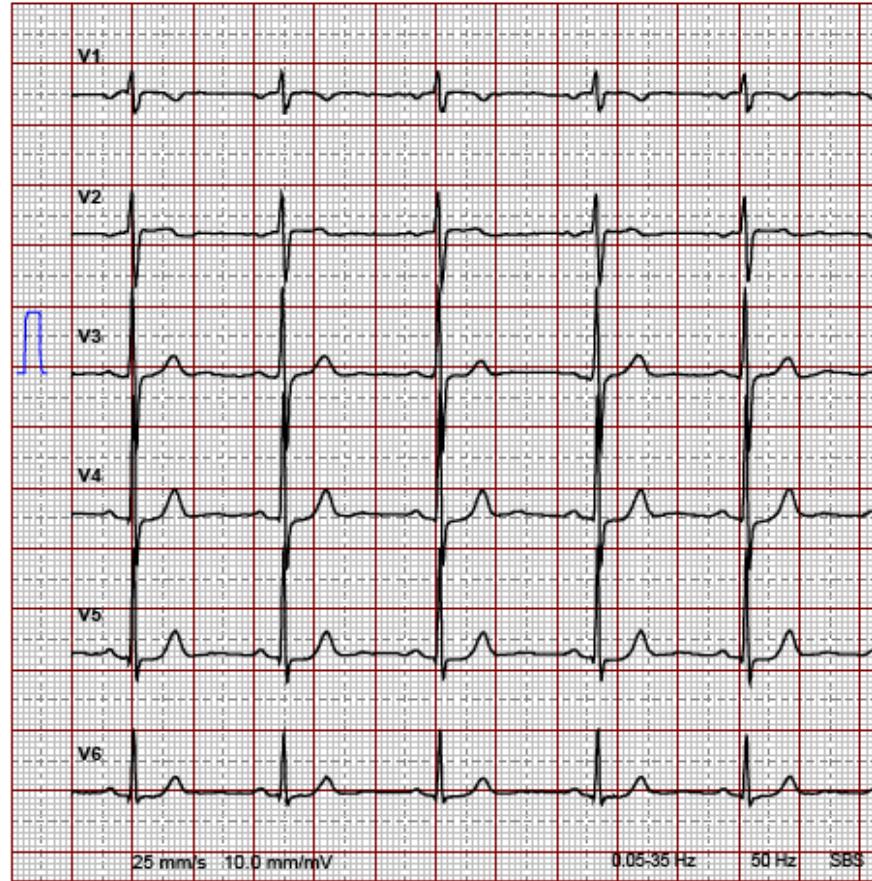
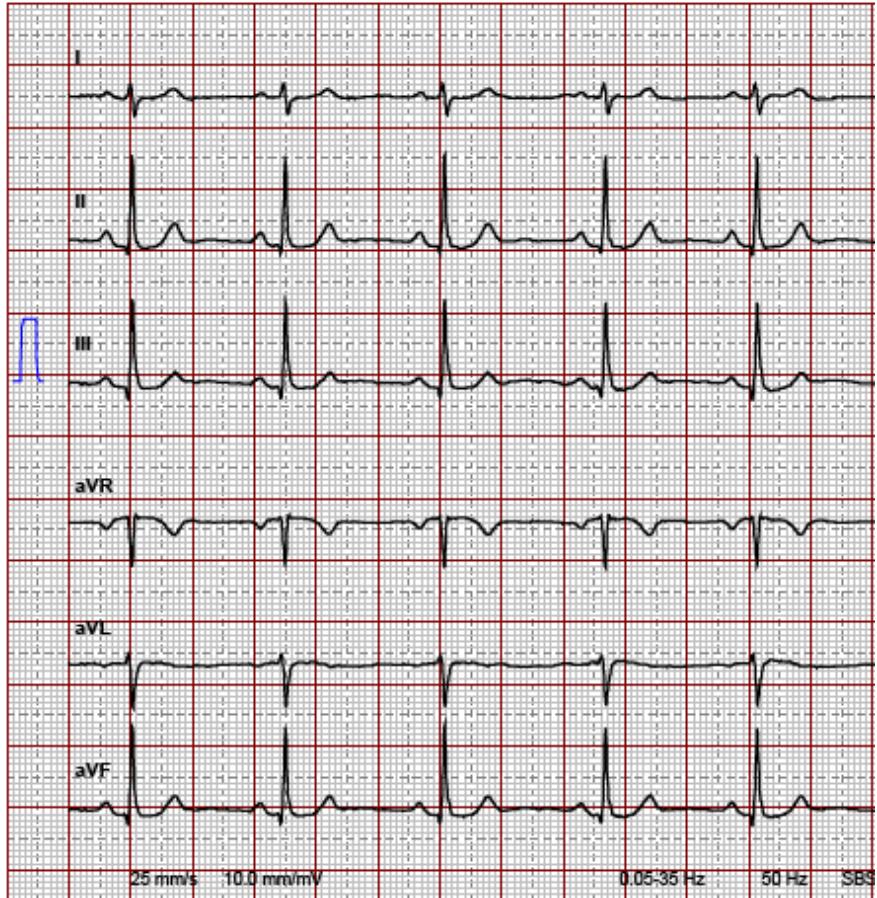
•HDL-C 1.8 mmol/l (>1.0)

