30 novembre 2018

3° CONGRESSO CONGIUNTO AMD/SID SICILIA

Isola delle Femmine (Pa)

Il paziente con Sindrome Coronarica Acuta

Salvatore Corrao

Dipartimento di Medicina

U.O.C. Medicina Interna

ad indirizzo Geriatrico-Riabilitativo

A.R.N.A.S. Civico - Di Cristina - Benfratelli Palermo

Di.Bi.M.I.S.

C.R.E.A.M.

Università degli Studi di Palermo



C.R.E.A.M.

Civico Di Cristina Benfratelli

Il Prof. Salvatore Corrao dichiara di aver ricevuto negli ultimi due anni compensi o finanziamenti dalle seguenti Aziende Farmaceutiche e/o Diagnostiche:

- Bayer
- Novartis
- NovoNordisk
- MSD

Agenda


Infiammazione
Sindrome Coronarica Acuta
Insulinoresistenza
Fisiopatologia
CAD
Interventi Terapeutici
Infarto Miocardico
Comorbidità
SCA
Diabete
Cardiopatia Ischemica
Coronaropatia
Vari Tipi
Caratterizzazione del Rischio

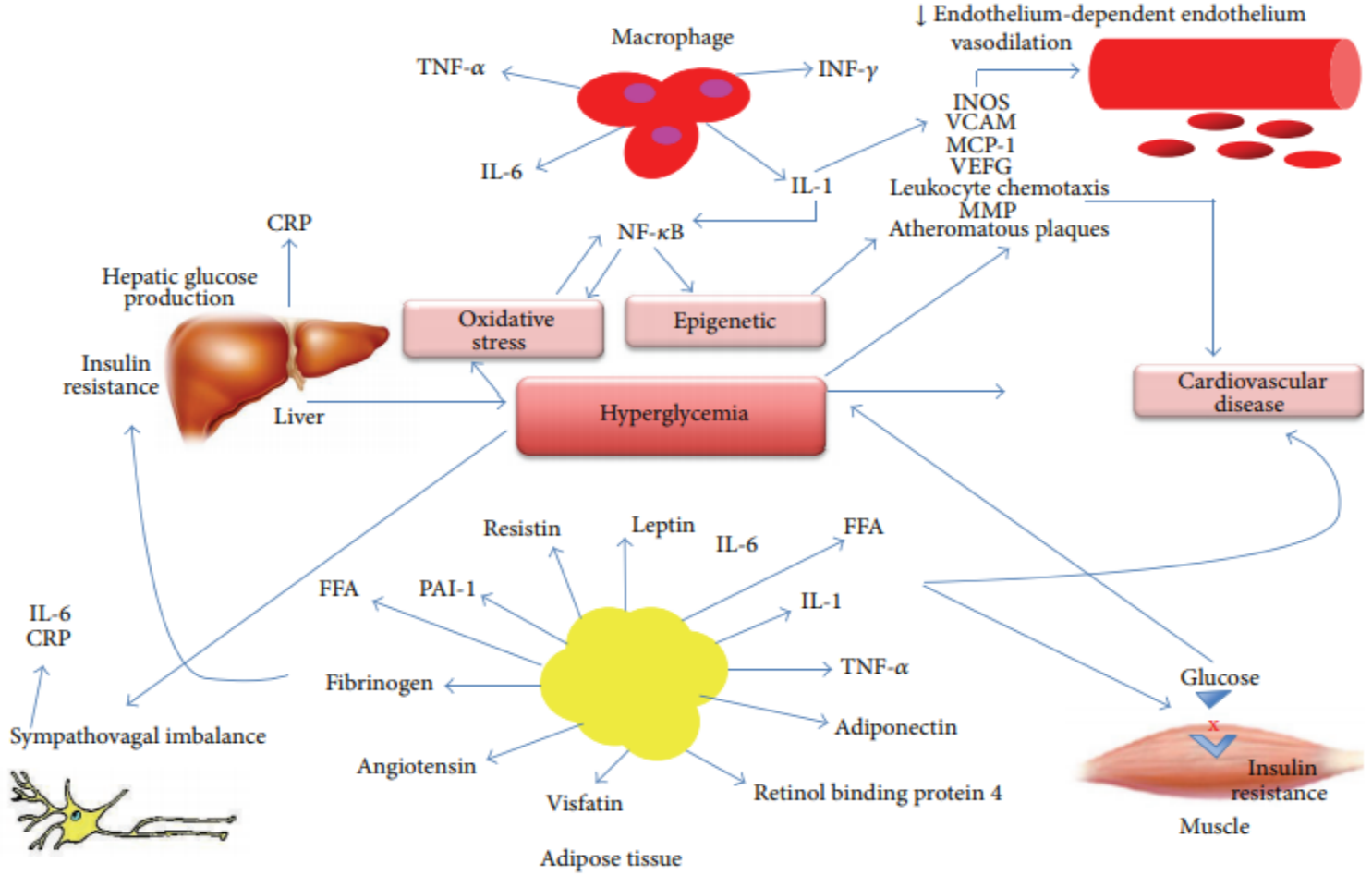
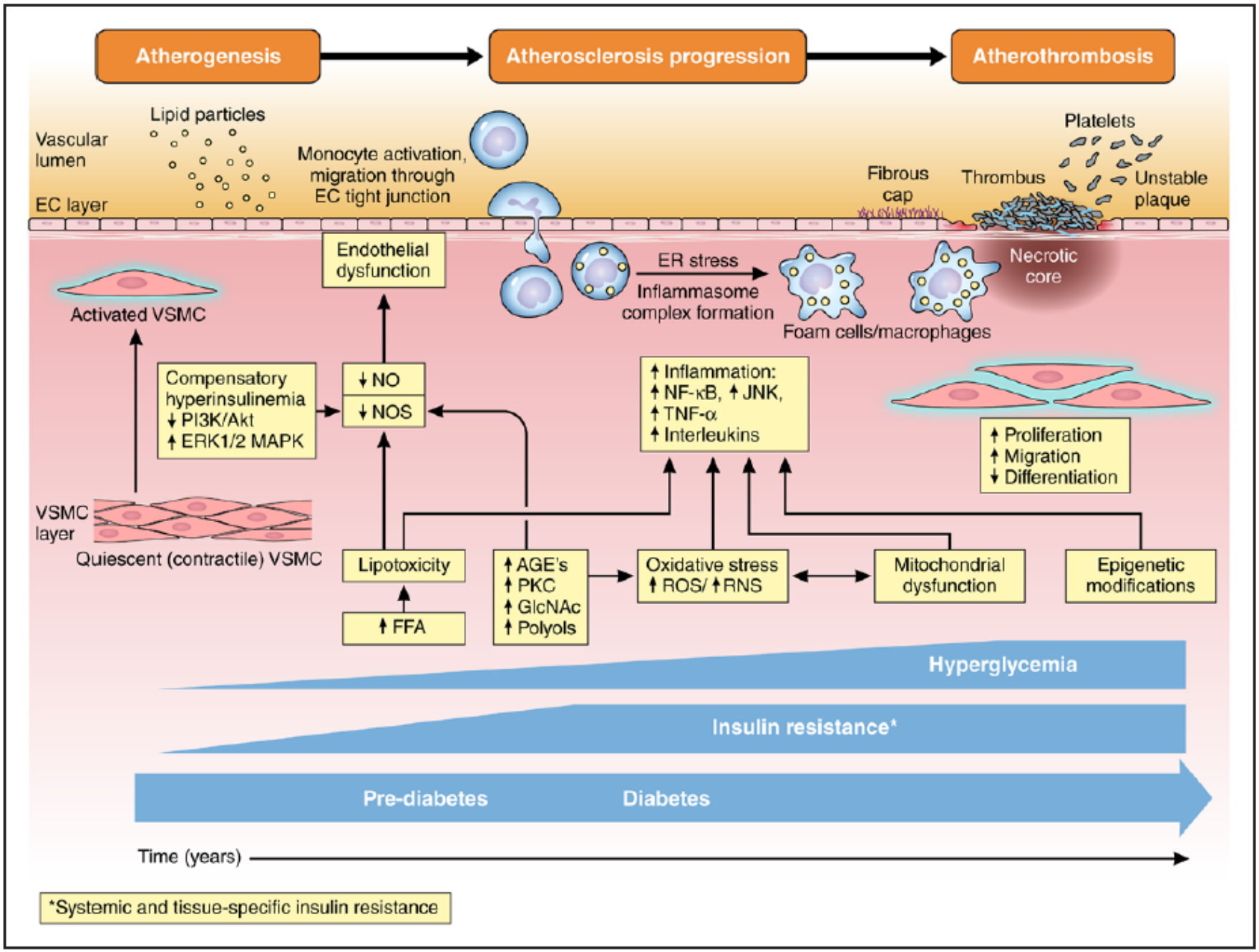


