Maladie coronarienne Traitement post aiguë et Réhabilitation

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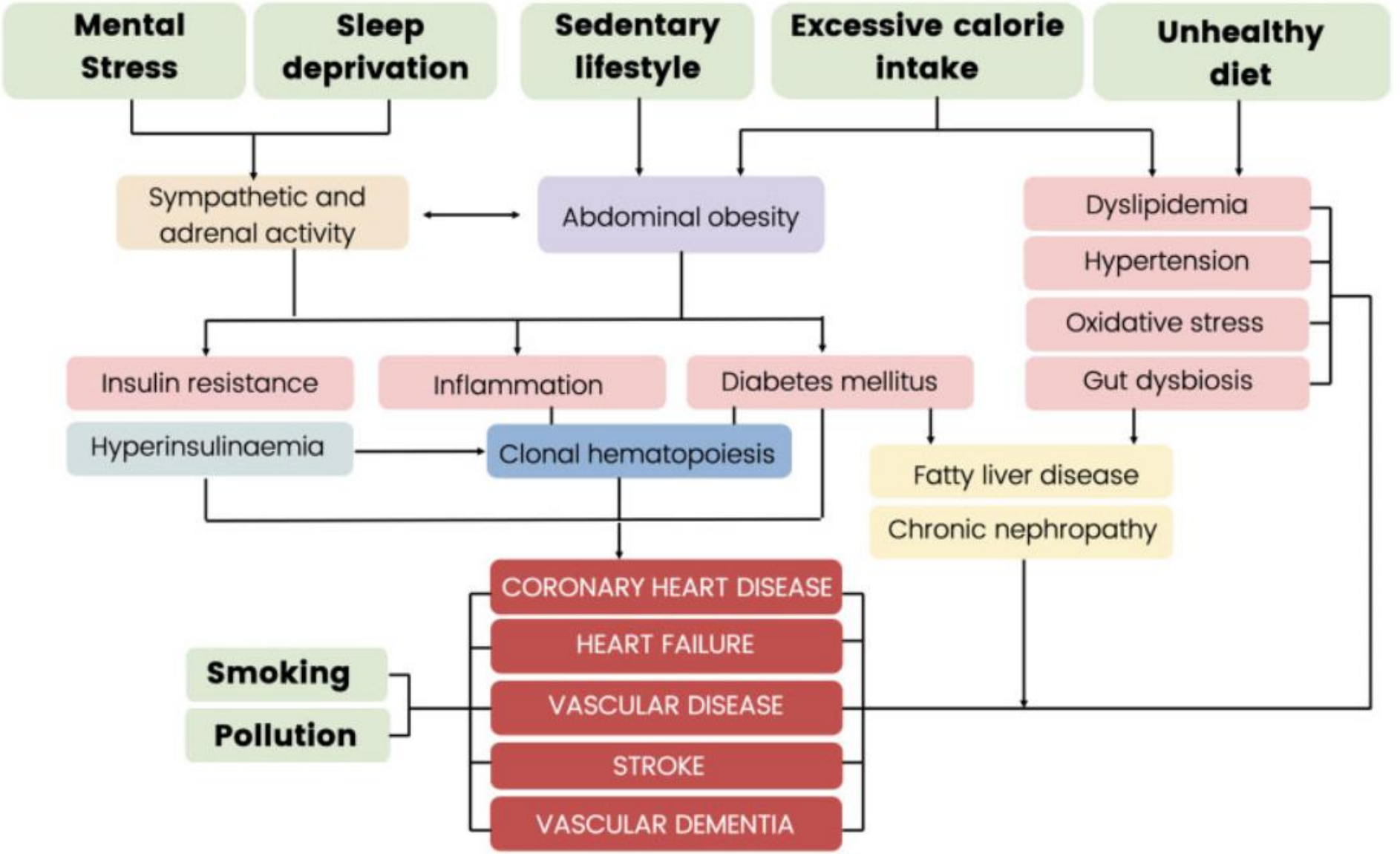
Hôpital du Jura
Nous pour vous !

Content

- Cases
- Guidelines
- Risk assessment
- Cardio Vascular Risk factorts
  - Nicotine
  - Hypertension
  - Hypercholesterinemie
  - Diabetes
- Nutrition
- Sport/Movement
- Rehabilitation

Common metabolic substrate of cardiometabolic disease



Cassidy, S., Hunyor, I., Wilcox, I. & Fontana, L. Changing the conversation from 'chronic disease' to 'chronic health.' *Eur Heart J* **43**, ehab633- (2021).

Pat 1

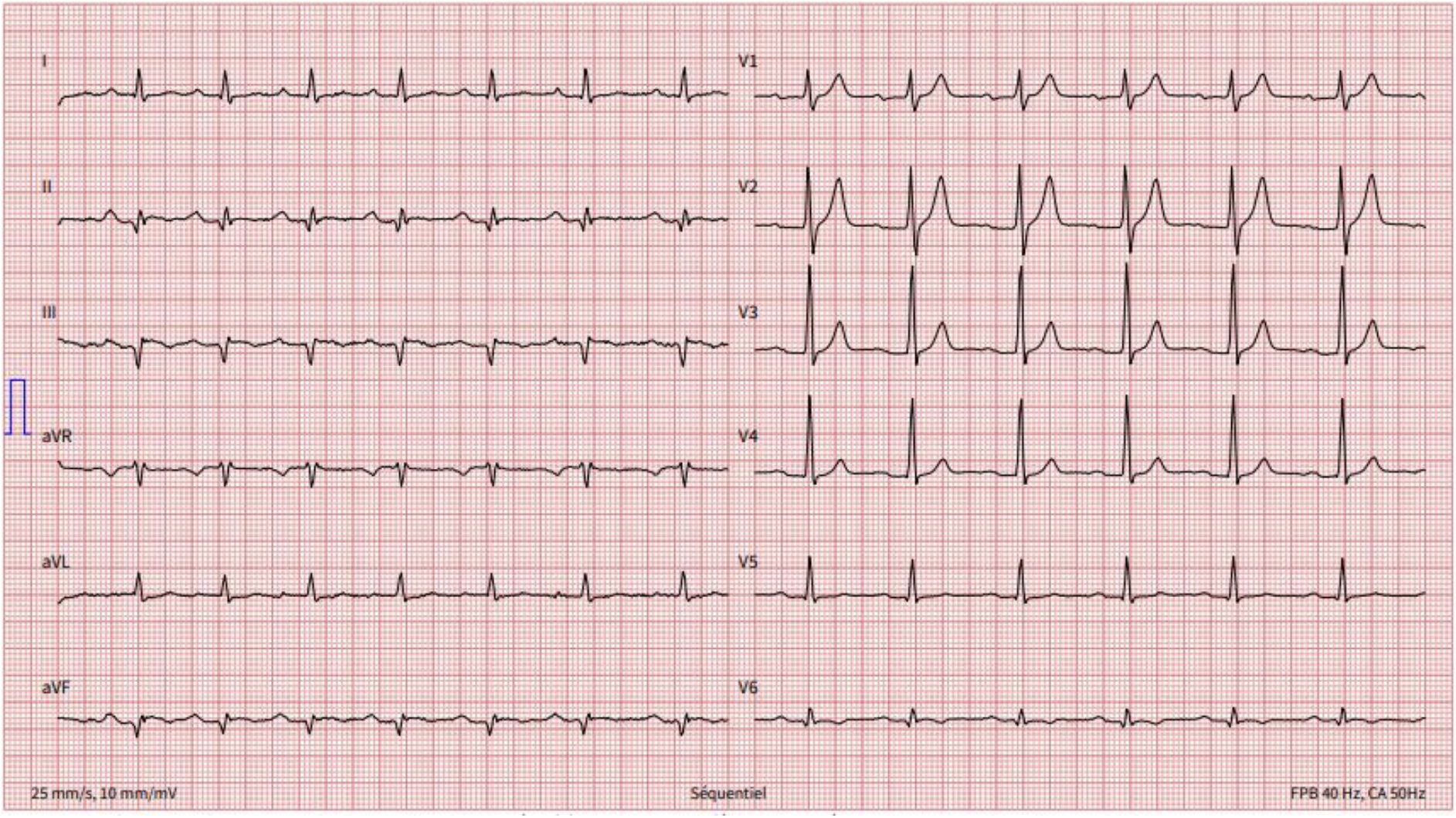
G.F.♂ 66y

Retrosternal pain left side, radiation in left arm
worsening with activity physic
Presentation at the ED

Status: TA 151/89mmHg, P90 r
S 96%, T35.9°
Murmur systolc (MI)
Tachypnea 29/min, Rales basal bilat

EKG:

ECG at ED


I
II
III
aVR
aVL
aVF
V1
V2
V3
V4
V5
V6
25 mm/s, 10 mm/mV
Séquentiel
FPB 40 Hz, CA 50Hz

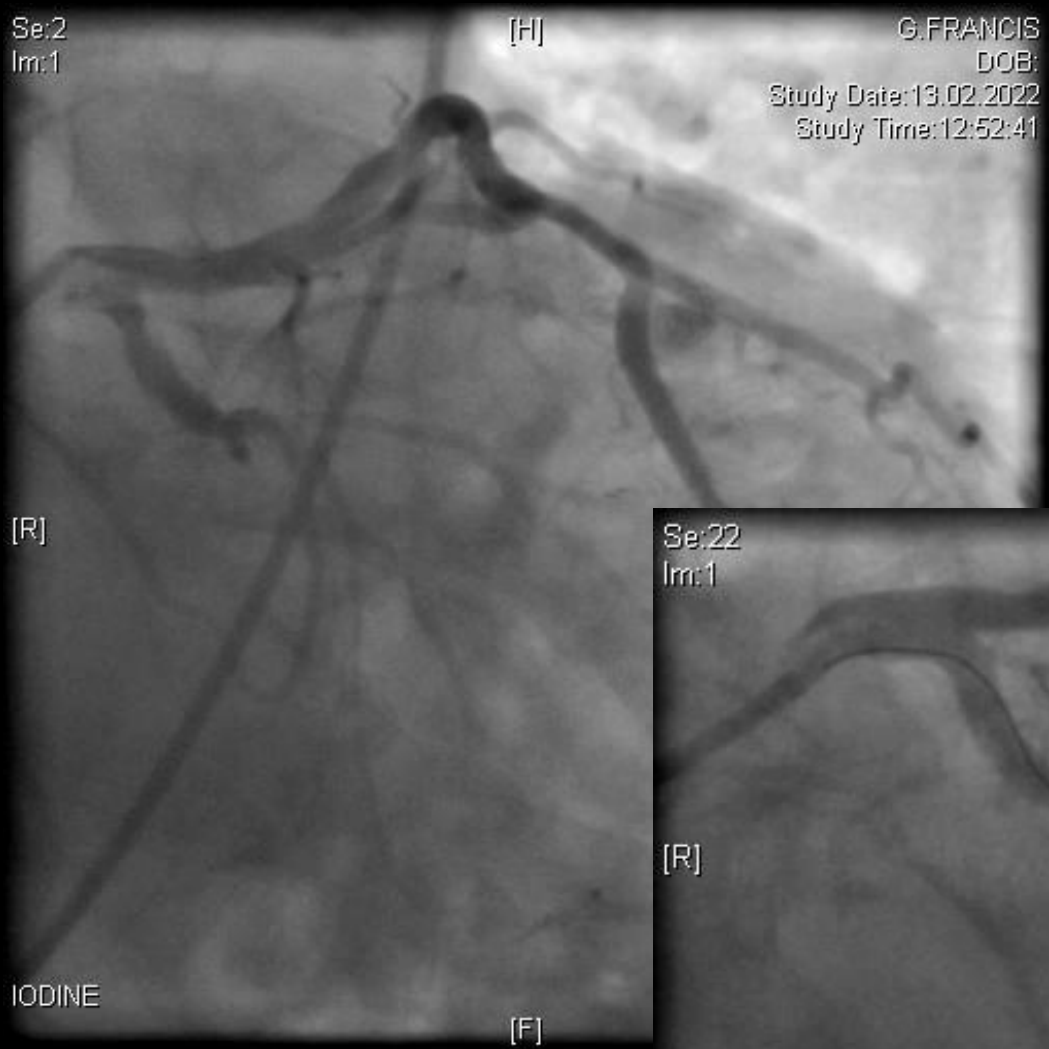
Pat 1

G.F.♂ 66y

Laboratory:

Hb	158g/l
ASAT	81
Troponin	1594

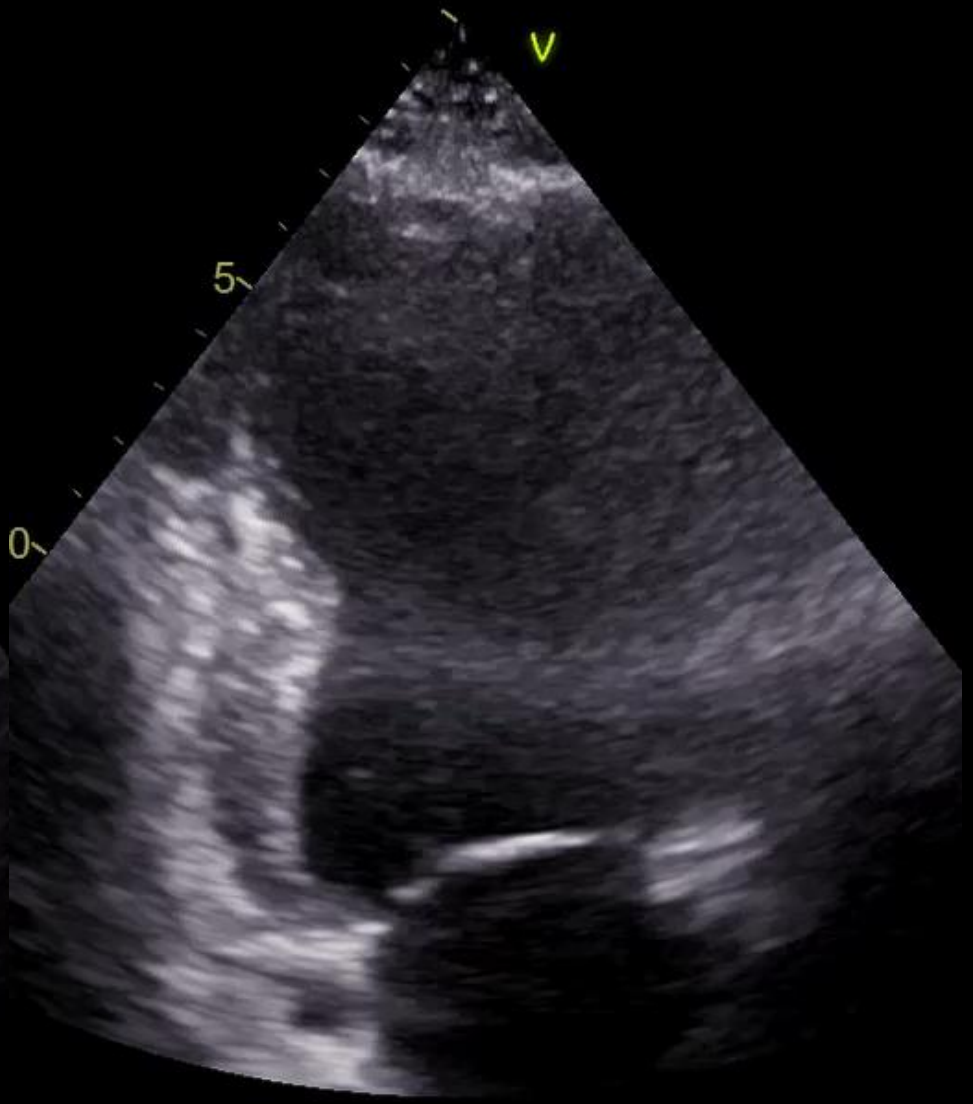
Dg: NSTEMI



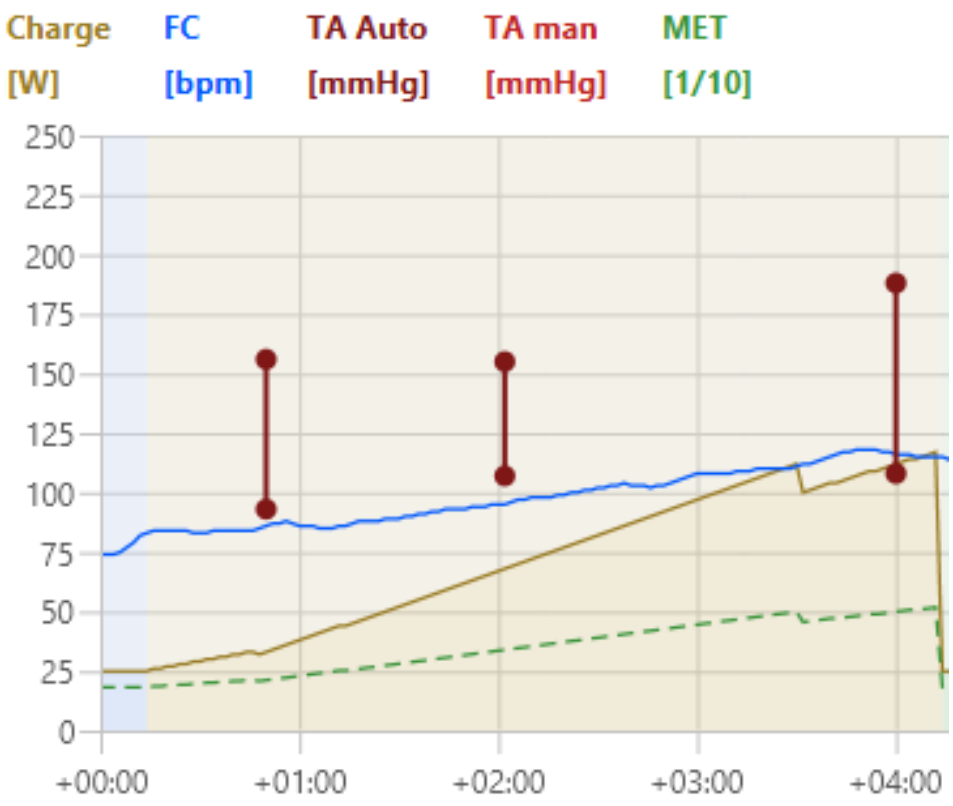
Before PTCA

After PTCA

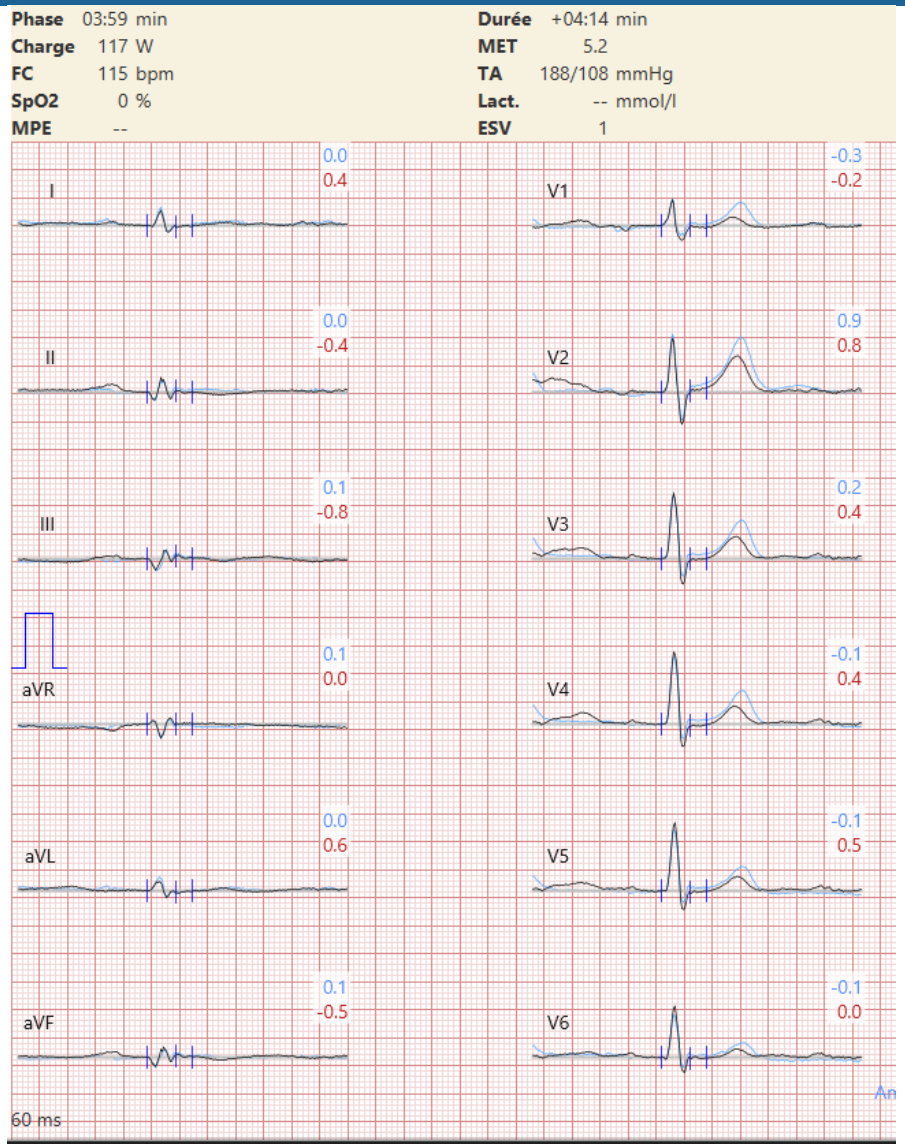

V
5
10


V
5
0

Ergometrie Entry Rehabilitation



Charge max 117 (74%)
FC max 118/min (77%)
TA max 188/108mmHg



Pat 1: FRCV

G.F.♂ 66y

Cholesterin tot	4.1
LDL	2.13
HDL	1.38
Tg	1.29

Nikotin

Hypertension

Risk assessment in CAD: Step 1

- Stop smoking and lifestyle recommendations
- (Class I)

- SBP <140 to 130 mmHg if tolerated
- (Class I)

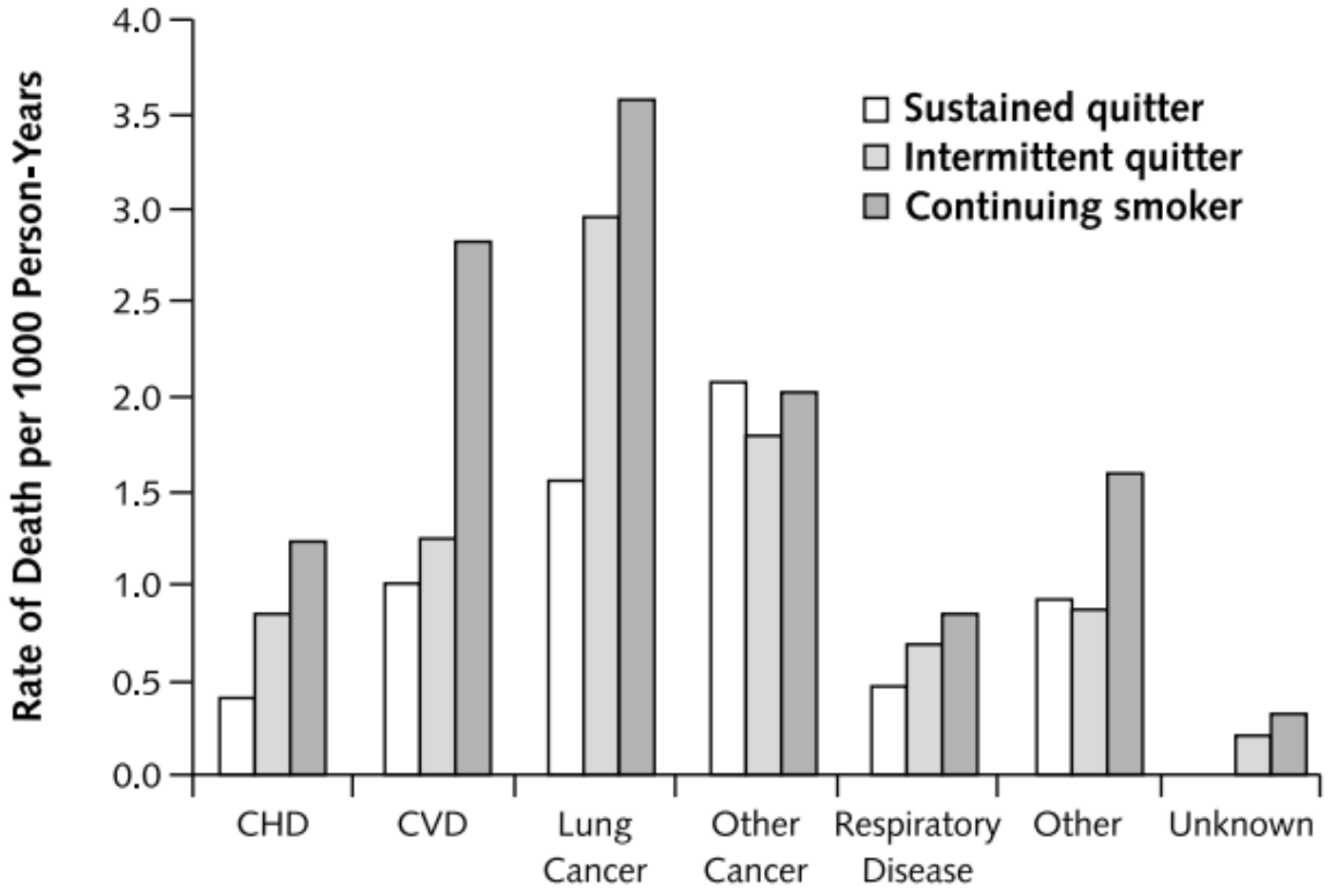
And

- LDL-C ≥50% reduction and <1.8 mmol/L (<70 mg/dL)
- (Class I)

- Antithrombotic Therapy
- (Class I)

2021 ESC Guidelines on cardiovascular disease prevention in clinical practice. *Eur J Prev Cardiol* **29**, zwab154 (2021).

Smoking



Study

Aberg et al,[41]
Herlitz et al,[50]
Johansson et
Perkins and D
Sato et al,[8] 19
Sparrow and
Vlietstra et al,
Voors et al,[44]

Overall

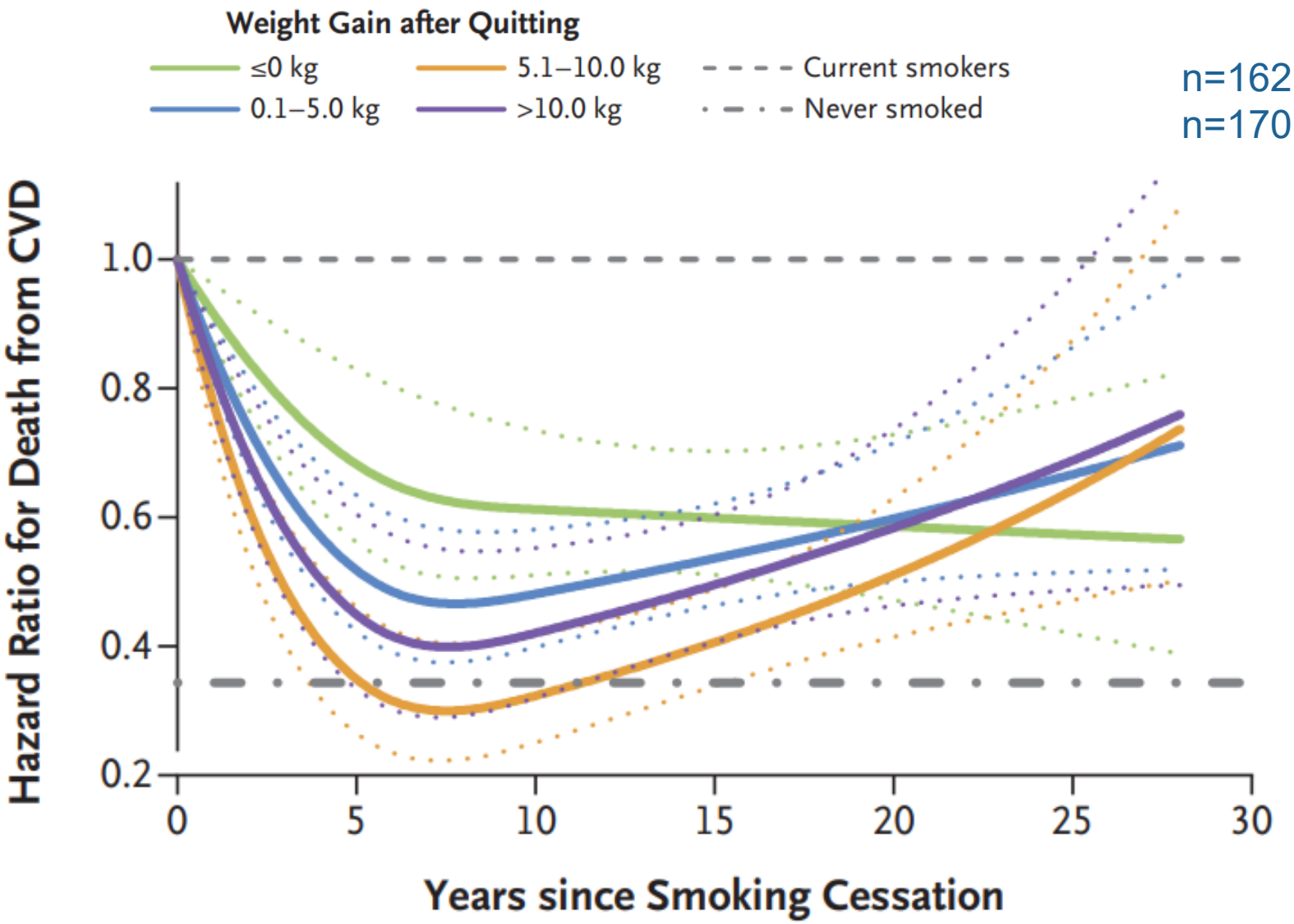
Continued Smoking

10

% CI)

Crit ease: A
Syst
Anthonisen, N. R., Skeans, M. A. & Wise, R. A. The Effects of a Smoking Cessation Intervention on 14.5-Year Mortality. *Ann Intern Med* **142**, 233-239 (2005).

Smoking cessation and weight-gain



n=162’807 DM
n=170’723 Mort

Hu, Y. *et al.* Smoking Cessation, Weight Change, Type 2 Diabetes, and Mortality. *New Engl J Med* **379**, 623–632 (2018).