•Non-HDL-C 4.3* mmol/l (<4.0)

•LDL-C 3.9* mmol/l (<3.0)

•Tryglyceride 0.95 mmol/l (<1.7)

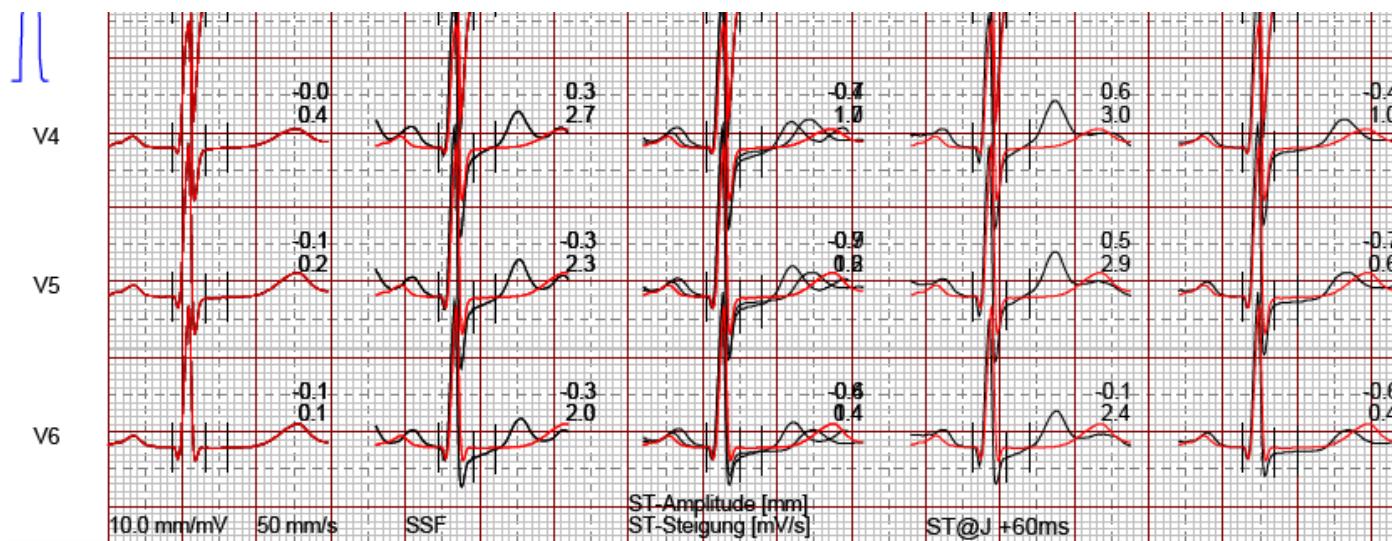
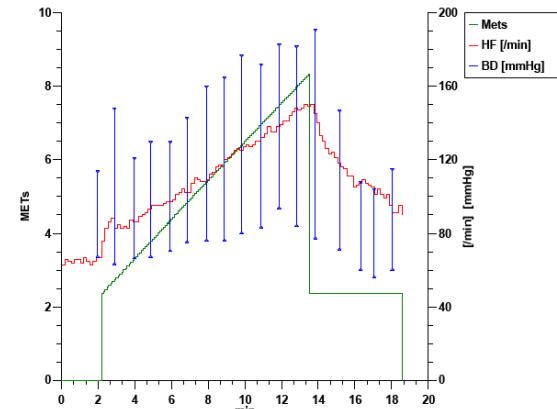
P.E. 10.09.1953: ECG