FIGURE 1: Pathogenesis of cardiovascular disease in diabetes. The mechanisms involved in the pathogenesis of cardiovascular disease in diabetes comprehend epigenetic changes and intracellular metabolic changes that result in oxidative stress, low-grade inflammation, and endothelial dysfunction. CRP: C-reactive protein; FFA: free fatty acids; INOS: inducible nitric oxide synthase; IL-1: interleukin 1; IL-6: interleukin 6; MCP-1: monocyte chemoattractant molecule 1; MMP: matrix metalloproitenase; NF-κB: nuclear factor kappa-β; PAI-1: plasminogen activator inhibitor-1; VCAM-1; vascular cell adhesion molecule-1; VEFG: vascular endothelial growth factor; TNF-α: Tumor necrosis factor-α; INF-γ: Interferon-γ.

Matheus et al. Int J Hypertens 2013



Low Wang et al, Circulation June 14, 2016

European Heart Journal (2015) **36**, 2630–2634
doi:10.1093/eurheartj/ehv350

REVIEW

Clinical update

The role of metabolic syndrome in heart failure

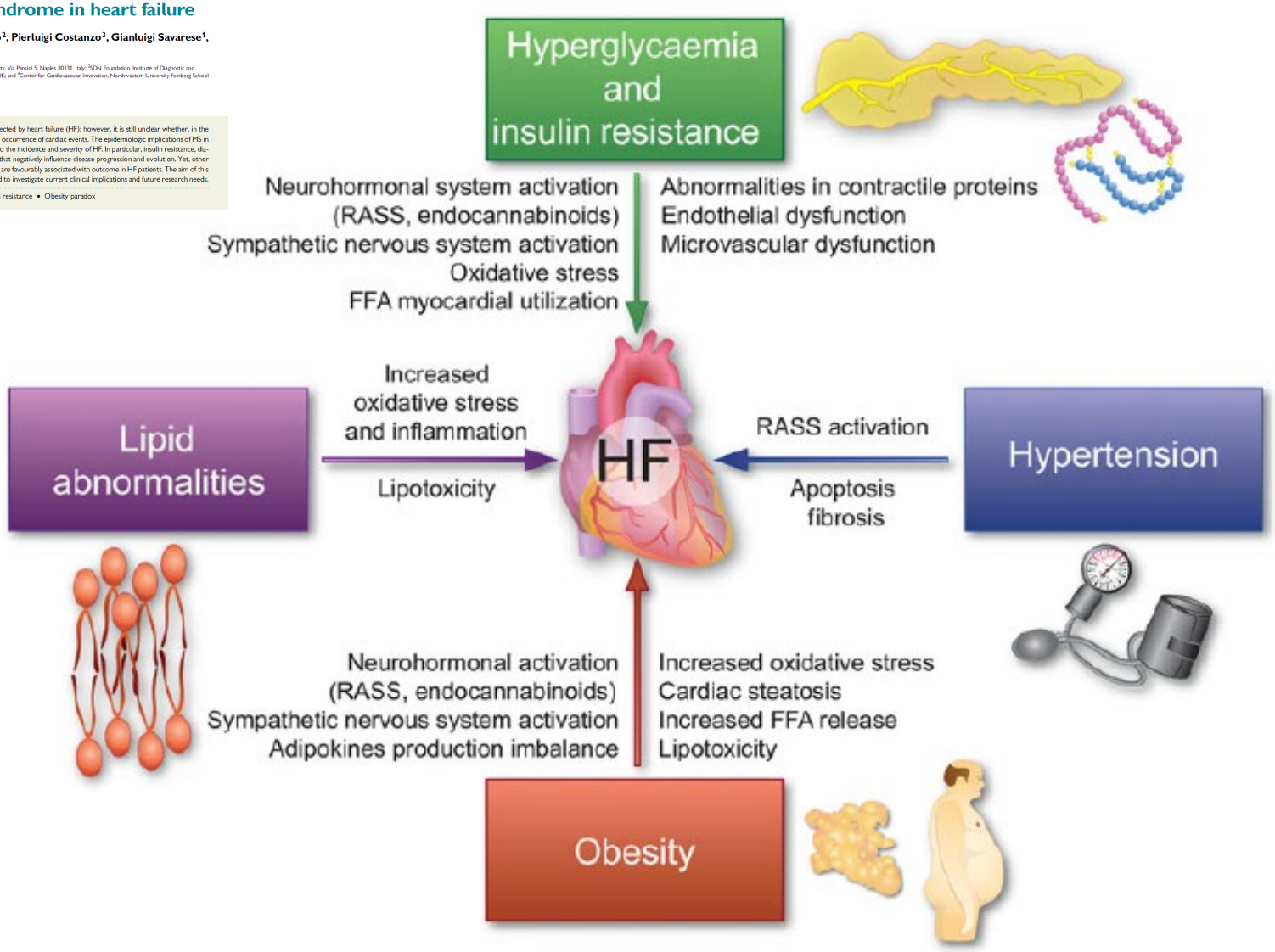
Pasquale Perrone-Filardi[1]*, Stefania Paolillo[2], Pierluigi Costanzo[3], Gianluigi Savarese[1], Bruno Trimarco[1], and Robert O. Bonow[4]

[1]Department of Advanced Biomedical Sciences, Section of Cardiology, Federico II University, Via Pansini 5, Naples 80131, Italy; [2]SDN Foundation, Institute of Diagnostic and Nuclear Development, Naples, Italy; [3]Academic Cardiology Unit, University of Hull, Hull, UK; and [4]Center for Cardiovascular Innovation, Northwestern University Feinberg School of Medicine, Northwestern Memorial Hospital, Chicago, IL, USA

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Metabolic syndrome (MS) is a highly prevalent condition in patients affected by heart failure (HF); however, it is still unclear whether, in the setting of cardiac dysfunction, it represents an adverse risk factor for the occurrence of cardiac events. The epidemiologic implications of MS in HF have been studied intensely, as many of its components contribute to the incidence and severity of HF. In particular, insulin resistance, diabetes mellitus, and lipid abnormalities represent the main components that negatively influence disease progression and evolution. Yet, other components of the MS, i.e. overweight/obesity and high blood pressure, are favourably associated with outcome in HF patients. The aim of this review was to report epidemiology and prognostic role of MS in HF and to investigate current clinical implications and future research needs.

Keywords Metabolic syndrome • Heart failure • Insulin resistance • Obesity paradox