Guidelines ESC: **Smoking**

Recommendations		
All smoking of tobacco should be stopped, as tobacco use is strongly and independently causal of ASCVD	I	A
In smokers, offering follow-up support, nicotine replacement therapy, varenicline, and bupropion individually or in combination should be considered	IIa	A
Smoking cessation is recommended regardless of weight gain, as weight gain does not lessen the ASCVD benefits of cessation.	I	B

'Very brief advice' for smoking cessation (30")

- ASK - establishing and recording smoking status
- ADVISE - advising on the best ways of stopping
- ACT - offering help

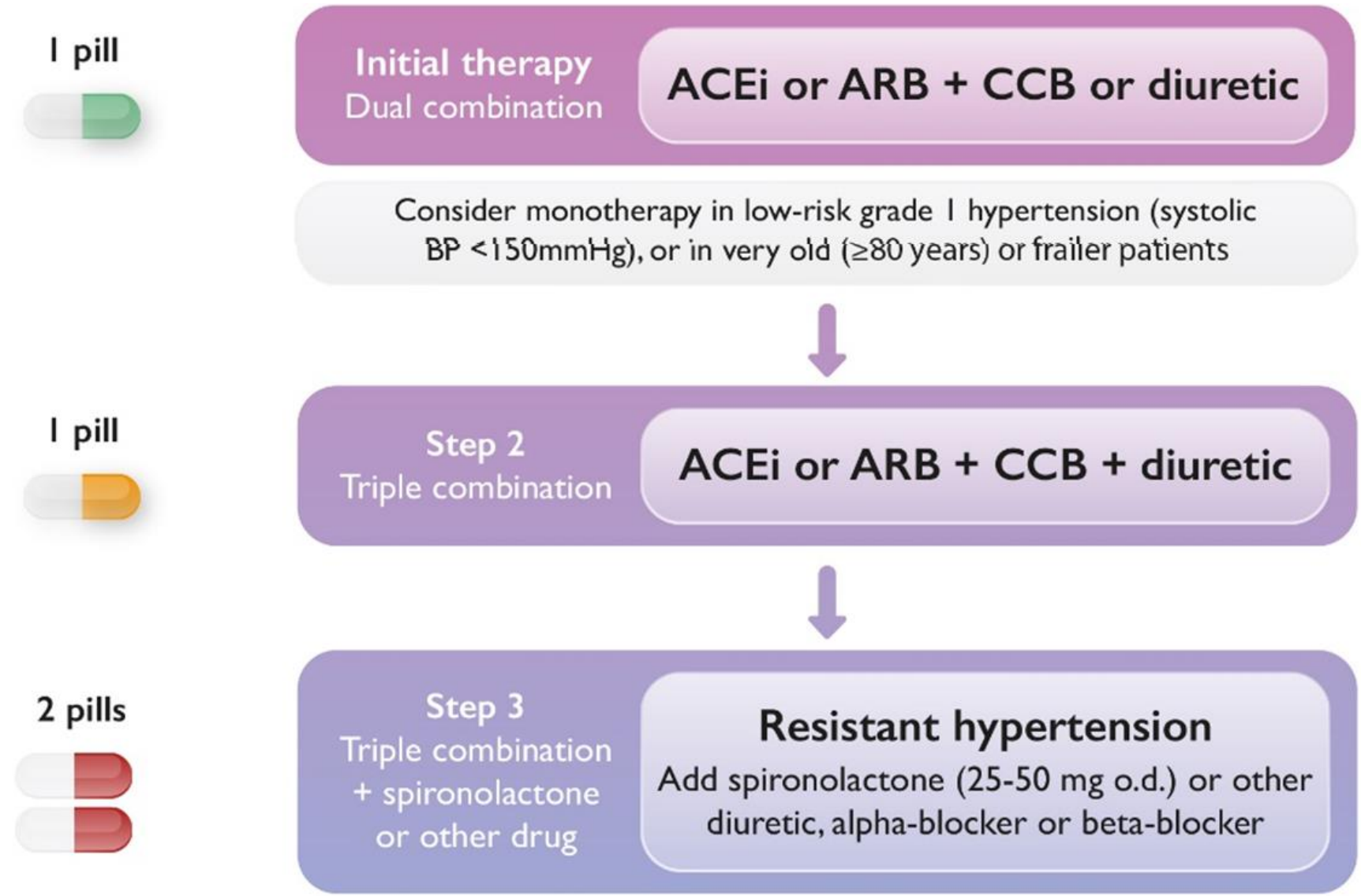
2021 ESC Guidelines on cardiovascular disease prevention in clinical practice. *Eur J Prev Cardiol* **29**, zwab154 (2021).

Guidelines ESC: **Hypertension**

Recommendations		
It is recommended that the first objective of treatment is to lower BP to **<140/90** mmHg in all patients, and that subsequent BP targets are tailored to age and specific comorbidities	I	A
In treated patients aged 18-69 years, it is recommended that **S**BP should ultimately be lowered to a target range of **120-130** mmHg in most patients	I	A
In treated patients aged ≥70 years, it is recommended that **S**BP should generally be targeted to **<140** and down to 130 mmHg if tolerated	I	A
In all treated patients, **D**BP is recommended to be lowered to **<80** mmHg	I	A

2021 ESC Guidelines on cardiovascular disease prevention in clinical practice. *Eur J Prev Cardiol* **29**, zwab154 (2021).

Hypertension: Therapy strategy



2021 ESC Guidelines on cardiovascular disease prevention in clinical practice. *Eur J Prev Cardiol* **29**, zwab154 (2021).

Pat 1: Tx

Tx

Aspirine Cardio 100 mg: 1-0-0-0 ✔

Brilique 90 mg: 1-0-1-0 (1 year) ✔

Métoprolol 25 mg 1-0-0-0 ✔

Ramipril 2.5 mg 1-0-0-0 ✔

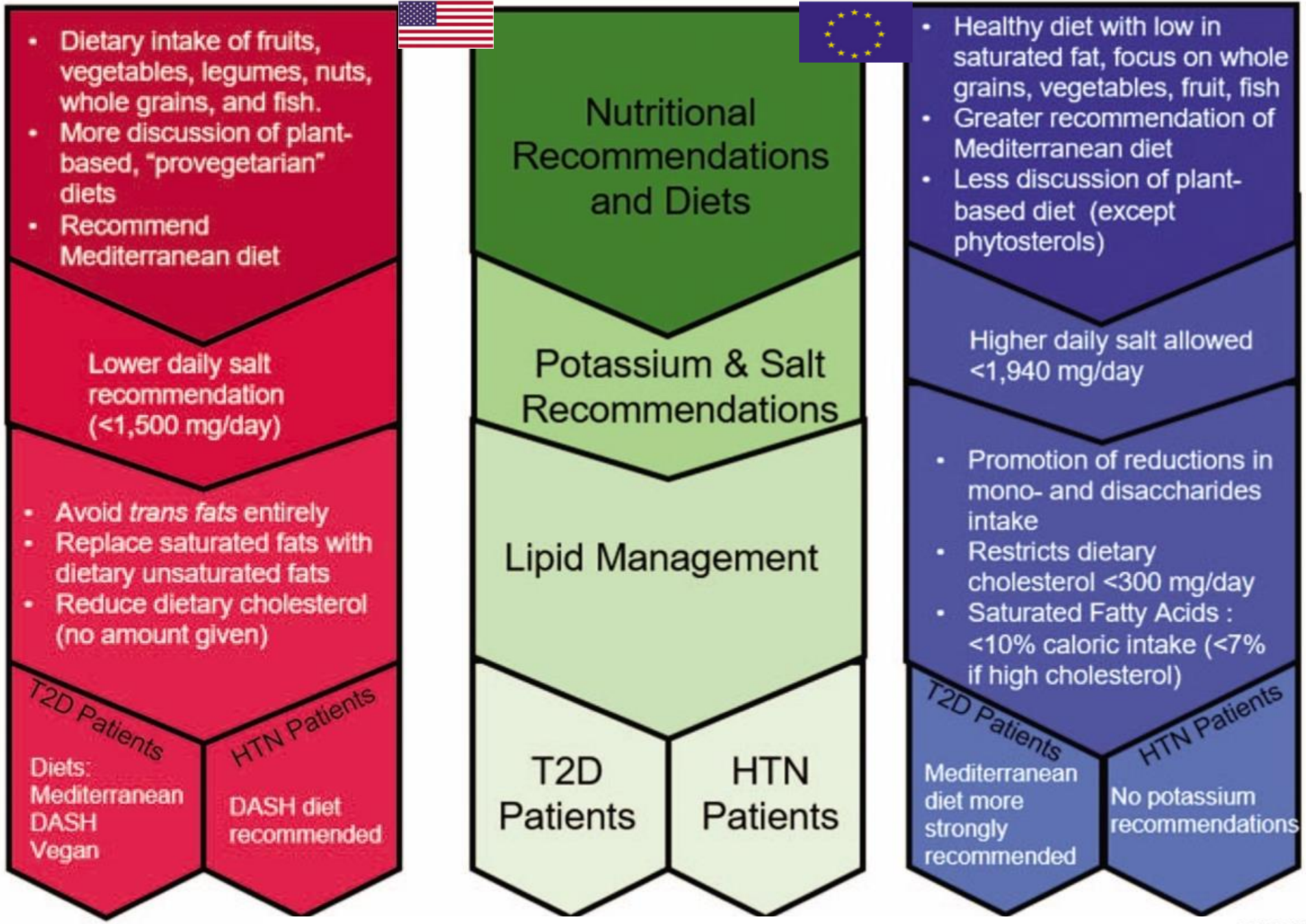
Atorvastatine 40 mg 0-0-1-0 ✔

Pantoprazole 20 mg 1-0-0-0

Guidelines ESC: Nutrition

Recommendations		
A **healthy diet** is recommended as a cornerstone of CVD prevention in all individuals	I	A
It is recommended to adopt a **Mediterranean** or similar diet to lower risk of CVD	I	A
It is recommended to replace saturated with **unsaturated fats** to lower the risk of CVD	I	A
It is recommended to **reduce salt** intake to lower BP and risk of CVD	I	A
It is recommended to choose a more plant based food pattern, rich in fibre, that includes whole grains, fruits, vegetables, pulses, and nuts	I	B
It is recommended to restrict alcohol consumption to a maximum of 100 g per week	I	B

Visseren, F. L. J. *et al.* 2021 ESC Guidelines on cardiovascular disease prevention in clinical practiceDeveloped by the Task Force for cardiovascular disease prevention in clinical practice with representatives of the European Society of Cardiology and 12 medical societies With the special contribution of the European Association of Preventive Cardiology (EAPC). *Eur J Prev Cardiol* **29**, zwab154 (2021).



Ferraro, R. A., Fischer, N. M., Xun, H. & Michos, E. D. Nutrition and physical activity recommendations from the United States and European cardiovascular guidelines: a comparative review. *Curr Opin Cardiol* **35**, 508–516 (2020).

Risk assessment in CAD: Step 2

Intensified treatment based on:

- Residual 10-year CVD risk
- Lifetime CVD risk and treatment benefit
- Comorbidities, frailty
- Patient preferences

SBP <130 mmHg if tolerated (Class I)

And

LDL-C <1.4 mmol/L (Class I)

And

DAPT, DPI, novel upcoming interventions(e.g. colchicine, EPA)(Class IIb)

2021 ESC Guidelines on cardiovascular disease prevention in clinical practice. *Eur J Prev Cardiol* **29**, zwab154 (2021).

Pat 2

M.D. 13.2.53 (♂, 71 y)

Maladie coronarienne de trois vaisseaux, Dg 2005

- s/p PTCA complexe et pose de stent actif sur CX moyenne et recanalisation avec 4 stents actifs sur l'IVA moyenne 2005
- FEVG 45%, Akinesie apical antereur (Echo 12/2021, USB)
- PTCA avec stents actifs sur la CX ostiale et proximale 2005
- PTCA avec 3 stents actifs sur CX ostiale et proximale 07.01.2015
- 3 PAC (AMIG-IVA , AMID-IVP et veine-marginale gauche) le 22.03.2016 pour progression de la maladie coronaire avec atteinte du tronc commun
- actuel: NSTEMI, Tronc moyen 99 %, D2 75 %, pontage (LIMA-RIVA, RIMAACD, SVG-M1) ouvert et sans sténose,
  RCX proximale 100 % (s/p PTCA), RIVA moyen 100 % (s/p PTCA).
  Rotablation/PTCA/DES Tronc moyen et PTCA/DES D2 24/12/2022

cvRF: pos. FA, Hypercholesterinämie, s/p Nicotine

Arteriopathie carodidienne

- Status post AIT 2005 et endarteriectomie carodide gauche
- Persistance sténose modérée à l'origine de la CID de 50%