P.E. 10.09.1953: Ergometry

Max. Last 8.3 / 133W (112) METs/W (119.0) %
Max HF 150 (145) /min (103) %
Max BD 190 / 78 mmHg
Max. BD x HF 26969 mmHg/min
Min. BD x HF 7571 mmHg/min
DP-Faktor 3.6
Körperoberfläche 1.648 m²
PWC 150/170 131 / 156 W
PWC rel 2.02 / 2.40 W/kg

Protokoll: 20-10-R
Ergo / BD: Ergoline 900/911 digital / BP-200 plus



•Echocardiography: normal findings

P.E. 10.09.1953: Diagnosis

- Dyslipidemia
- Smoker
- Overweight (BMI: 26.7 kg/m²)
- Positive family history

P.E. 10.09.1953: Echocardiography

History:

- Women
- Dyspnea (NYHA I-II)
- Left thoracic pressure
- Smoker
- Pos. family history

Physical examination:

- BMI: 26.7 kg/m²

ECG, Ergometry, Echo:

- normal

Laboratory work:

• Cholesterin, total	6.1 mmol/l
• HDL-C	1.8 mmol/l
• Non-HDL-C	4.3 mmol/l
• LDL-C	0.9 mmol/l
• Tryglyceride	0.9 mmol/l