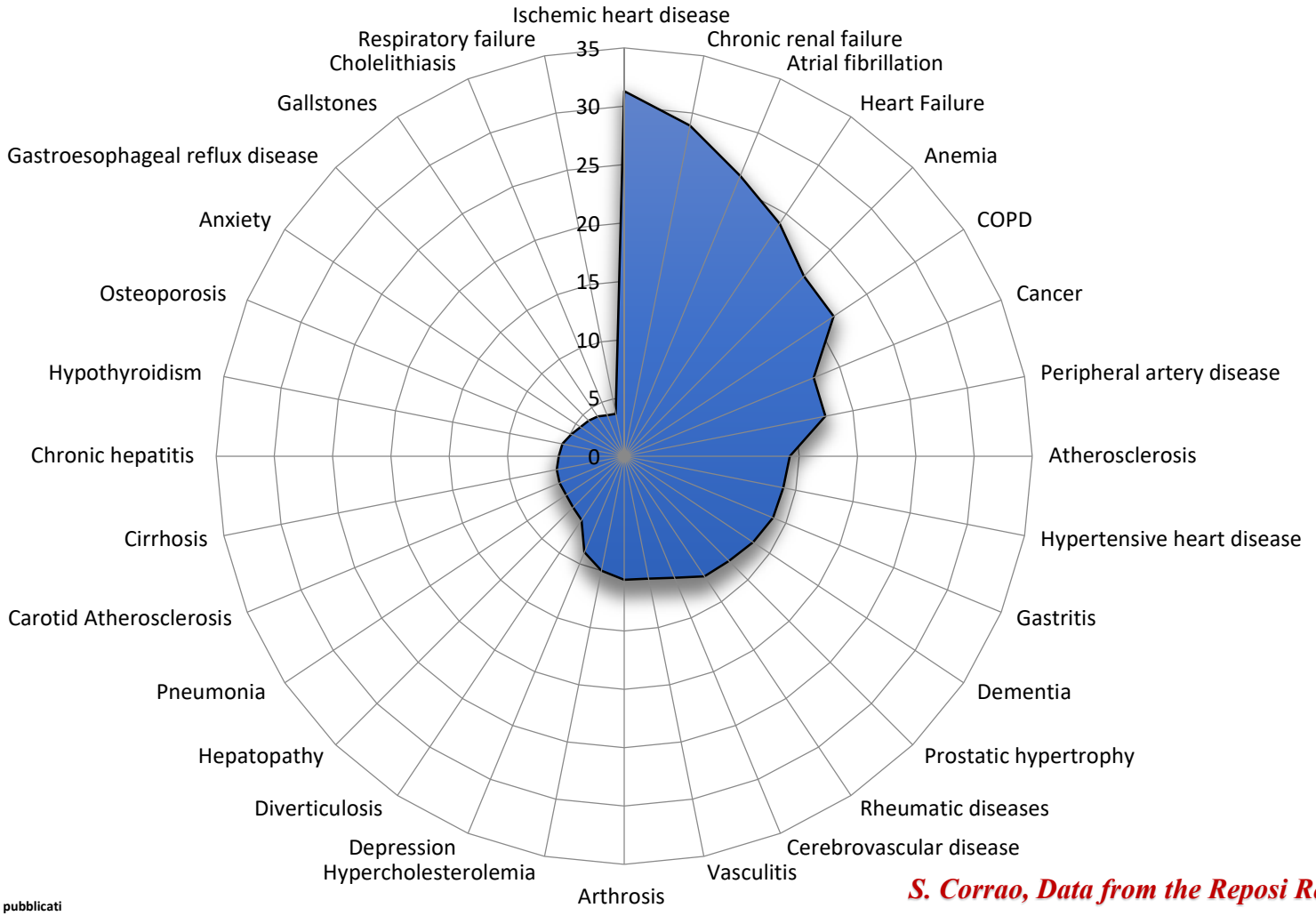


Perrone-Filardi P et al., Eur Heart j, 2015

Il Paziente REPOSI con Diabete

	Tutti i pazienti	Pazienti con Diabete
N (%)	4714	1378 (29,3%)
Età media	79.5 (79.3 - 79.7)	78.6 (78.3 - 79.0)
% donne	50.9	44.3
% ipertesi	59.1	61.6

Ipertensione Arteriosa 62%



S. Corrao, Data from the Reposi Registry

Registro REPOSI – Dati non pubblicati



PROSPETTO 7. Frequenza di dimissioni ospedaliere di persone di 65 anni e oltre in presenza o assenza della menzione di diabete sulla scheda di dimissione e misura dell'associazione tra alcune diagnosi e il diabete – Anno 2014

ICD9CM	DIAGNOSI	Dimissioni		RR (Rischio relativo standardizzato per età)	Intervallo di confidenza 95%
		Percentuale con diabete menzionato tra le diagnosi N=411.125	Percentuale senza diabete menzionato tra le diagnosi N=3.472.818		
001-139, 2791	Malattie infettive e parassitarie	5,0	3,7	1,3	1,3-1,4
140-239	Tumori	11,8	19,9	0,6	0,6-0,6
155	*tumori maligni del fegato e dei dotti biliari intraepatici*	0,9	0,7	1,4	1,3-1,4
157	*tumori maligni del pancreas*	0,6	0,5	1,2	1,1-1,2
240-249, 251-279	Malattie endocrine, nutrizionali e metaboliche (escluso il diabete)	17,2	8,2	2,1	2,1-2,1
272	*disturbi del metabolismo delle lipoproteine ed altre dislipidemie*	6,3	2,1	3,0	3,0-3,0
278	*obesità ed altre forme di iperalimentazione*	3,6	0,8	4,5	4,4-4,6
290-319	Disturbi psichici	5,7	4,6	1,2	1,2-1,3
320-359	Malattie del sistema nervoso	7,1	5,9	1,2	1,2-1,2
350-358	*polineuropatie ed altri disturbi del sistema nervoso periferico*	1,3	0,8	1,6	1,5-1,6
390-459	Malattie del sistema circolatorio	78,5	42,3	1,8	1,8-1,9
401-405	*malattie ipertensive*	43,0	15,9	2,7	2,7-2,7
410-414	*malattie ischemiche del cuore*	30,5	18,0	1,7	1,7-1,7
427	*disturbi del ritmo cardiaco*	16,2	11,1	1,4	1,4-1,4
428	*insufficienza cardiaca*	14,7	8,2	1,8	1,8-1,8
430-438	*malattie cerebrovascolari*	17,2	9,7	1,7	1,7-1,8
440	*arteriosclerosi*	5,3	1,6	3,3	3,3-3,4
460-519	Malattie del sistema respiratorio	24,3	16,7	1,4	1,4-1,5
490-496	*malattie croniche delle basse vie respiratorie*	12,5	6,9	1,8	1,8-1,8
520-579	Malattie del sistema digerente	14,3	14,4	1,0	1,0-1,0
570-573	*malattie del fegato*	4,5	2,1	2,2	2,2-2,2
577	*malattie del pancreas*	0,7	0,6	1,2	1,1-1,2
580-629	Malattie del sistema genitourinario	24,3	15,4	1,6	1,6-1,6
584-586	*insufficienza renale*	17,6	6,9	2,5	2,5-2,6
680-709	Malattie della pelle e del tessuto sottocutaneo	3,8	1,7	2,2	2,2-2,3
680-686	*infezioni diverse da sindrome stafilococcica*	0,6	0,3	2,4	2,3-2,5
7071	*ulcere arto inferiore NIA*	1,9	0,3	5,9	5,7-6,1
710-739	Malattie del sistema osteomuscolare e del tessuto connettivo	6,9	11,4	0,6	0,6-0,6
714	*poliartropatie infiammatorie*	0,5	0,4	1,3	1,3-1,4
7300-7302	*osteomielite*	0,5	0,1	5,8	5,5-6,2
780-799	Sintomi e segni	10,1	9,0	1,1	1,1-1,1
7854	*gangrena*	0,9	0,1	11,7	11,1-12,3