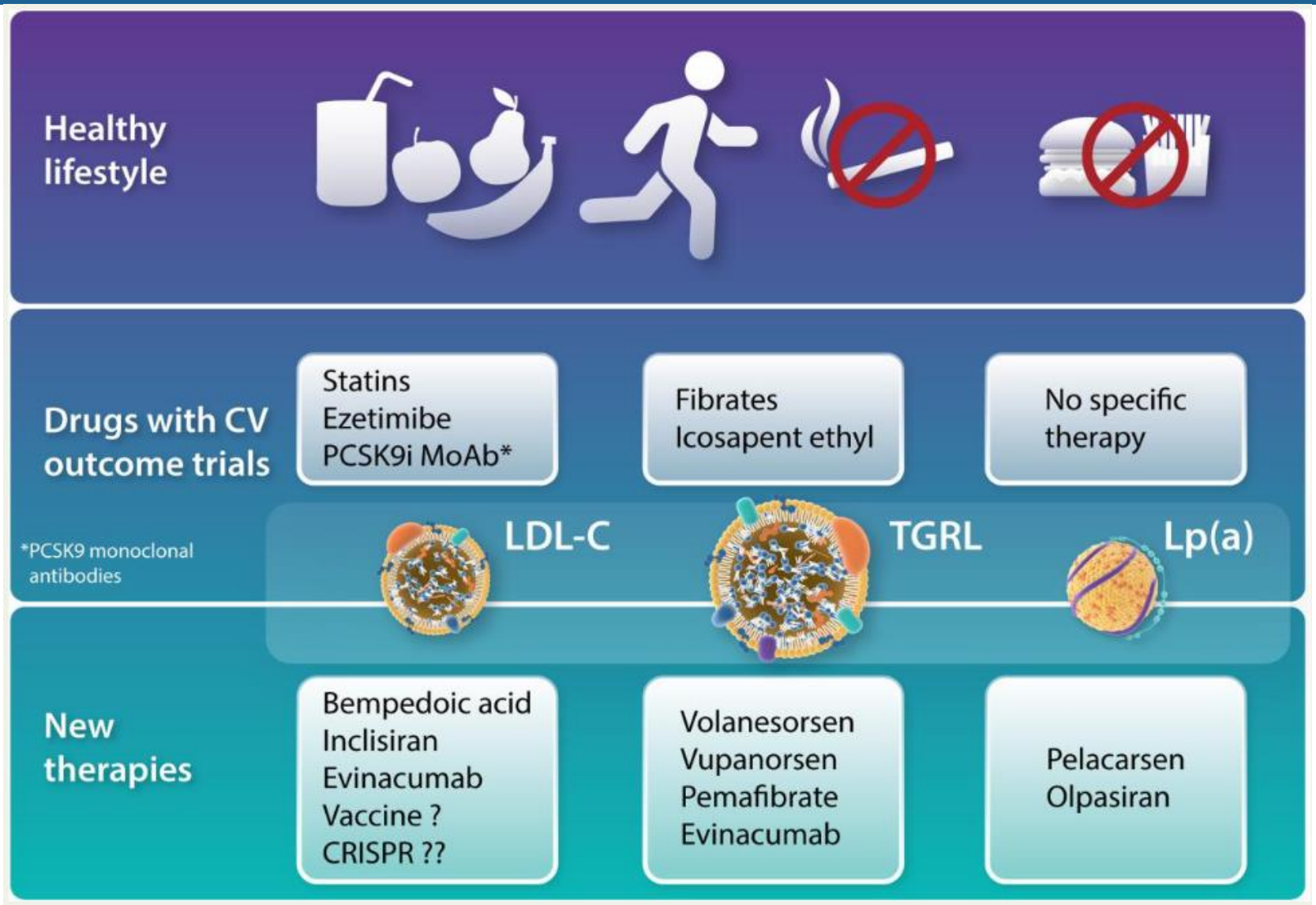
Pré-diabète

Pat 2

Tx:
ASS 300mg
MetoZerok 12.5mg
Valsartan 40mg
Atorvastatin 80mg
Ezetimib 10mg

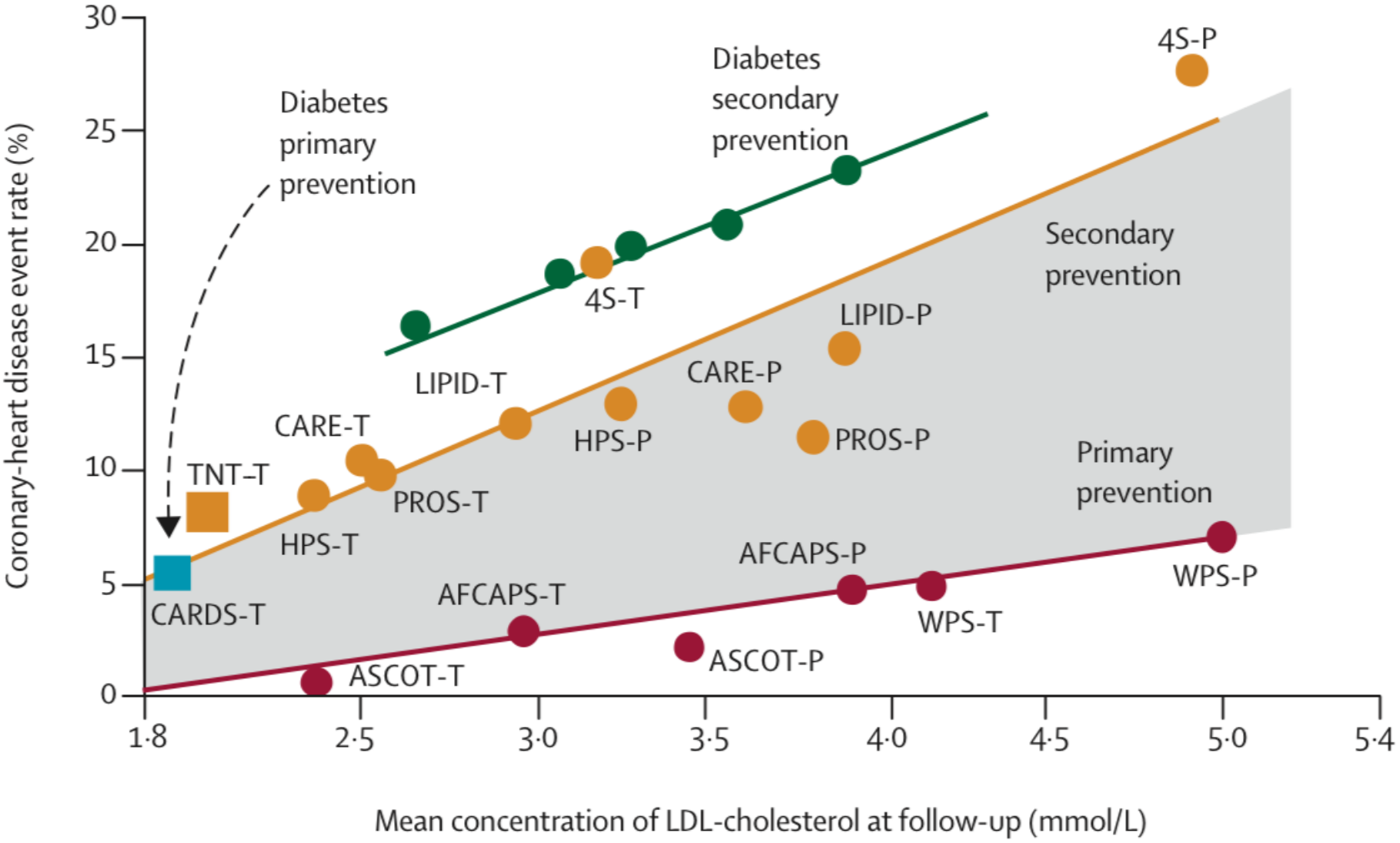
	21.6.2021
LDL	**2.9**

Overview Cholesterol-Tx



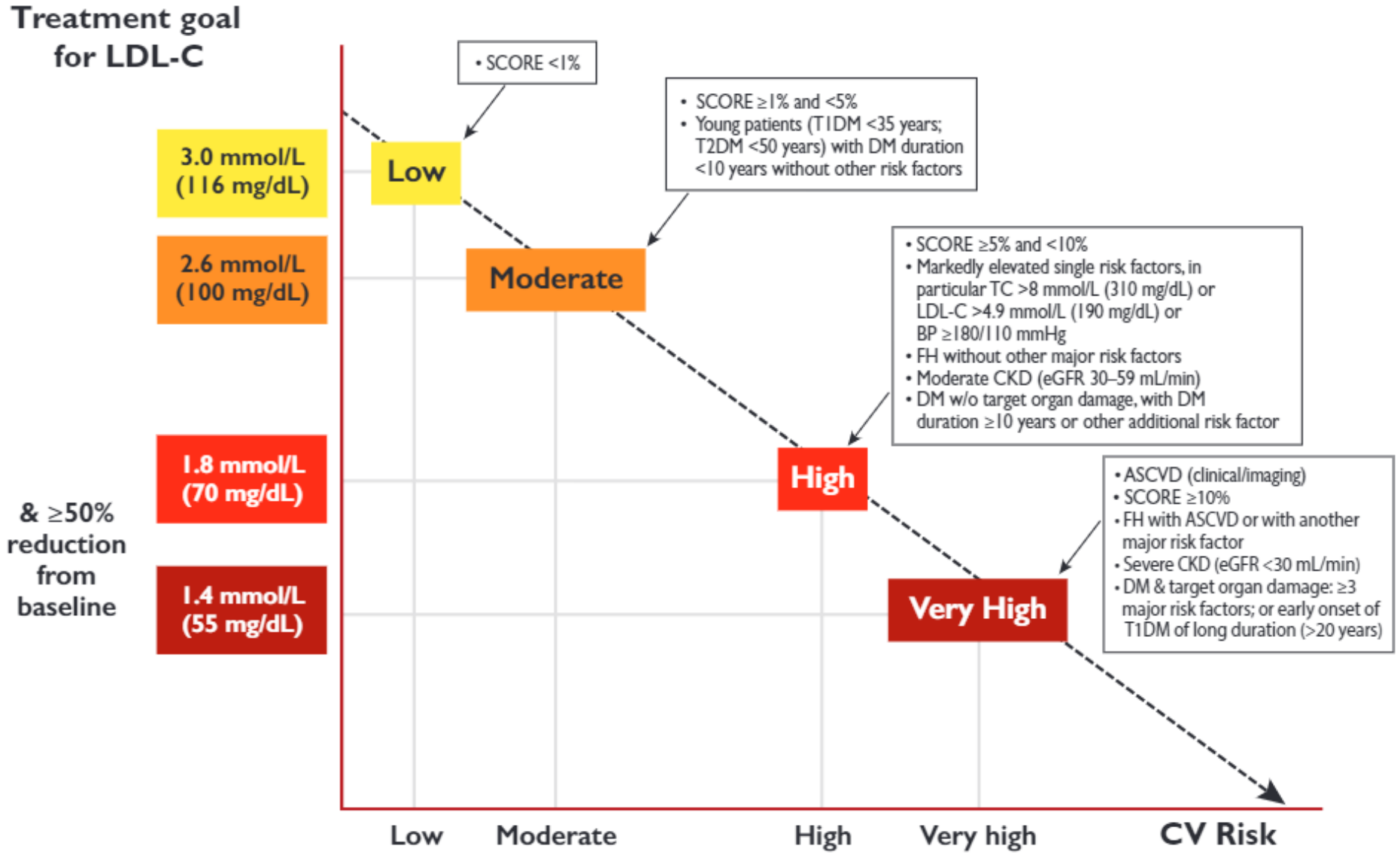
Tokgozoglu, L., Orringer, C., Ginsberg, H. N. & Catapano, A. L. The year in cardiovascular medicine 2021: dyslipidaemia. *Eur Heart J* **43**, ehab875- (2022).

Level of LDL and mortality in trials



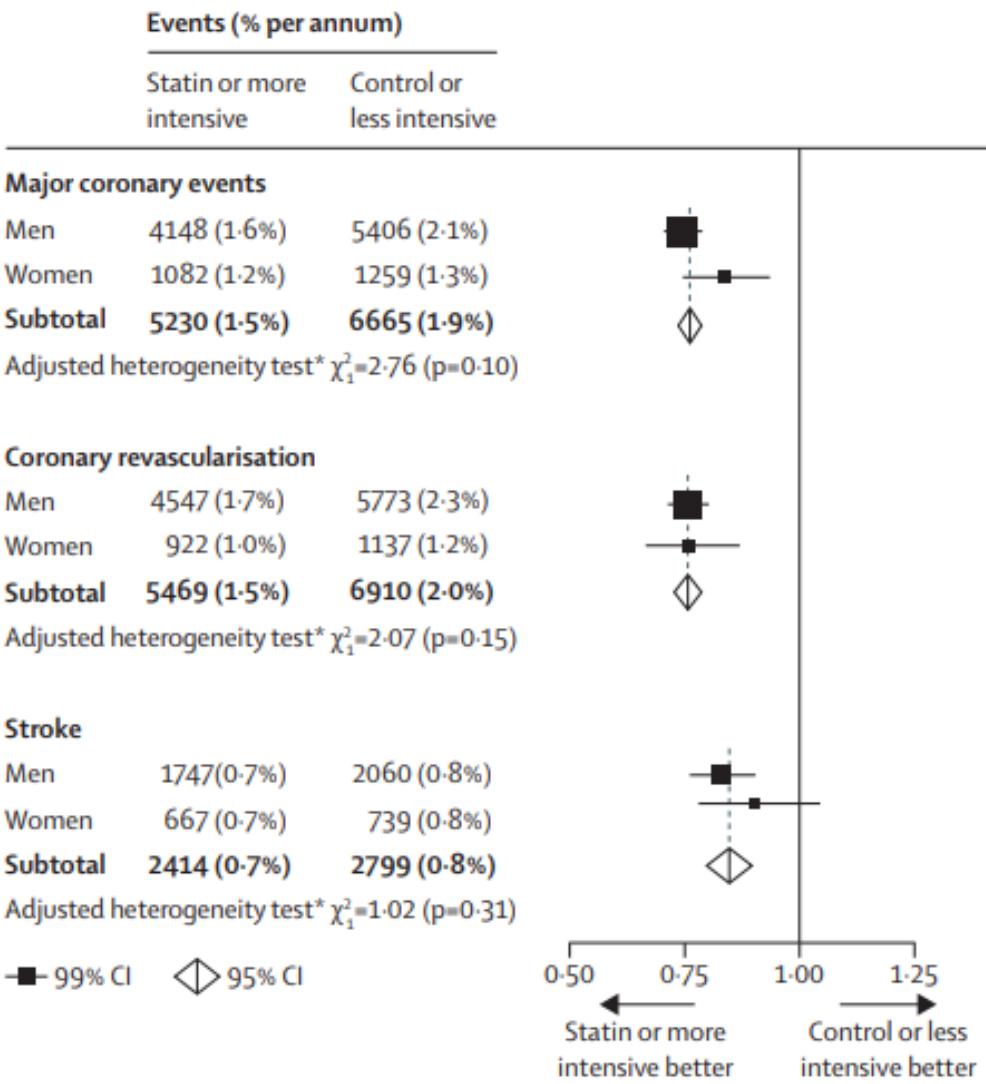
Lancet 2006; 367: 69–78

LDL-Cholesterol: Treatment-Goal (ESC 2019)



2019 ESC/EAS guidelines for the management of dyslipidaemias: Lipid modification to reduce cardiovascular risk. *Atherosclerosis* **290**, 140–205 (2019).

LDL-c lowering and MACE



n=174’000

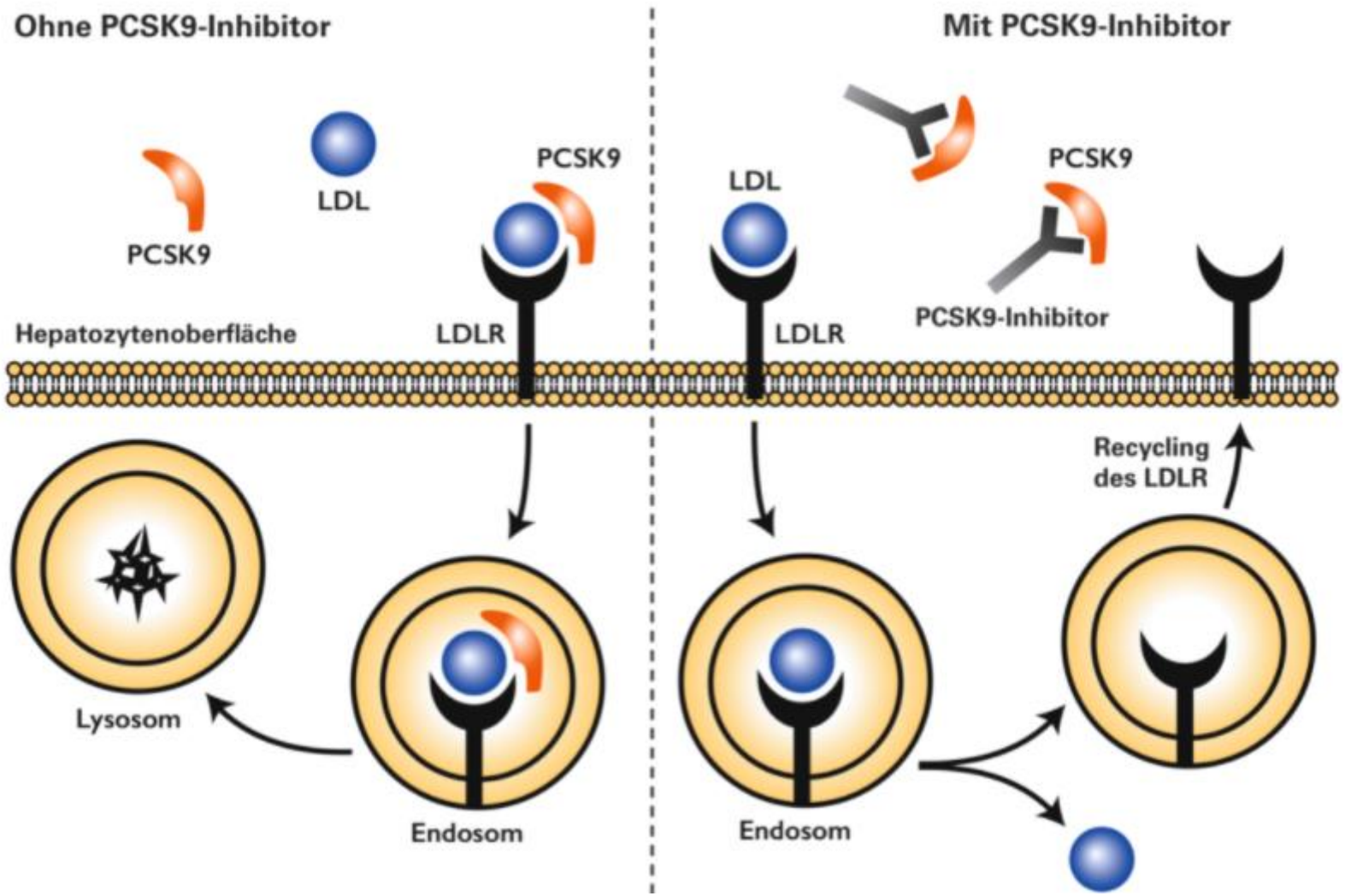
-1.0mmol LDL-c

↓

-10% MACE

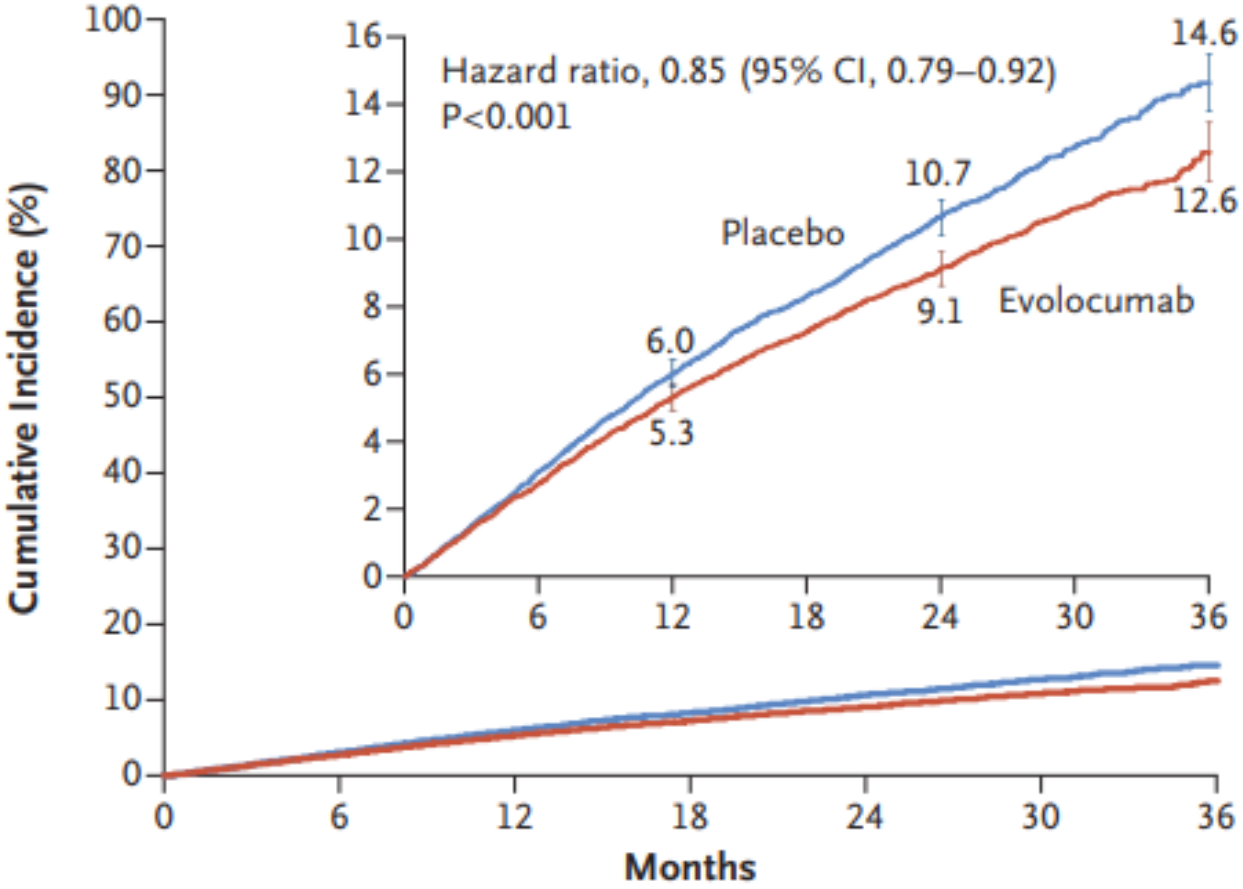
Collaboration, C. T. T. (CTT) *et al.* Efficacy and safety of LDL-lowering therapy among men and women: meta-analysis of individual data from 174 000 participants in 27 randomised trials. *Lancet* **385**, 1397–1405 (2015).