Risk Classification

Risk scores

Additional laboratory work

Additional examinations/imaging

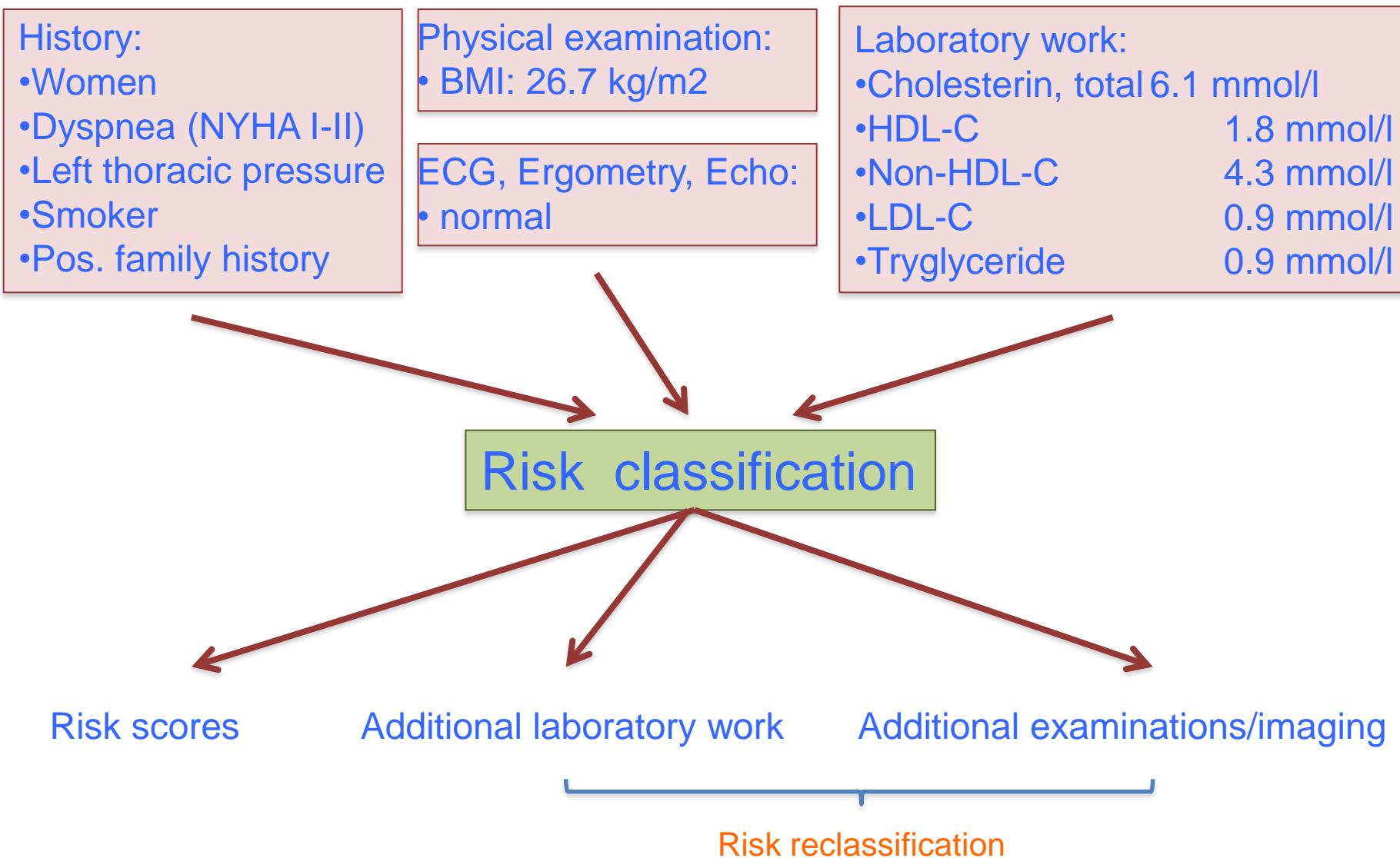
P.E. 10.09.1953: Risk scores

- SCORE: 1%
- FRS ATP III: 4%
- AGLA: 8.3%

	ATP III FRS ⁸	SCORE ³
Risks	Age, gender, total cholesterol, HDL cholesterol, smoking status, systolic blood pressure, diabetes	Age, gender, total cholesterol, smoking status, systolic blood pressure
Outcomes	10-year risk of MI and coronary heart disease-related death	10-year risk of a first fatal atherosclerotic event.
Points	<10%: low risk, 10%–20%: moderate risk, ≥20%: high risk	<1%: low risk, 1%–5%: moderate risk

Abbreviations: ATP III FRS, Adult Treatment Panel III Framingham Risk Score; FRS, Framingham Risk Score; HDL, high-density lipoprotein; MI, myocardial infarction; SCORE, European System for Cardiac Operative Risk Evaluation.

P.E. 10.09.1953: Echocardiography



P.E. 10.09.1953: Additional lab work/examination

- C-reactive protein
 - Coronary artery calcium score (CAC)
 - Carotid intima media thickness (CIMT)
- } Tools to directly measure the disease

P.E. 10.09.1953: Additional lab work/examination

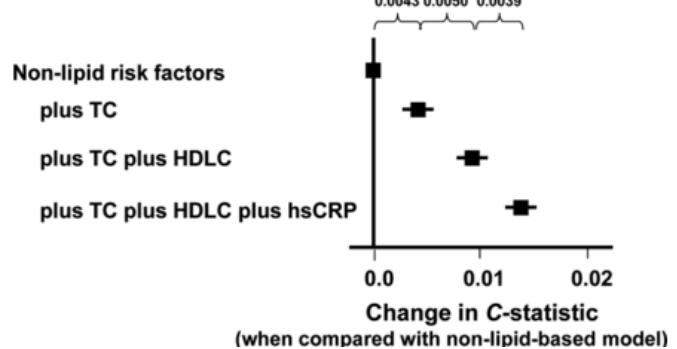
C-reactive protein

ESC Guidelines

Recommendations	Class ^a	Level ^b	GRADE	Ref ^c			
High-sensitivity CRP may be measured as part of refined risk assessment in patients with an unusual or moderate CVD risk profile.	IIb	B	Weak	125			
High-sensitivity CRP should not be measured in asymptomatic low-risk individuals and high-risk patients to assess 10-year risk of CVD.			III	B	Strong		126

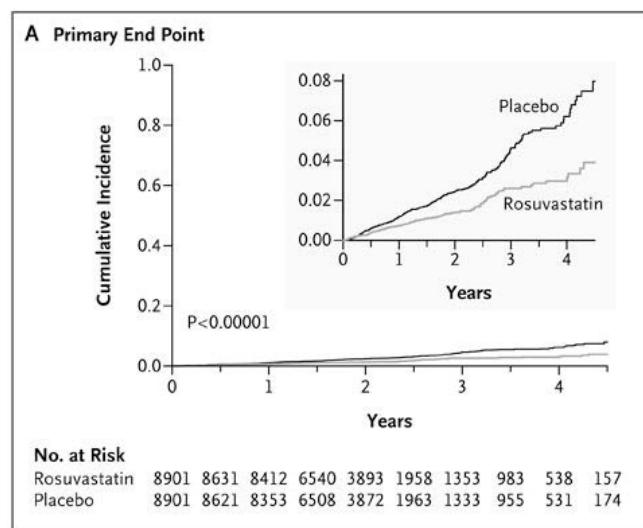
AHA: Class IIa

Literature



adapted from: Eur Heart J. 2013 Feb 1.
and N Engl J Med. 2012 Oct 4;367(14):1310-20