Fonte: Elaborazioni Istat su dati del Ministero della Salute, Schede di dimissione ospedaliera



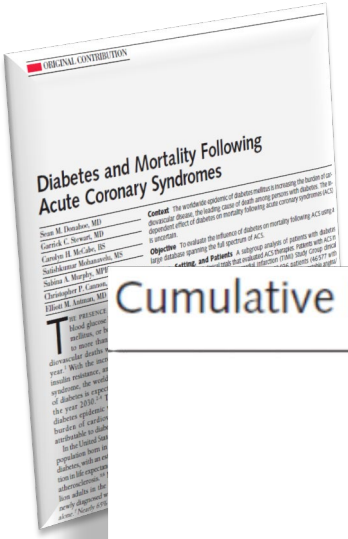
Prospetto 3. Frequenza di menzione di specifiche cause di morte nelle persone di 65 anni e oltre in presenza o assenza della menzione di diabete sullo stesso certificato e misura dell'associazione tra ciascuna causa e il diabete. Anno 2014

		Decessi		RR (Rischio relativo standardizzato per età)	Intervallo di confidenza 95%
		Percentuale con diabete menzionato tra le cause	Percentuale senza diabete menzionato tra le cause		
ICD-10	CAUSE DI MORTE	N=68.856	N=456.421		
A00-B99	Malattie infettive e parassitarie	10,6	8,8	1,1	1,1-1,2
A40-A41	*setticemia*	8,0	6,7	1,1	1,1-1,2
B15-B19	*epatite virale*	2,0	1,5	1,3	1,2-1,3
C00-D48	Tumori	22,6	33,1	0,6	0,6-0,7
E00-E09, E15-E99	Malattie endocrine, nutrizionali e metaboliche (esclusoil diabete)	9,9	5,9	1,7	1,6-1,7
E00-E07	*disturbi della tiroide*	1,5	1,0	1,5	1,4-1,6
E65-E68	*obesità ed altre forme di iperalimentazione*	2,2	0,5	4,0	3,7-4,3
E78	*disturbi del metabolismo delle lipoproteine ed altre dislipidemie*	1,2	0,4	2,5	2,3-2,7
E86	*ipovolemia*	1,2	1,2	1,1	1,0-1,2
F00-F99	Disturbi psichici	7,4	7,8	1,0	1,0-1,0
G00-G99	Malattie del sistema nervoso	10,4	11,1	0,9	0,9-0,9
G45	*attacchi cerebrovascolari ischemici transitori e sindromi correlate*	0,5	0,5	1,2	1,1-1,3
G81	*emiplegia*	1,1	0,8	1,4	1,3-1,5
H00-H59	Malattie dell'occhio e degli annessi oculari	0,6	0,3	2,0	1,8-2,2
I00-I99	Malattie del sistema circolatorio	87,4	71,5	1,2	1,2-1,2
I10-I15	*malattie ipertensive*	33,3	17,3	2,0	1,9-2,0
I20-I25	*malattie ischemiche del cuore*	30,5	18,0	1,7	1,7-1,7
I35	*disturbi non reumatici della valvola aortica*	1,6	1,4	1,1	1,0-1,2
I42	*cardiomiopatia*	1,4	1,1	1,3	1,2-1,4
I44	*blocco atrioventricolare e blocco di branca sinistra*	0,5	0,3	1,6	1,5-1,8
I45	*altri disturbi di conduzione*	0,6	0,5	1,3	1,2-1,4
I48	*fibrillazione e flutter atriali*	13,5	10,2	1,3	1,3-1,4
I50	*insufficienza cardiaca*	9,4	7,9	1,2	1,2-1,3
I51	*complicanze e descrizioni mal definite di cardiopatia*	20,5	16,8	1,2	1,2-1,3
I60-I69	*malattie cerebrovascolari*	23,7	19,3	1,2	1,2-1,3
I70	*aterosclerosi*	2,8	2,1	1,4	1,3-1,5
I73	*altre malattie vascolari periferiche*	2,5	0,9	2,7	2,5-2,8
I74	*embolia e trombosi arteriose*	1,1	0,4	2,5	2,3-2,8
I77	*altri disturbi di arterie e arteriole*	1,0	0,4	2,6	2,3-2,8
J00-J99	Malattie del sistema respiratorio	33,4	33,1	1,0	1,0-1,0
J42-J44	*malattie croniche delle basse vie respiratorie*	12,1	9,7	1,2	1,2-1,3
K00-K99	Malattie del sistema digerente	10,4	10,7	0,9	0,9-1,0
K70-K77	*malattie del fegato*	4,8	4,0	1,1	1,1-1,1
L00-L99	Malattie della pelle e del tessuto sottocutaneo	2,9	1,9	1,5	1,5-1,6
L89	*ulcere da decubito*	2,0	1,5	1,4	1,3-1,5
M00-M99	Malattie del sistema osteomuscolare e del tessuto connettivo	2,6	2,7	1,0	0,9-1,0
N00-N99	Malattie del sistema genitourinario	26,2	15,4	1,7	1,7-1,7
N17-N19	*insufficienza renale*	24,0	13,6	1,8	1,7-1,8
N00-N16, N20-N99	*altre malattie del rene*	3,2	2,5	1,3	1,2-1,3
N39	*altri disturbi dell'apparato urinario*	1,5	1,1	1,4	1,3-1,5
R00-R99	Sintomi e segni	43,4	44,8	1,0	1,0-1,0
R02	*gangrena*	1,5	0,4	4,1	3,8-4,4
V01-Y98	Cause esterne	5,8	6,8	0,9	0,8-0,9