PCSK9-i



Lyko, C. et al Swiss Medical Forum 2017

PCSK9i: Evolucumab



No. at Risk							
Placebo	13,780	13,278	12,825	11,871	7610	3690	686
Evolocumab	13,784	13,351	12,939	12,070	7771	3746	689

Sabatine, M. S. *et al.* Evolocumab and Clinical Outcomes in Patients with Cardiovascular Disease. *New Engl J Medicine* **376**, 1713–1722 (2017).

Intensity of lipid-loweing treatment

Treatment	Average LDL-C reduction
Moderate-intensity statin	≈30%
High-intensity statin	≈50%
High-intensity statin plus ezetimibe	≈65%
PCSK9 inhibitor	≈60%
PCSK9 inhibitor plus high-intensity statin	≈75%
PCSK9 inhibitor plus high-intensity statin plus ezetimibe	≈85%

2021 ESC Guidelines on cardiovascular disease prevention in clinical practice. *Eur J Prev Cardiol* **29**, zwab154 (2021).

Guidelines ESC: **LDL-Cholesterol**

Recommendations		
For patients with ASCVD, an LDL-C reduction of ≥50% from baselined and an LDL-C goal of **<1.4** mmol/L (<55 mg/dL) are recommended	I	A
It is recommended that a high-intensity **statin** is prescribed up to the highest tolerated dose to reach the LDL-C goals set for the specific risk group	I	A
If the goals are not achieved with the maximum tolerated dose of a statin, combination with **ezetimibe** is recommended		
For secondary prevention patients not achieving their goals on a maximum tolerated dose of a statin and ezetimibe, combination therapy including a **PCSK9** inhibitor is recommended	I	A

2019 ESC/EAS guidelines for the management of dyslipidaemias: Lipid modification to reduce cardiovascular risk. *Atherosclerosis* **290**, 140–205 (2019).

2021 ESC Guidelines on cardiovascular disease prevention in clinical practice. *Eur J Prev Cardiol* **29**, zwab154 (2021).

Older patients (>75y)

- 29 trials, n=244’090
- 8.8% >75y
- FU 2.2-6.0y

- MACE -26% per -1mmol/l LDL
- No difference with age group

	Events (n)		RR (95% CI) per 1 mmol/L reduction in LDL cholesterol
	Experimental group	Control group	
Major vascular events	1610	1909	0·74 (0·61–0·89)
Cardiovascular death	723	799	0·85 (0·74–0·98)
Myocardial infarction	813	971	0·80 (0·71–0·90)
Any stroke	401	486	0·73 (0·61–0·87)
Coronary revascularisation	428	513	0·80 (066–0·96)

Gencer, B. *et al.* Efficacy and safety of lowering LDL cholesterol in older patients: a systematic review and meta-analysis of randomised controlled trials. *Lancet* **396**, 1637–1643 (2020).

Statin intolerance

- statin-associated muscle symptoms
  - 7-29% of patients
  - CK normal or slightly elevated
- Myositis
  - CK >10fold
- Rhabdomyolysis

STOP statin

Sy ameliorated

Restart statin at lower dose
Other Statin
Ezetimibe
PCSK9i

Sy NOT ameliorated

Check other causes
Continue Statin

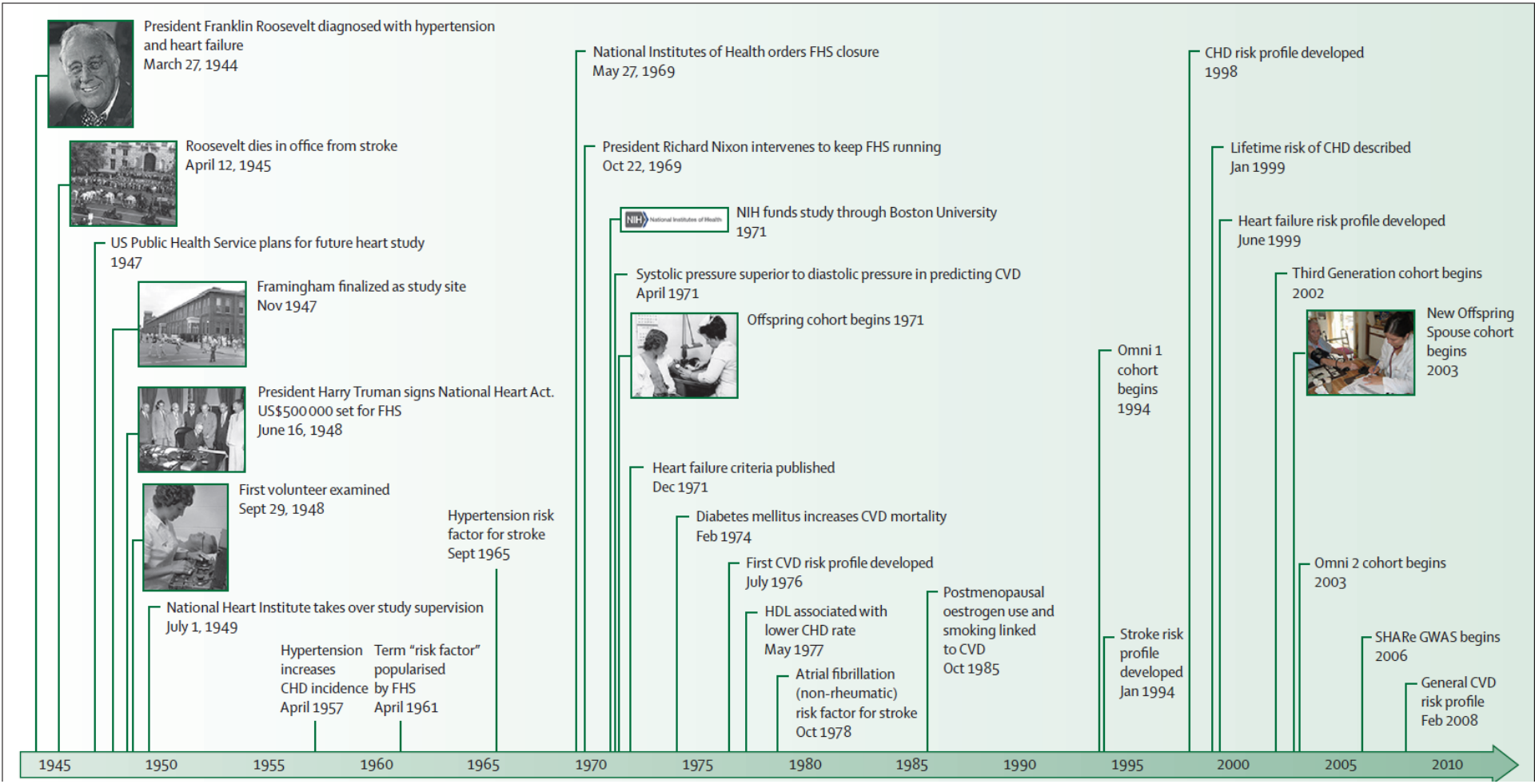
Diaconu, C. C. *et al.* Statin intolerance: new data and further options for treatment. *Curr Opin Cardiol* **36**, 487–493 (2021).

Pat 2

Tx:
ASS 300mg
MetoZerok 12.5mg
Valsartan 40mg
Atorvastatin 80mg
Ezetimib 10mg
Alirocumab 75mg/2 Week

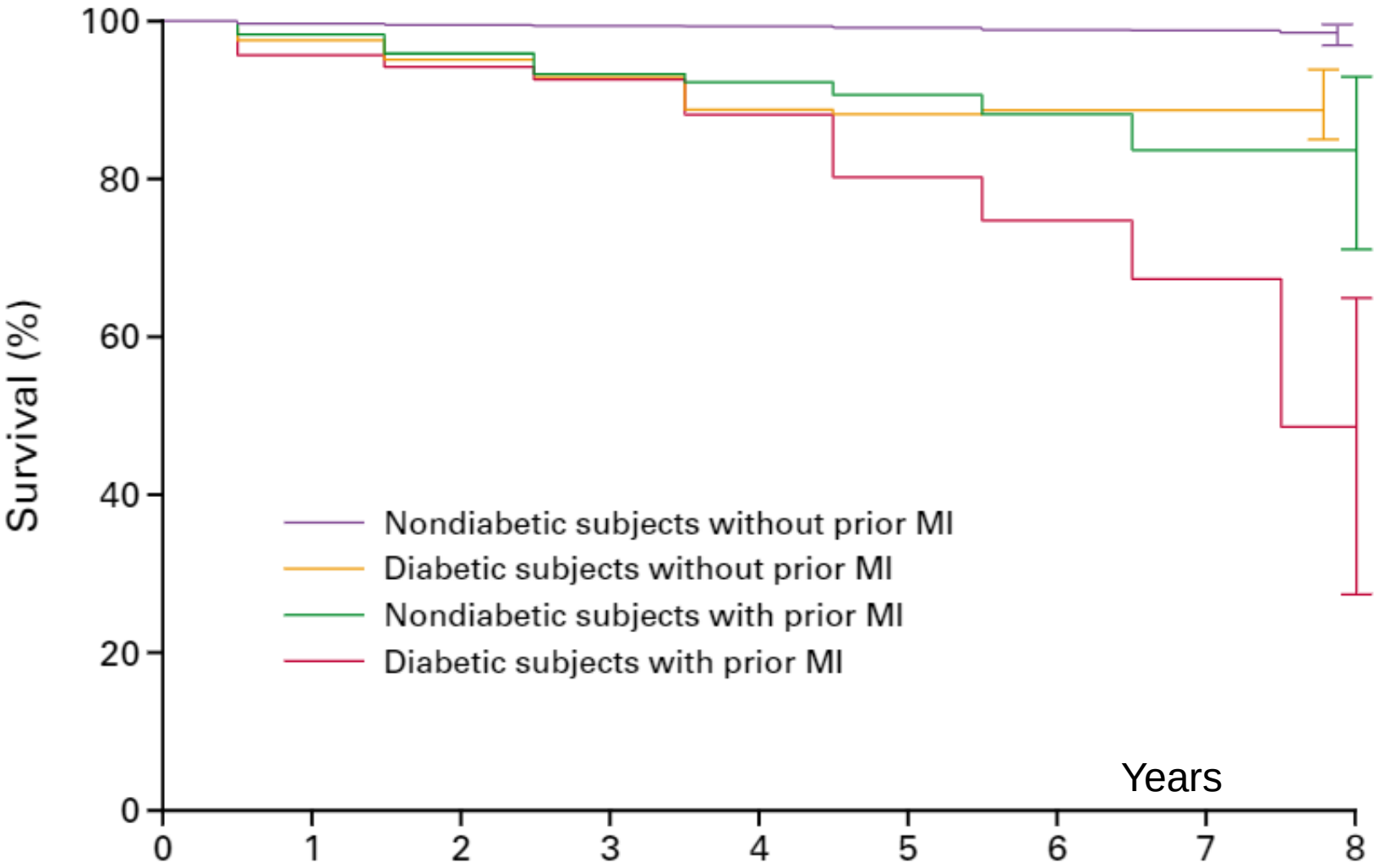
	21.6.2021	15.2.22
Cholesterin tot		2.1
LDL	**2.9**	**0.68**
HDL		1.33
Tg		0.48

Diabetes mellitus as CVRF



Mahmood SS, Levy D, Vasan RS, Wang TJ. The Framingham Heart Study and the epidemiology of cardiovascular disease: a historical perspective. Lancet 2014;383(9921):999–1008.

Diabetes and ASCVD



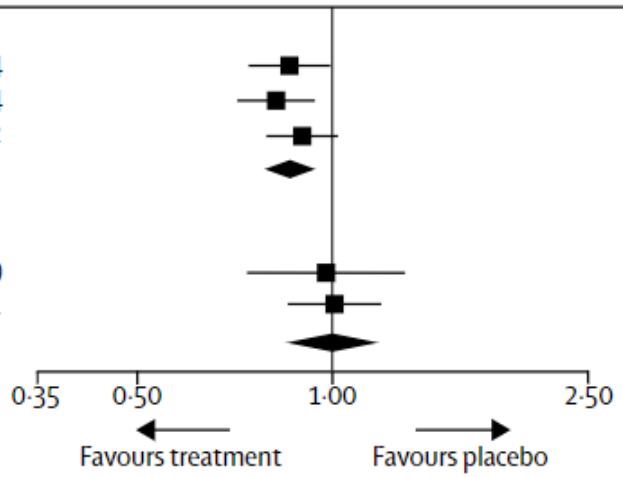
Haffner et al.. Mortality from coronary heart disease in subjects with type 2 diabetes and in nondiabetic subjects with and without prior myocardial infarction. *The New England journal of medicine* **339**, 229–34 (1998).

SGLT-2 Inhibitor in CAD

- 3 trials, n=34’322
- 60.2% established atherosclerotic CVD
- FU 2.4-4.2y (mean)

- MACE -11% on SGLT2i
- No difference without CVD

	Patients		Events	Events per 1000 patient-years		Weight (%)	HR	HR (95% CI)
	Treatment (n)	Placebo (n)		Treatment	Placebo			
Patients with atherosclerotic cardiovascular disease								
EMPA-REG OUTCOME	4687	2333	772	37·4	43·9	29·4		0·86 (0·74–0·99)
CANVAS Program	3756	2900	796	34·1	41·3	32·4		0·82 (0·72–0·95)
DECLARE-TIMI 58	3474	3500	1020	36·8	41·0	38·2		0·90 (0·79–1·02)
Fixed effects model for atherosclerotic cardiovascular disease (p=0·0002)								**0·86 (0·80–0·93)**
Patients with multiple risk factors								
CANVAS Program	2039	1447	215	15·8	15·5	25·9		0·98 (0·74–1·30)
DECLARE-TIMI 58	5108	5078	539	13·4	13·3	74·1		1·01 (0·86–1·20)
Fixed effects model for multiple risk factors (p=0·98)								**1·00 (0·87–1·16)**



Zelniker, T. A. *et al.* SGLT2 inhibitors for primary and secondary prevention of cardiovascular and renal outcomes in type 2 diabetes: a systematic review and meta-analysis of cardiovascular outcome trials. *Lancet* **393**, 31–39 (2019).

GLP-1 agonists in CAD and DM (1)

- 7 trials, n=56’004
  - Each >3000
- 31-100% established atherosclerotic CVD
  - ELIXA n=6068 100%,
  - LEADER n=9340 81%
  - REWIND n=9901 31%
- FU 3.2y (mean)

- MACE -12% on GLP1-a
  - NNT 75
- No difference in primary-secondary prevention

Kristensen, S. L. *et al.* Cardiovascular, mortality, and kidney outcomes with GLP-1 receptor agonists in patients with type 2 diabetes: a systematic review and meta-analysis of cardiovascular outcome trials. *Lancet Diabetes Endocrinol* **7**, 776–785 (2019).