JUPITER



adapted from: N Engl J Med. 2008 Nov 20;359(21):2195-207

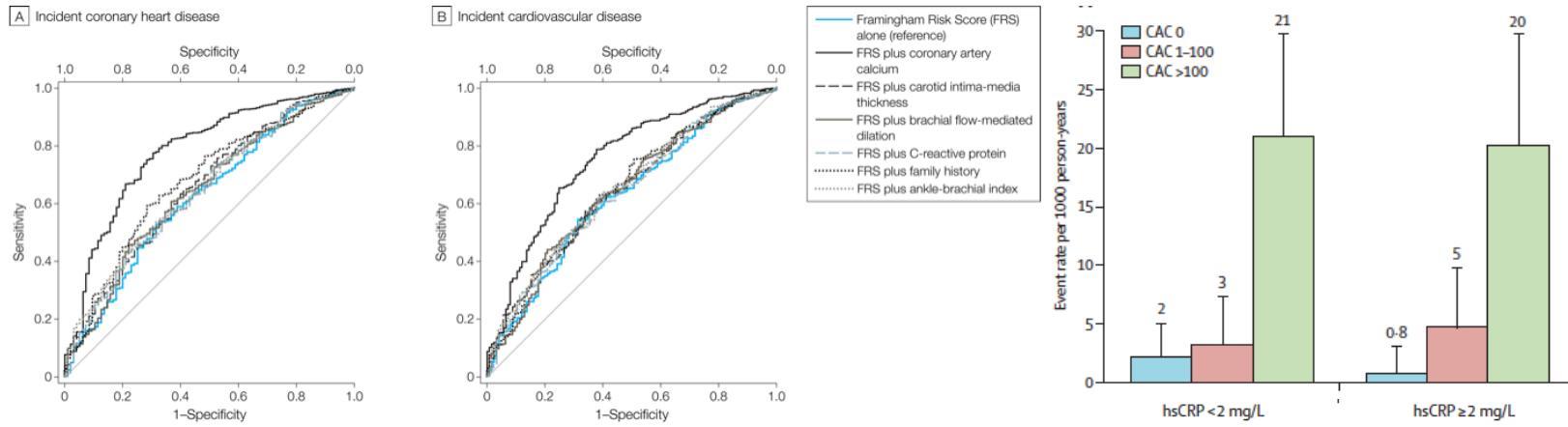
P.E. 10.09.1953: Additional lab work/examination

Coronary artery calcium score (CAC)

ESC Guidelines

Recommendations	Class ^a	Level ^b	GRADE
Computed tomography for coronary calcium should be considered for cardiovascular risk assessment in asymptomatic adults at moderate risk.	IIa	B	Weak

Literature



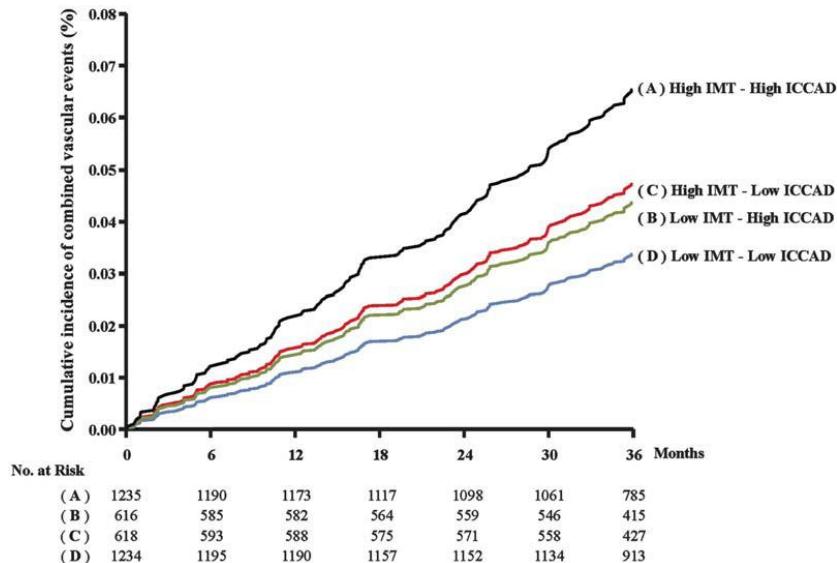
Net reclassification improvement with coronary artery calcium of 0.659