Fonte: Istat, Indagine sui decessi e le cause di morte

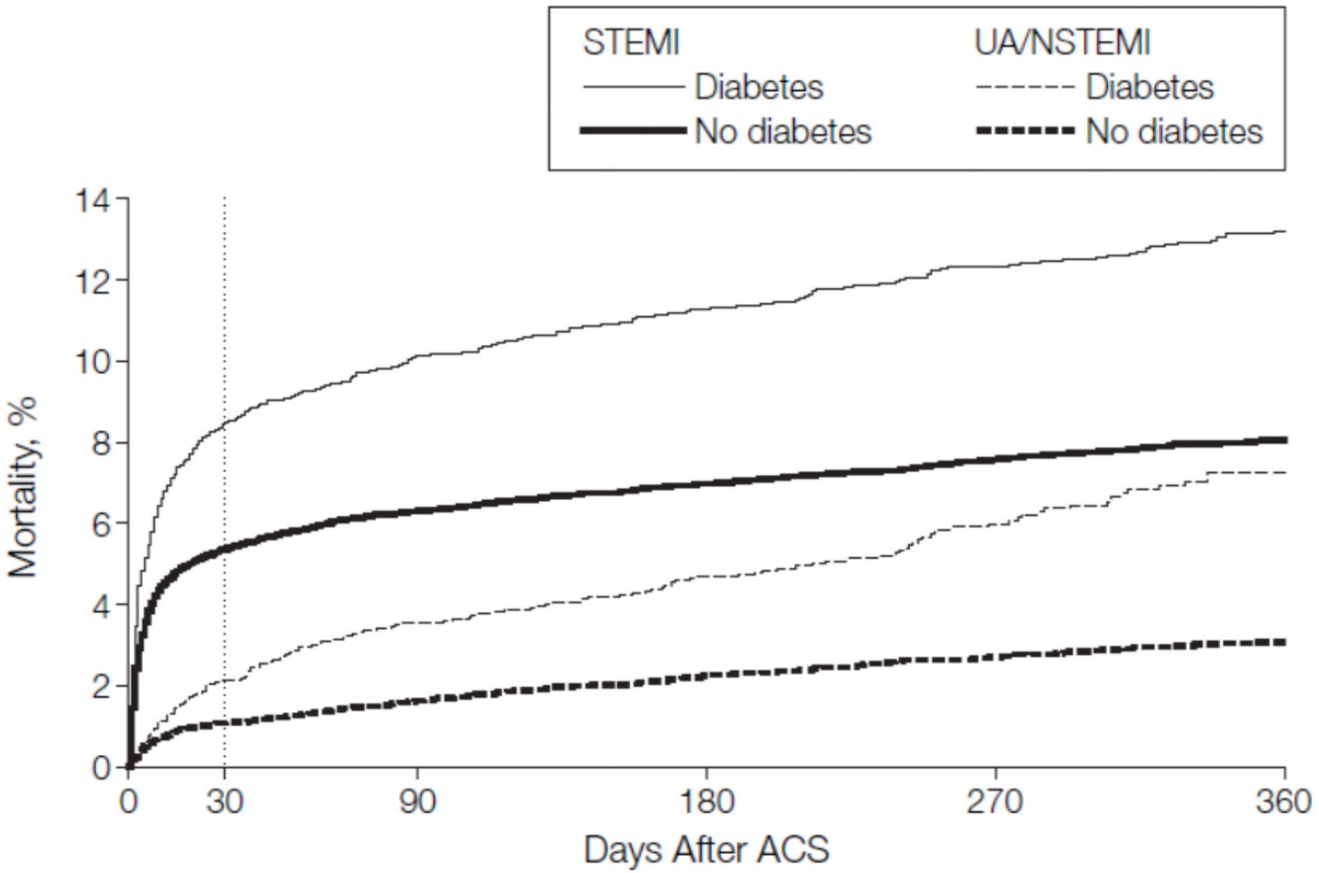
PROSPETTO 30. Rischio di ricovero in ospedale per specifiche cause per soggetti con diabete rispetto a soggetti di pari età e sesso, ma senza diabete
(Studio DADA)