GLP-1 agonists in CAD and DM (2)

	GLP-1 receptor agonist n/N (%)	Placebo n/N (%)	Hazard ratio (95% CI)	NNT (95% CI)	p value
Three-component MACE					
ELIXA	400/3034 (13%)	392/3034 (13%)	1·02 (0·89–1·17)		0·78
LEADER	608/4668 (13%)	694/4672 (15%)	0·87 (0·78–0·97)		0·015
SUSTAIN-6	108/1648 (7%)	146/1649 (9%)	0·74 (0·58–0·95)		0·016
EXSCEL	839/7356 (11%)	905/7396 (12%)	0·91 (0·83–1·00)		0·061
Harmony Outcomes	338/4731 (7%)	428/4732 (9%)	0·78 (0·68–0·90)		<0·001
REWIND	594/4949 (12%)	663/4952 (13%)	0·88 (0·79–0·99)		0·026
PIONEER 6	61/1591 (4%)	76/1592 (5%)	0·79 (0·57–1·11)		0·17
Overall (I^2=40·9%, p=0·118)	**2948/27977 (11%)**	**3304/28027 (12%)**	**0·88 (0·82–0·94)**	**75 (50–151)**	**<0·001**
Cardiovascular death					
ELIXA	156/3034 (5%)	158/3034 (5%)	0·98 (0·78–1·22)		0·85
LEADER	219/4668 (5%)	278/4672 (6%)	0·78 (0·66–0·93)		0·007
SUSTAIN-6	44/1648 (3%)	46/1649 (3%)	0·98 (0·65–1·48)		0·92
EXSCEL	340/7356 (5%)	383/7396 (5%)	0·88 (0·76–1·02)		0·096
Harmony Outcomes	122/4731 (3%)	130/4732 (3%)	0·93 (0·73–1·19)		0·58
REWIND	317/4949 (6%)	346/4952 (7%)	0·91 (0·78–1·06)		0·18
PIONEER 6	15/1591 (1%)	30/1592 (2%)	0·49 (0·27–0·92)		0·021
Overall (I^2=13·5%, p=0·327)	**1213/27977 (4%)**	**1371/28027 (5%)**	**0·88 (0·81–0·96)**	**175 (110–524)**	**0·003**
Fatal or non-fatal myocardial infarction					
ELIXA	270/3034 (9%)	261/3034 (9%)	1·03 (0·87–1·22)		0·71
LEADER	292/4668 (6%)	339/4672 (7%)	0·86 (0·73–1·00)		0·046
SUSTAIN-6	54/1648 (3%)	67/1649 (4%)	0·81 (0·57–1·16)		0·26
EXSCEL	483/7356 (7%)	493/7396 (7%)	0·97 (0·85–1·10)		0·62
Harmony Outcomes	181/4731 (4%)	240/4732 (5%)	0·75 (0·61–0·90)		0·003
REWIND	223/4949 (5%)	231/4952 (5%)	0·96 (0·79–1·15)		0·63
PIONEER 6	37/1591 (2%)	35/1592 (2%)	1·04 (0·66–1·66)		0·49
Overall (I^2=27·4%, p=0·219)	**1540/27977 (6%)**	**1666/28027 (6%)**	**0·91 (0·84–1·00)**	**193 (108–NA)**	**0·043**

Kristensen, S. L. *et al.* Cardiovascular, mortality, and kidney outcomes with GLP-1 receptor agonists in patients with type 2 diabetes: a systematic review and meta-analysis of cardiovascular outcome trials. *Lancet Diabetes Endocrinol* **7**, 776–785 (2019).

Guidelines ESC: **Diabetes**

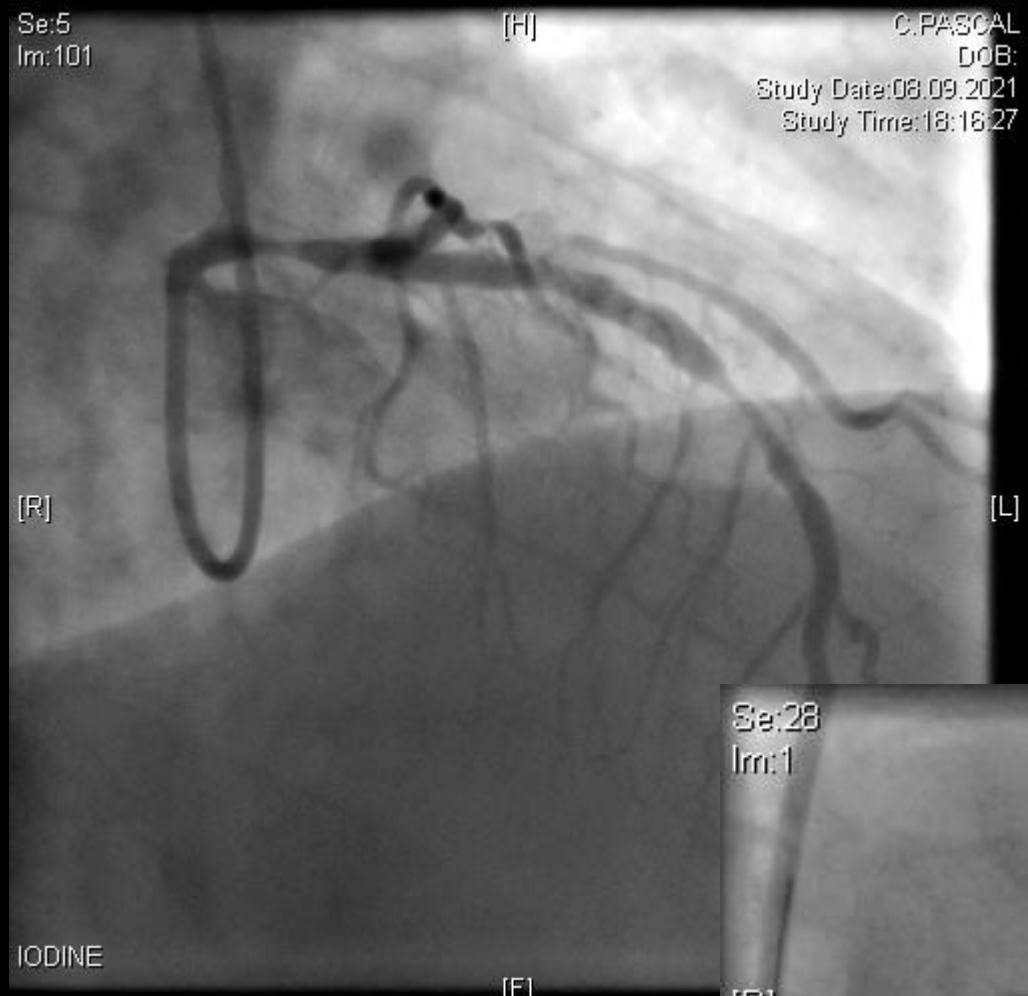
Recommendations		
A target HbA1c for the reduction of CVD riskand microvascular complications of DM of **<7.0%** (53 mmol/mol) is recommended for themajority of adults with either type 1 or type 2DM	I	A
In persons with type 2 DM with ASCVD, **Metformin** should be considered, unless contraindications are present	IIa	B
In persons with type 2 DM and ASCVD, the use of a **GLP-1RA** or **SGLT2 inhibitor** with proven outcome benefits is recommended to reduce CV and/or cardiorenal outcomes	I	A

2021 ESC Guidelines on cardiovascular disease prevention in clinical practice. *Eur J Prev Cardiol* **29**, zwab154 (2021).

Pat 3

C.P. 3.12.62 (♂ 67y)
Maladie coronarienne de 2 vaisseaux, Tronc moyen
STEMI latéral 8.9.2021 FEVG 45%, hypocinésie latérale (9/21)
PTCA/Stent M1 8.9.2021 Pontage 4 fois (LIMA-RIVA, V-D1, Radialis-RIMA-M1) et fermeture PFO 14.9.2021
Révision à cause de hématome 15.9.2021
Facteur de risque:
- Hypercholestérolémie
- Hypertension artérielle

Reflux gastro-œsophagienne OSAS sous CPAPA


Se:5
Im:101
[H]
C.PASCAL
DOB:
Study Date:08.09.2021
Study Time:18:16:27
[R]
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IODINE
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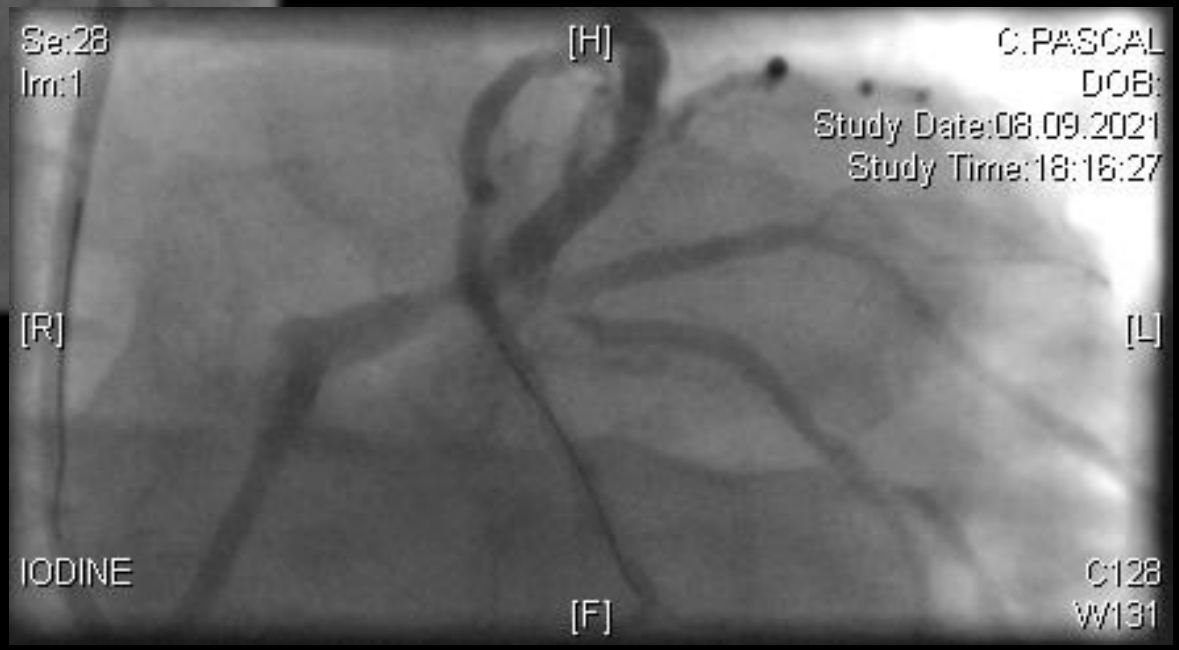
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Im:1
[H]
C.PASCAL
DOB:
Study Date:08.09.2021
Study Time:18:16:27
[R]
[L]
IODINE
[F]
C128
W131

Ambulatory rehabilitation

- Nearby home
- Involving relatives
- Stepwise over longer peroide
- Possibility to work patial time

Stationary rehabilitation

- Evolution with complications
- Co-Morbitity
- Entry rapidly after operation
- More need of help
- Medical surveillance
- Change of environement
- No help at home

Pat 3

Ambulatory rehabilitation

Capacity 100W (e) -> 190W (d)

Favorable evolution

at beginning: chest pain:

-Ergometry: normal

no cmplications

Medication post CABG/ACS

Medication	↓ MACE	↓ mortality
Aspirin	√	√
Statins	√	√
Beta blockers	√	√
ACE inhibitors	√	X
Metformin	√	√
SGLT-2 inhibitors	√	√
GLP-1 receptor agonists	√	√
PCSK-9 inhibitors	√	Ev
Icosapent ethyl	√	√
DAPT	√	√
DPI	√	√

ACE, angiotensin-converting enzyme; DAPT, dual antiplatelet therapy; DPI, dual pathway inhibition; GLP-1, glucagon-like peptide 1; PCSK-9, proprotein convertase subtilisin-kexin type 9; SGLT-2, sodium glucose cotransporter-2.

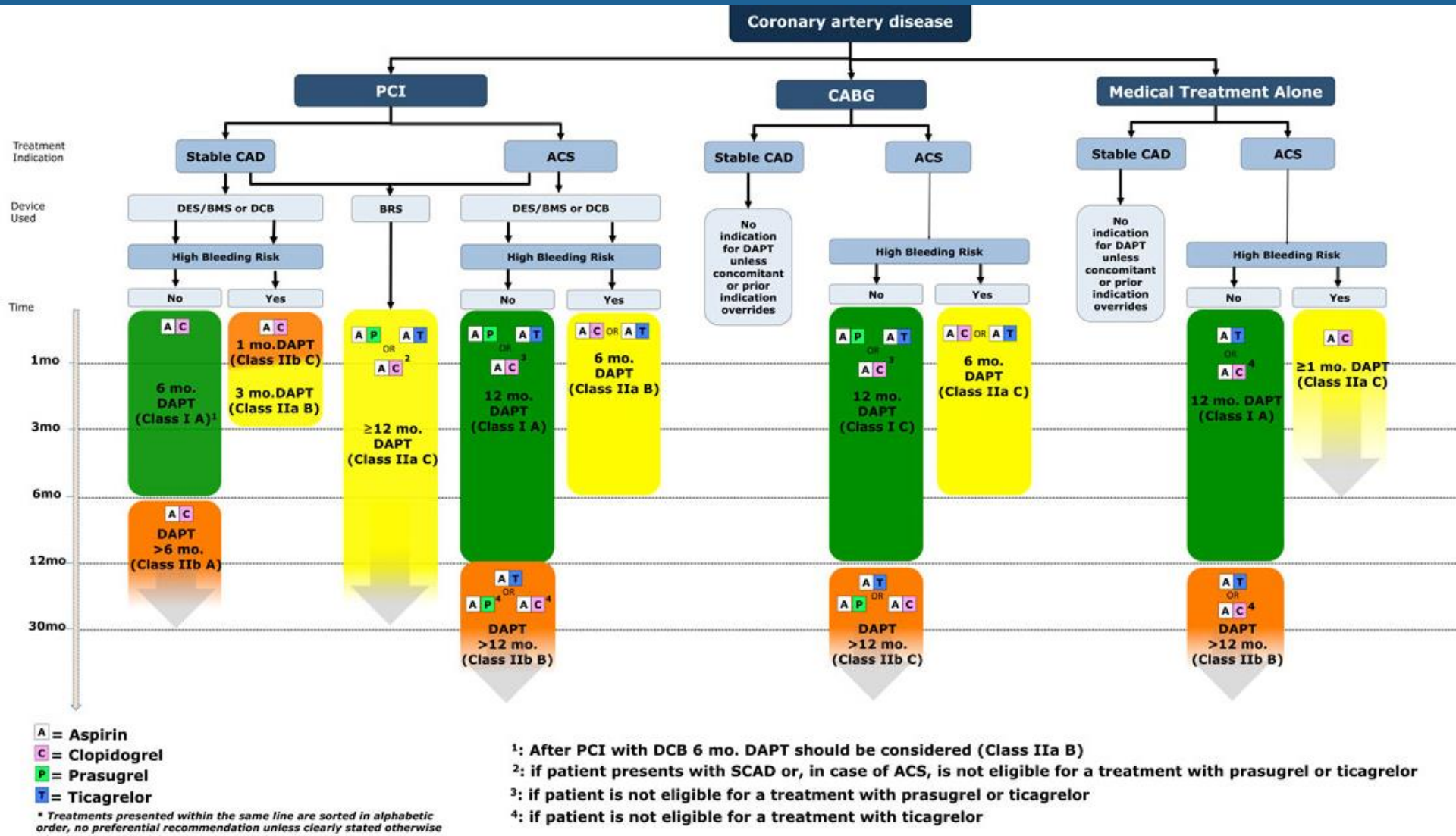
Eikelboom, R., Amir, T., Gupta, S. & Whitlock, R. P. Optimal medical therapy after coronary artery bypass grafting: a primer for surgeons. Curr Opin Cardiol 36, 609–615 (2021).

Guidelines ESC: **Antithrombotic therapy**

Recommendations		
Aspirin 75 - 100 mg daily is recommended for patients with a previous myocardial infarction or revascularization	I	A
Aspirin 75 - 100 mg daily may be considered in patients without a history of myocardial infarction or revascularization, but with definitive evidence of CAD on imaging	IIb	C
In ACS, DAPT with a P2Y12 inhibitor in addition to aspirin is recommended for 12 months, unless there are contraindications such as excessive risk of bleeding	I	A
In patients with CCS, clopidogrel 75 mg daily is recommended, in addition to aspirin, for 6 months following coronary stenting, irrespective of stent type, unless a shorter duration (1 - 3 months) is indicated due to risk or occurrence of life-threatening bleeding	I	A

2021 ESC Guidelines on cardiovascular disease prevention in clinical practice. *Eur J Prev Cardiol* **29**, zwab154 (2021).