P.E. 10.09.1953: Additional lab work/examination

Carotid intima media thickness (CIMT)

ESC Guidelines

Recommendations	Class ^a	Level ^b	GRADE
Measurement of carotid intima-media thickness and/or screening for atherosclerotic plaques by carotid artery scanning should be considered for cardiovascular risk assessment in asymptomatic adults at moderate risk.	IIa	B	Strong



Literature

adapted from: J Am Coll Cardiol. 2012 Oct 16;60(16):1489-99

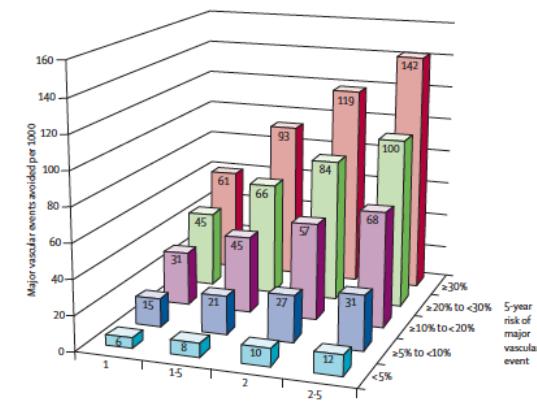
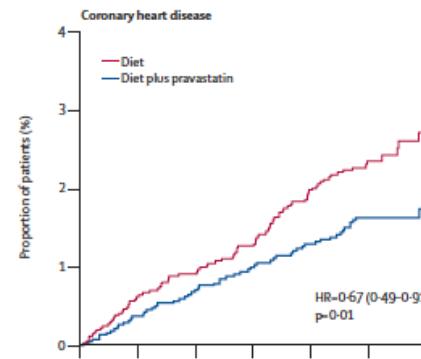
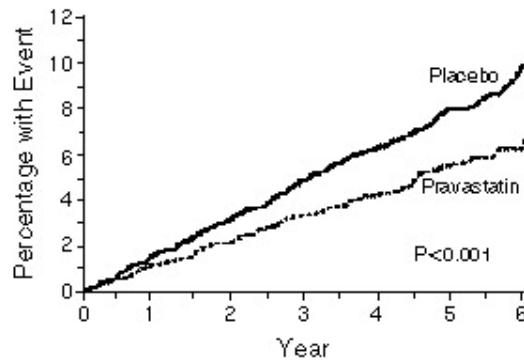
Dyslipidemia

- Lifestyle interventions (diet, exercise, behaviour modifications, smoking cessation)
- Statins* ?

P.E. 10.09.1953: Treatment options for Dyslipidemia

Total CV risk (SCORE) %	LDL-C levels				
	<70 mg/dL <1.8 mmol/L	70 to <100 mg/dL 1.8 to <2.5 mmol/L	100 to <155 mg/dL 2.5 to <4.0 mmol/L	155 to <190 mg/dL 4.0 to <4.9 mmol/L	>190 mg/dL >4.9 mmol/L
<1	No lipid intervention	No lipid intervention	Lifestyle intervention	Lifestyle intervention	Lifestyle intervention, consider drug if uncontrolled
Class ^a /Level ^b	I/C	I/C	I/C	I/C	IIa/A
≥1 to <5	Lifestyle intervention	Lifestyle intervention	Lifestyle intervention, consider drug if uncontrolled	Lifestyle intervention, consider drug if uncontrolled	Lifestyle intervention, consider drug if uncontrolled
Class ^a /Level ^b	I/C	I/C	IIa/A	IIa/A	II/A

ESC guidelines



Literature

N Engl J Med. 1995 Nov 16;333(20):1301-7

Lancet. 2006 Sep 30;368(9542):1155-63

Lancet. 2012 Aug 11;380(9841):581-90