Complicanze e patologie concomitanti	Rischio di ricovero in presenza di diabete
Infarto del miocardio	1,85 (1,77-1,92)
Cardiopatia ischemica	2,47 (2,41-2,53)
Scompenso cardiaco	2,48 (2,40-2,56)
Aritmie	1,49 (1,45-1,53)
Complicanze cerebrovascolari	2,02 (1,97-2,07)
Ictus ischemico	2,07 (1,96-2,18)
Ictus emorragico	1,26 (1,12-1,40)
Complicanze renali	2,82 (2,73-2,91)
Neuropatia	3,77 (3,55-4,00)
Complicanze oculari	1,74 (1,70-1,79)
Complicanze arti inferiori	6,01 (5,44-6,64)
Vasculopatia periferica	4,09 (3,94-4,24)
Amputazioni	8,77 (7,16-10,8)
Malattie infettive	1,87 (1,83-1,90)


ORIGINAL CONTRIBUTION

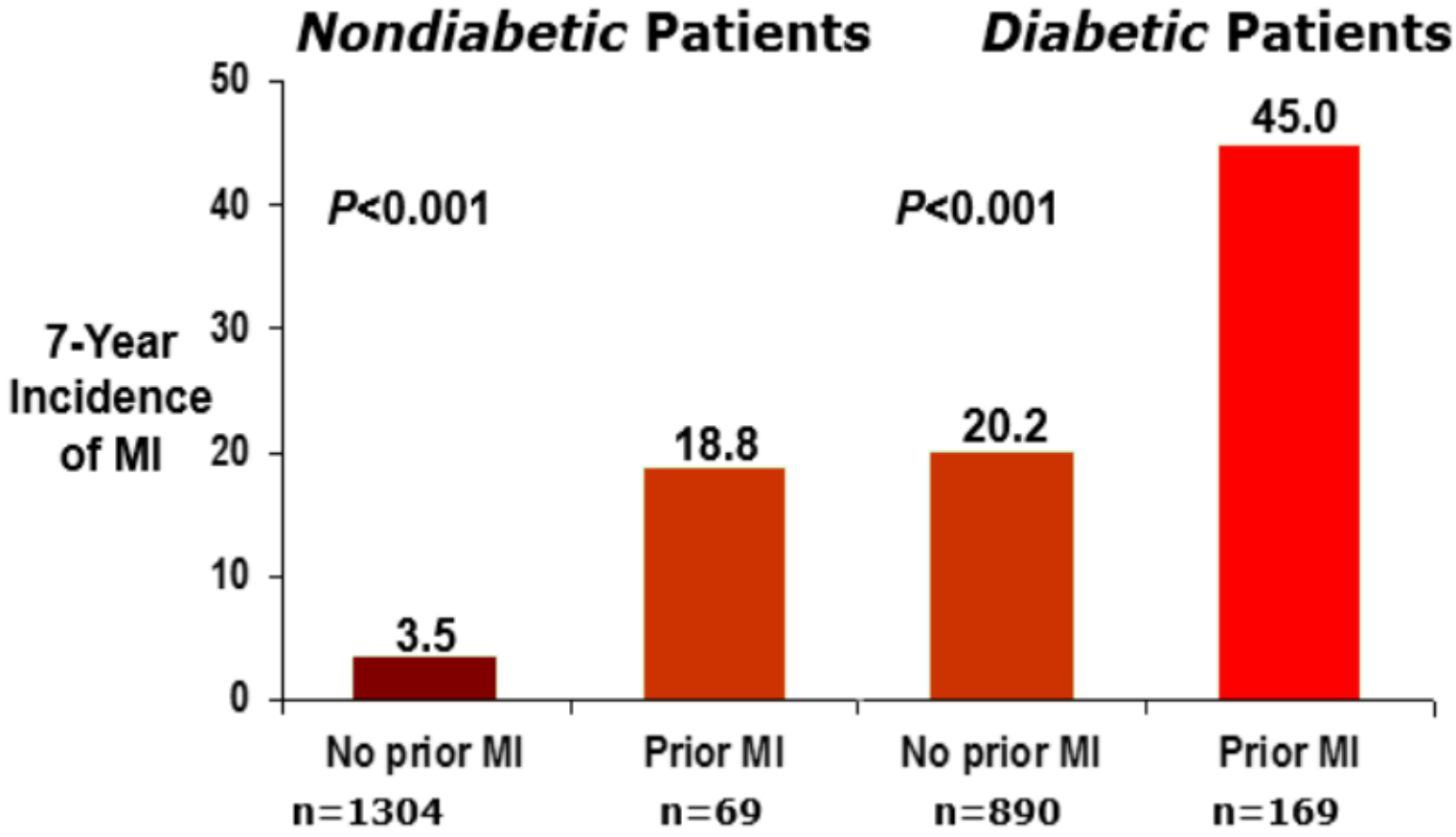
Diabetes and Mortality Following Acute Coronary Syndromes

Cumulative Incidence of All-Cause Mortality Through 1 Year After ACS



Donahoe SM et al. JAMA 2007

Diabetes is a CVD Risk Equivalent



More recent studies suggest that this is perhaps only true for those with fairly long-standing diabetes – duration over ten years.