DAPT in CAD



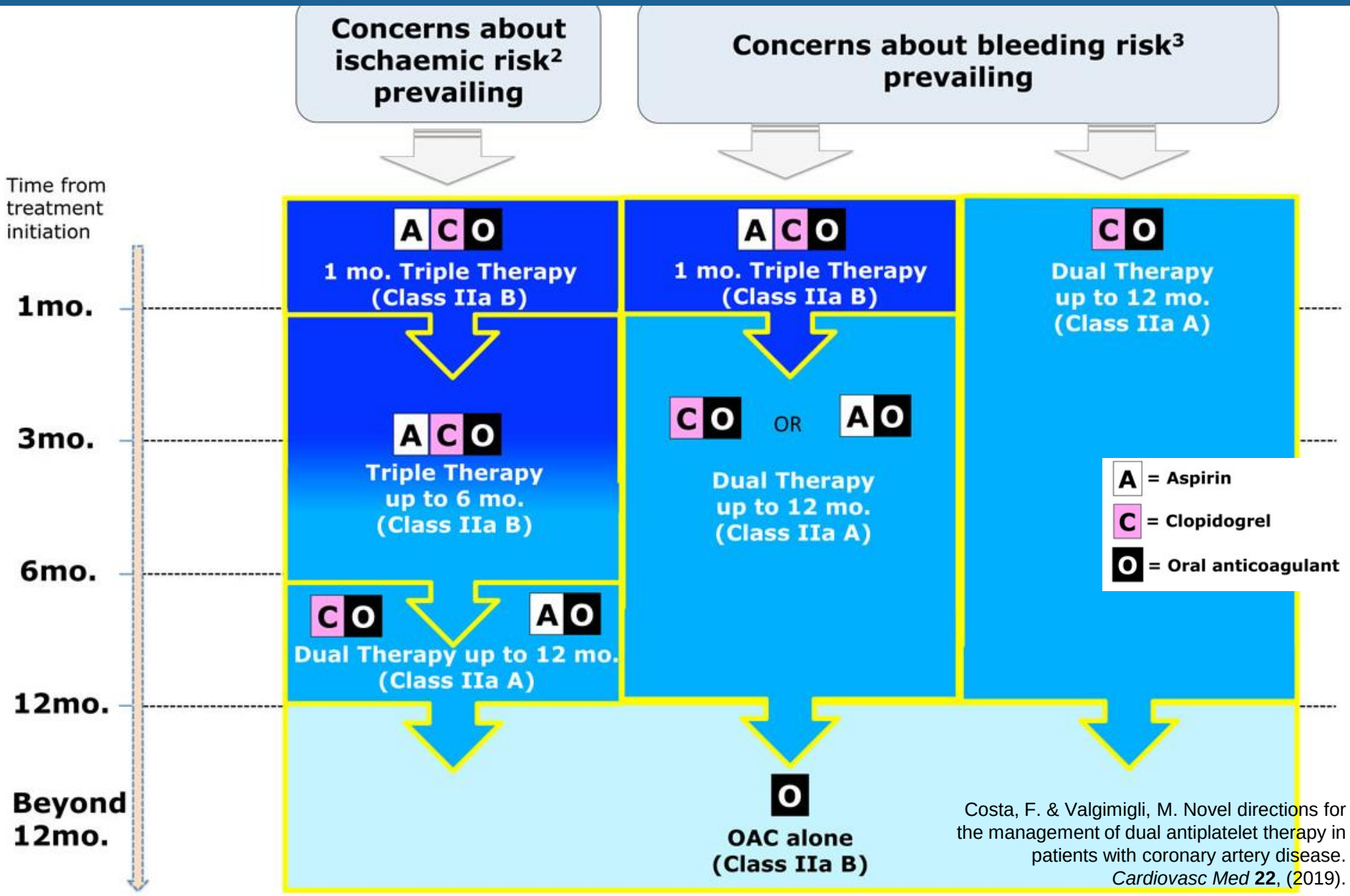
A = Aspirin
C = Clopidogrel
P = Prasugrel
T = Ticagrelor

* *Treatments presented within the same line are sorted in alphabetic order, no preferential recommendation unless clearly stated otherwise*

[1]: After PCI with DCB 6 mo. DAPT should be considered (Class IIa B)
[2]: if patient presents with SCAD or, in case of ACS, is not eligible for a treatment with prasugrel or ticagrelor
[3]: if patient is not eligible for a treatment with prasugrel or ticagrelor
[4]: if patient is not eligible for a treatment with ticagrelor

Costa, F. & Valgimigli, M. Novel directions for the management of dual antiplatelet therapy in patients with coronary artery disease. *Cardiovasc Med* **22**, (2019).

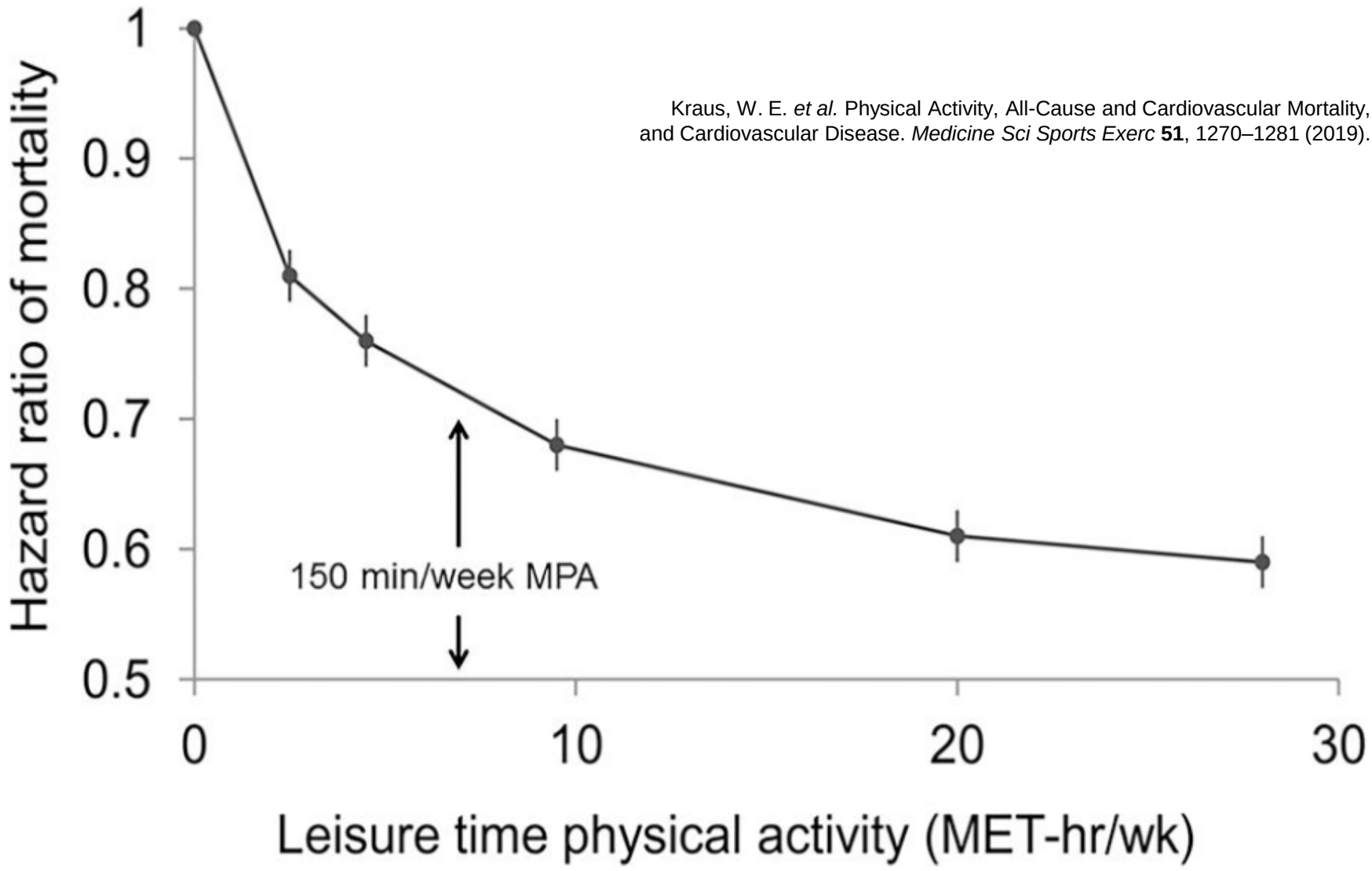
PCI and indication for OAC



Costa, F. & Valgimigli, M. Novel directions for the management of dual antiplatelet therapy in patients with coronary artery disease. *Cardiovasc Med* **22**, (2019).

Exercise training

Physical activity and mortality



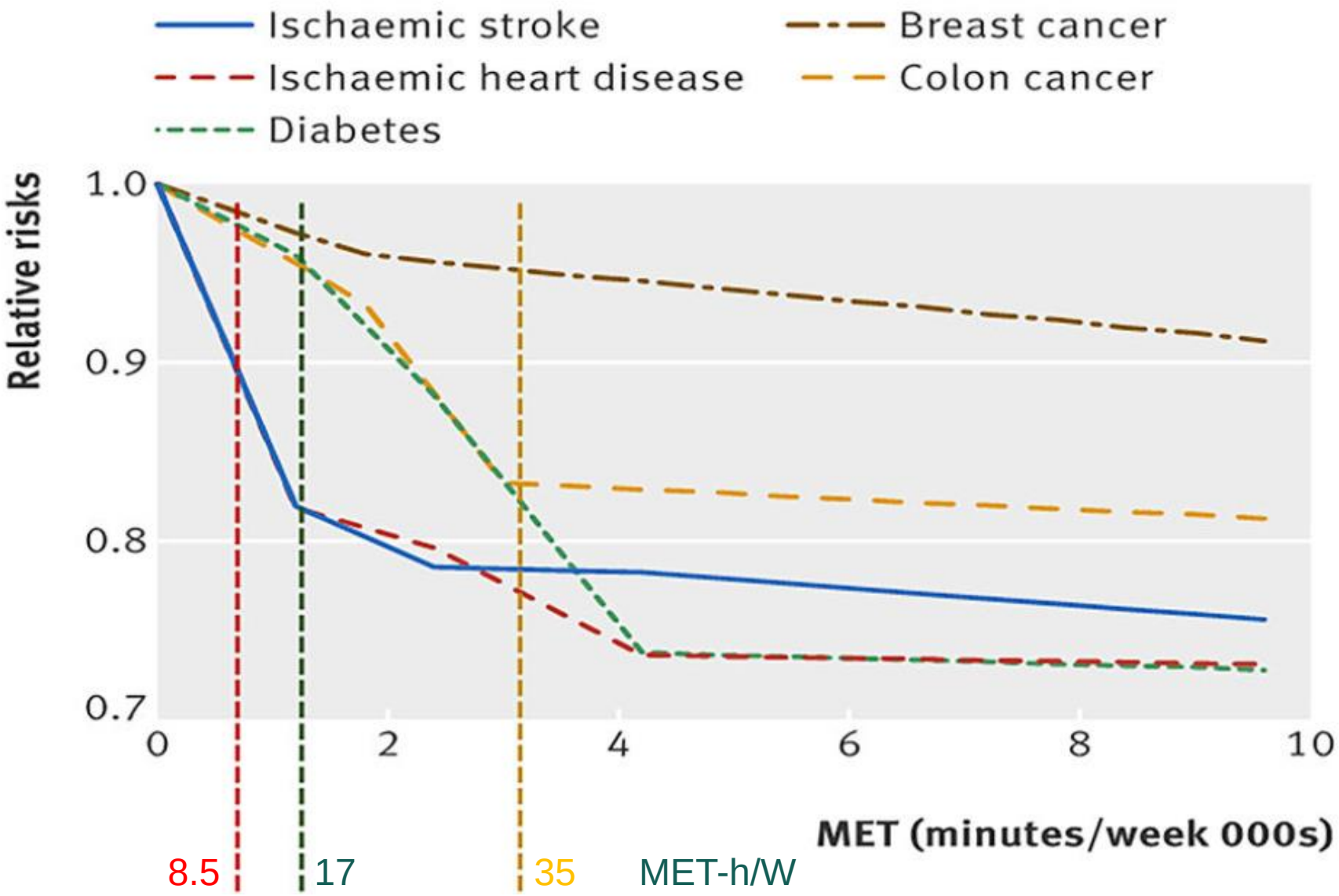
Kraus, W. E. *et al.* Physical Activity, All-Cause and Cardiovascular Mortality, and Cardiovascular Disease. *Medicine Sci Sports Exerc* **51**, 1270–1281 (2019).

Physical activity intensity

Intensity	MET	Examples	%HRmax
Light	1.1-2.9	Walking <4.7 km/h, light household work	57-63
Moderate	3-5.9	Walking at moderate or brisk pace (4.16.5 km/h),slow cycling (15 km/h), painting/decorating, vacuuming,gardening (mowing lawn), golf (pulling clubs in trolley),tennis (doubles), ballroom dancing, water aerobics	64-76
Vigorous	>=6	Race-walking, jogging, or running, cycling >15 km/h,heavy gardening (continuous digging or hoeing), swim-ming laps, tennis (singles)	77-95

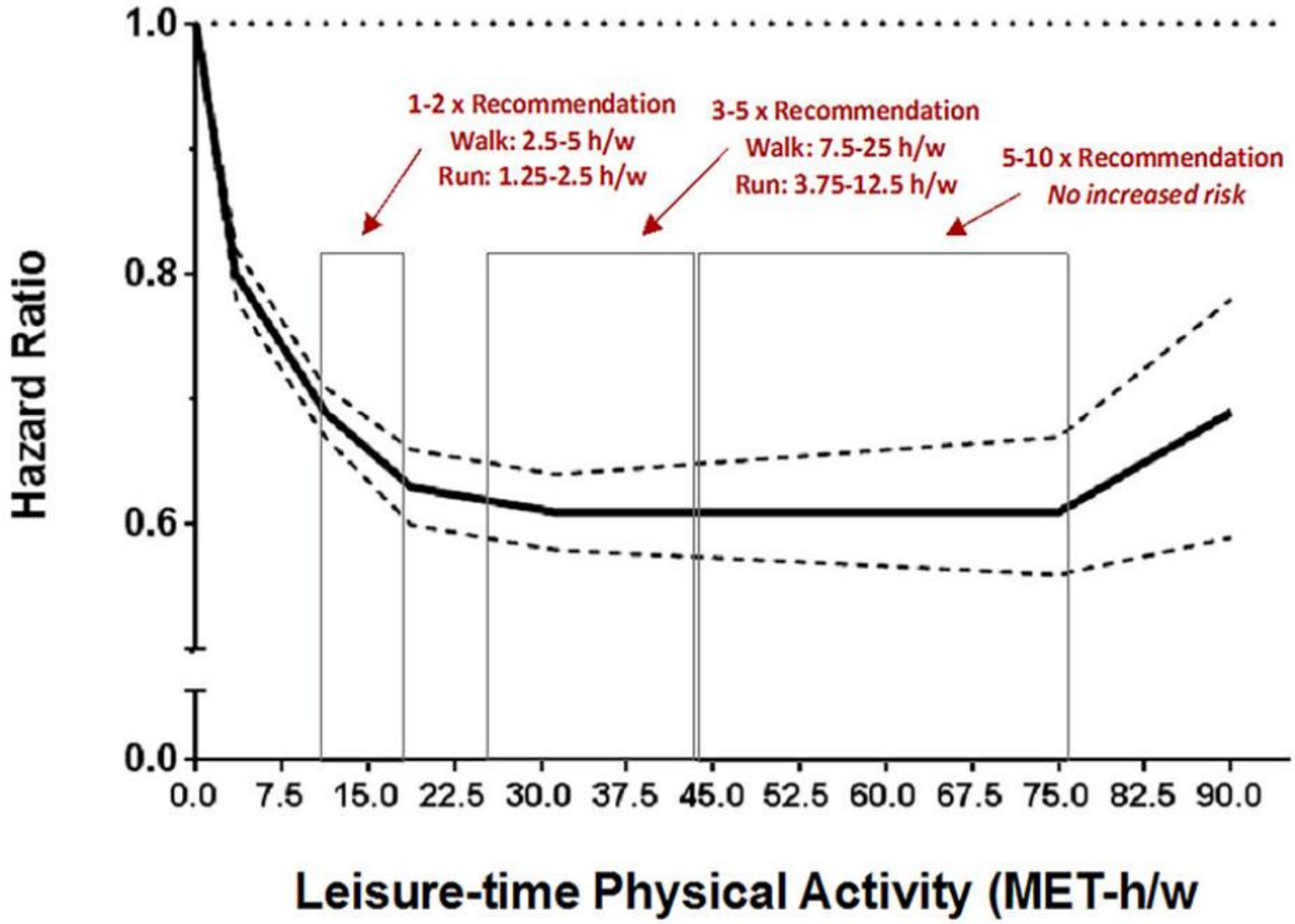
Visseren, F. L. J. *et al.* 2021 ESC Guidelines on cardiovascular disease prevention in clinical practiceDeveloped by the Task Force for cardiovascular disease prevention in clinical practice with representatives of the European Society of Cardiology and 12 medical societies With the special contribution of the European Association of Preventive Cardiology (EAPC). *Eur J Prev Cardiol* **29**, zwab154 (2021).

Mortality-Risk and physcal activity



 Kraus, W. E. *et al.* Physical Activity, All-Cause and Cardiovascular Mortality, and Cardiovascular Disease. *Medicine Sci Sports Exerc* **51**, 1270–1281 (2019).

Physical activity and all-cause-mortality



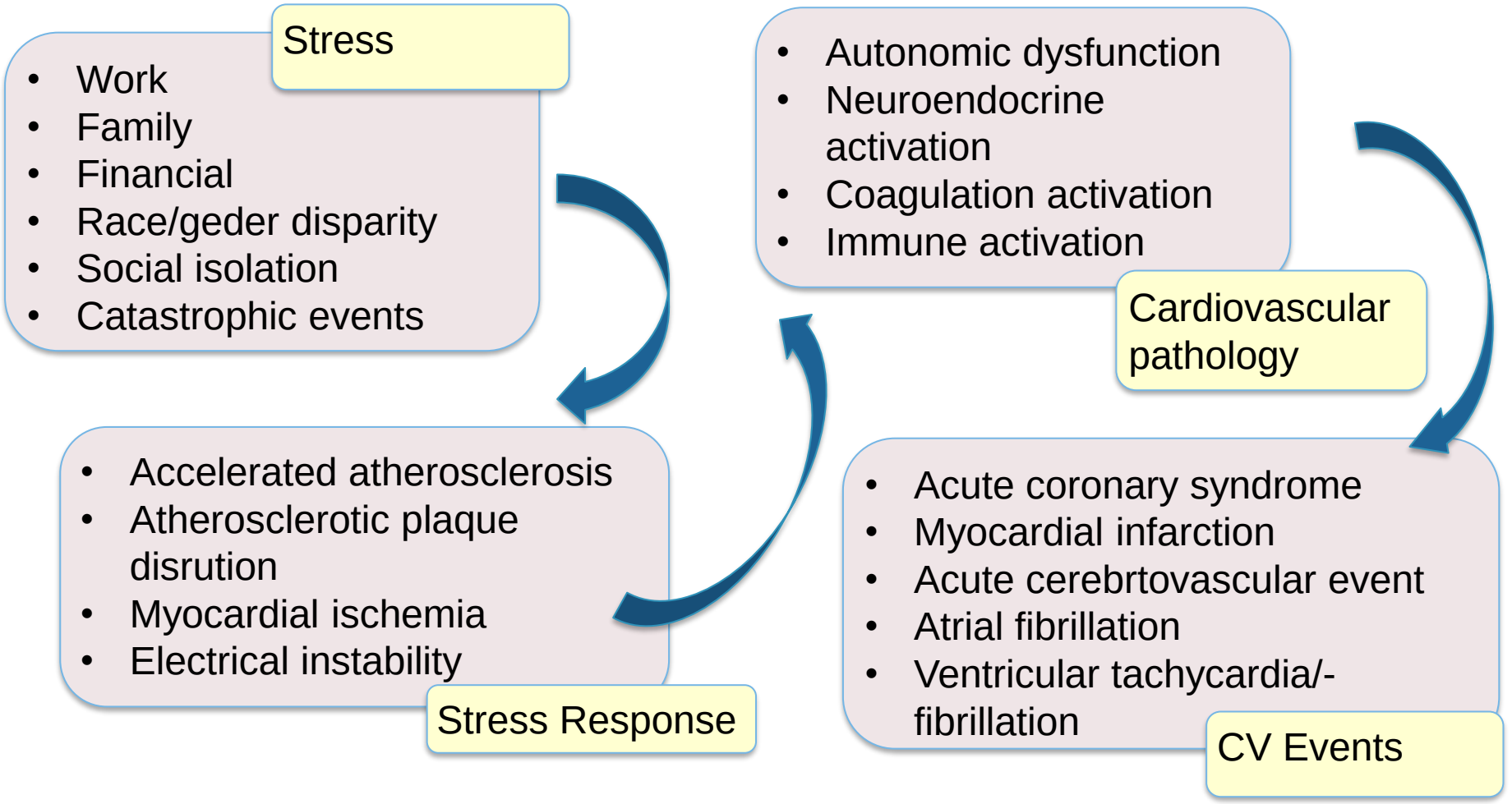
Kraus, W. E. *et al.* Physical Activity, All-Cause and Cardiovascular Mortality, and Cardiovascular Disease. *Medicine Sci Sports Exerc* **51**, 1270–1281 (2019).

Guidelines ESC: Exercise

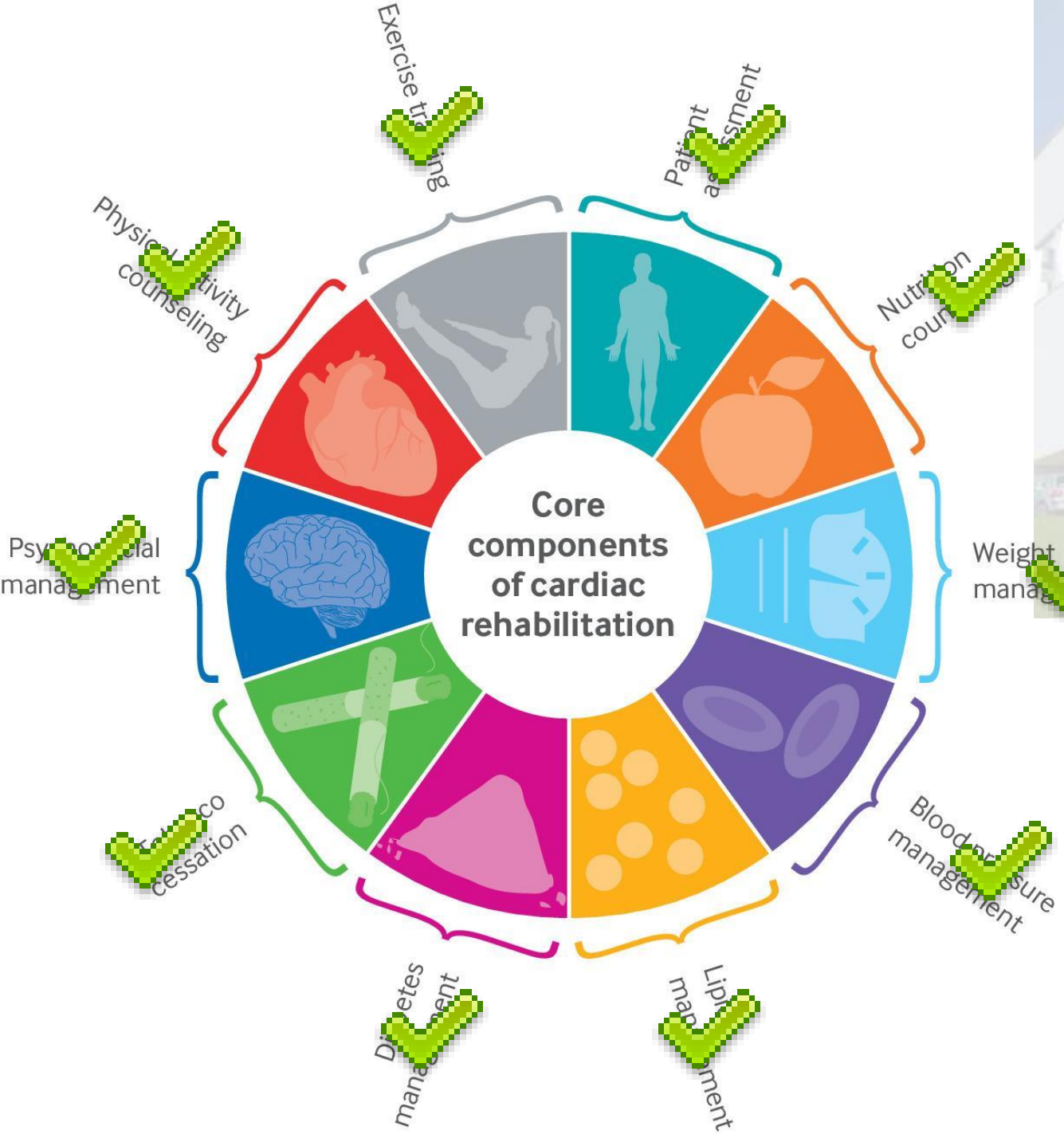
Recommendations		
It is recommended for adults of all ages to strive for at least **150 - 300 min** a week of moderate-intensity or **75 - 150 min** a week of vigorous-intensity aerobic PA, or an equivalent combination there of, to **reduce all-cause mortality**, **CV mortality, and morbidity.**	I	A
It is recommended that adults who cannot perform 150 min of moderate-intensity PA a week should stay as active as their abilities and health condition allow	I	B
It is recommended to reduce sedentary time to engage in at least light activity throughout the day to **reduce all-cause and CV mortality and morbidity.**	I	B
Performing resistance exercise, in addition to aerobic activity, is recommended on 2 or more days per week to **reduce all-cause mortality**	I	B

Visseren, F. L. J. *et al.* 2021 ESC Guidelines on cardiovascular disease prevention in clinical practiceDeveloped by the Task Force for cardiovascular disease prevention in clinical practice with representatives of the European Society of Cardiology and 12 medical societies With the special contribution of the European Association of Preventive Cardiology (EAPC). *Eur J Prev Cardiol* **29**, zwab154 (2021).

Stress



Chinnaiyan, K. M. Role of stress management for cardiovascular disease prevention. *Curr Opin Cardiol* **34**, 531–535 (2019).

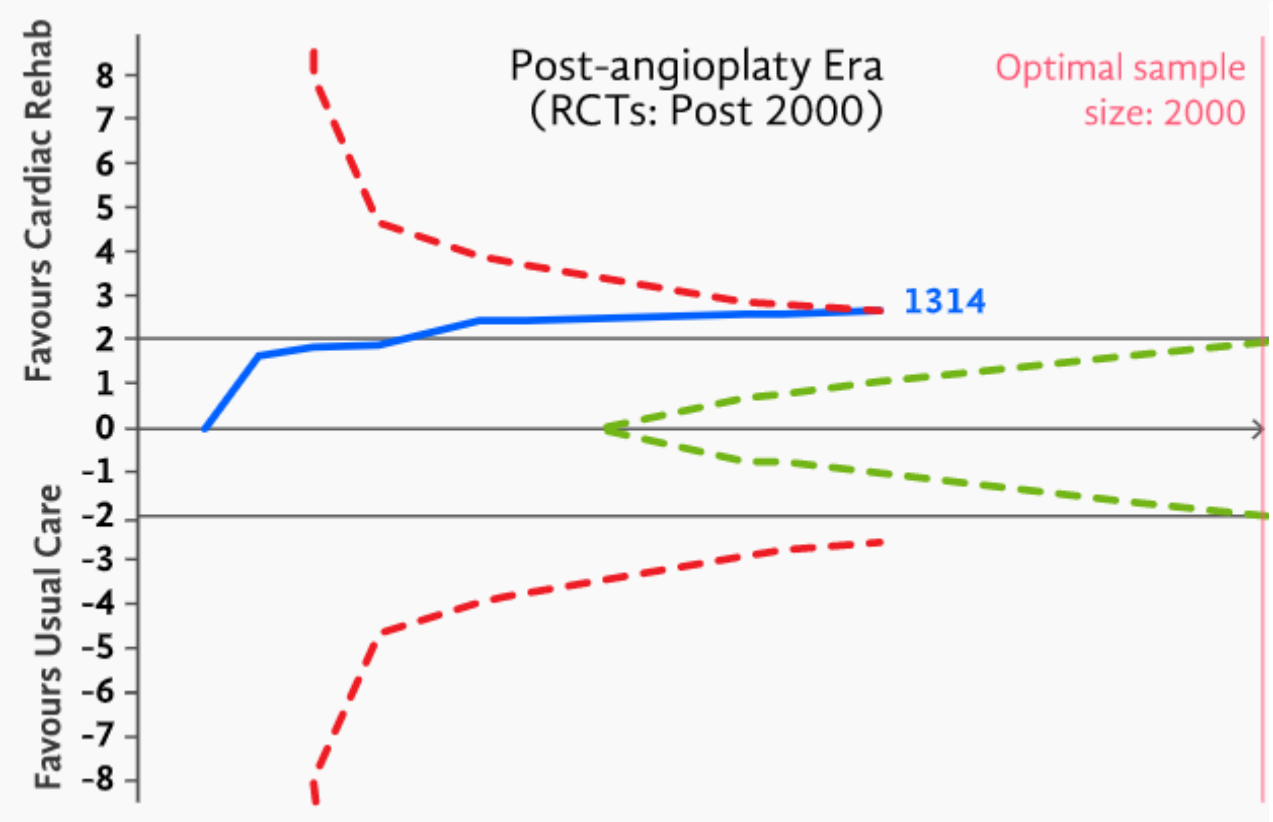


Caroline R Richardson et al. BMJ 2019;365:bmj.l2191

CR after MI: Trials (1)

Number of RCTs	10	18	27
Actual sample size	1314	3282	7469
Relative risk (95% CI)	0.48 (0.28–0.83)	0.67 (0.48–0.94)	0.75 (0.65–0.86)
Inconsistency (I^2)	0.0	0.0	0.0
Optimal sample size	2000	4650	11714
Reaches effectiveness boundary	Yes (10° RCT of 10)	No	Yes (15° RCT of 29)
Reaches futility limit	No	No	No
Evidence certainty (GRADE)	⊕⊕⊕◯ Moderate[3]	⊕⊕◯◯ Low[1-3]	⊕⊕◯◯ Low[1-3]

Trial sequential analysis



Oliveros, M.-J., Serón, P., Buitrago-García, D. & Grace, S. L. Cardiac rehabilitation effectiveness for coronary artery disease by clinical era: trial sequential analysis. *Eur J Prev Cardiol* **29**, e18–e21 (2022).

Réhabilitation cardiovasculaire en ambulatoire

Centre de Rééducation de l'Hôpital du Jura 2021

SCPRS

Swiss Working Group for Cardiovascular Prevention, Rehabilitation and Sports Cardiology

SIWF FMH ISFM
établissement de formation postgraduée certifié 2021

Hôpital du Jura
Nous pour vous !

Reeducation ambulatoire cardiaque (JU)

Responsable du programme: Dr Christoph Kaufmann et Dre Simone Gracio
En collaboration avec les cardiologues (JU)

Dre Remondino Andrea, Dr Osterwalder Remo, Dr Keller Pierre-Frédéric, Dr Hassani Salah-Eddine, Dr Gobin Eric

Formulaire d'admission au programme au secrétariat du Centre de Rééducation
–par téléphone : 032 465 63 46
–par mail : secretariat.CRH@h-ju.ch
–par courrier : Hôpital du Jura, Centre de rééducation, Chemin des Minoux 30, 2900 Porrentruy

- Durée de programme: 10 à 12 semaines
- Fréquence: 2-3 fois par semaine
- Minimum 2 ½ heures de prise en charge par jour (3 unités de thérapie en moyenne)
- Objectif: 72 unités de thérapie selon les recommandations de SCPRS (environ 60 unités de physiothérapie + activité physique adaptée)
- Bilan complet au début et à la fin de programme avec test à l'effort