Haffner SM et al. *N Engl J Med.* 1998;339:229; *Arch Intern Med.* 2011;171:404

ESC European Society of Cardiology
European Heart Journal (2018) 00, 1–33
doi:10.1093/eurheartj/ehy462
EXPERT CONSENSUS DOCUMENT

Fourth universal definition of myocardial infarction (2018)

Kristian Thygesen* (Denmark), Joseph S. Alpert* (USA), Allan S. Jaffe (USA), Bernard R. Chaitman (USA), Jeroen J. Bax (The Netherlands), David A. Morrow (USA), Harvey D. White* (New Zealand): the Executive Group on behalf of the European Society of Cardiology (ESC)/American College of Cardiology (ACC)/ American Heart Association (AHA)/World Heart Federation (WHF) Task Force for the Universal Definition of Myocardial Infarction

Authors/Task Force Members/Chairpersons: Kristian Thygesen* (Denmark), Joseph S. Alpert* (USA), Allan S. Jaffe (USA), Bernard R. Chaitman (USA), Jeroen J. Bax (The Netherlands), David A. Morrow (USA), Harvey D. White* (New Zealand), Hans Mickley (Denmark), Filippo Crea (Italy), Frans Van de Werf (Belgium), Bucciarelli-Ducci (UK), Hugo A. Katus (Germany), Fausto J. Pinto (Portugal), M. Antman (USA), Christian W. Hamm (Germany), Raffaele De Caterina (Italy), James L. Januzzi Jr (USA), Fred S. Apple (USA), Maria Angeles Alonso Garcia (Spain), S. Richard Underwood (UK), John M. Canty Jr (USA), Alexander R. Lyon (UK), P. J. Devereaux (Canada), Jose Luis Zamorano (Spain), Bertil Lindahl (Sweden), William S. Weintraub (USA), L. Kristin Newby (USA), Renu Virmani (USA), Pascal Vranckx (Belgium), Don Cutlip (USA), Raymond J. Gibbons (USA), Sidney C. Smith (USA), Dan Atar (Norway), Russell V. Luepker (USA), P. Gabriel Steg (France), Patrick Robertson (USA), Robert O. Bonow (USA), Keith A. A. Fox (UK), O'Gara (USA)

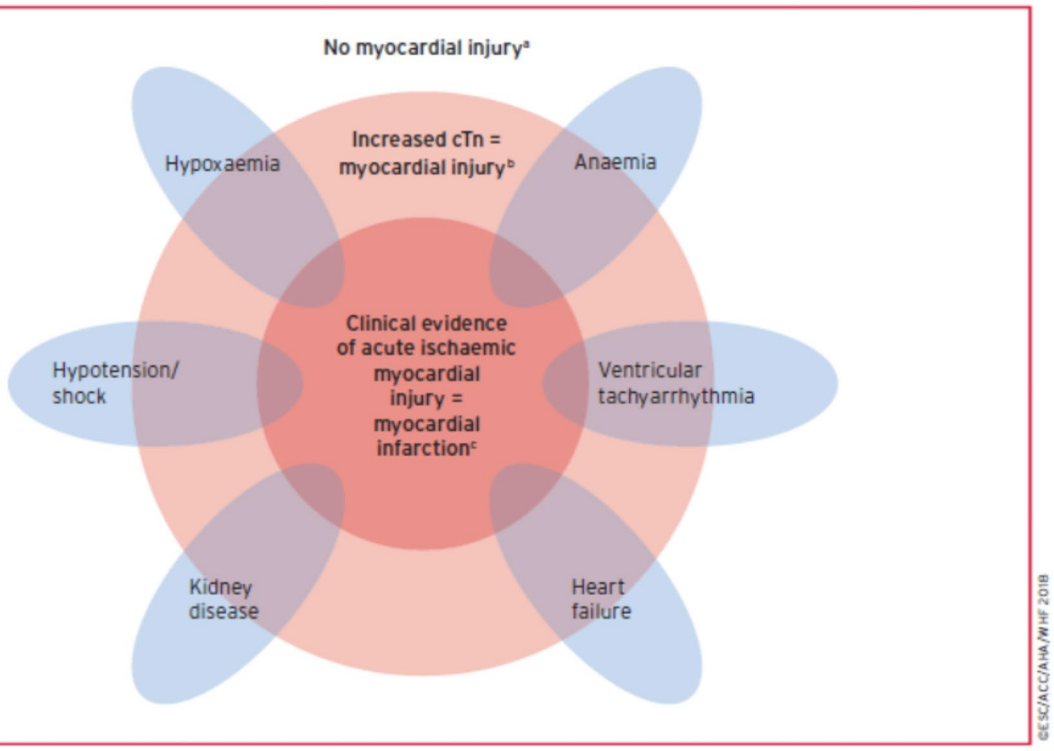


Figure 2 Spectrum of myocardial injury, ranging from no injury to myocardial infarction. Various clinical entities may involve these myocardial categories, e.g. ventricular tachyarrhythmia, heart failure, kidney disease, hypotension/shock, hypoxaemia, and anaemia. cTn = cardiac troponin; URL = = cTn values ≤ 99th percentile URL or not detectable. [b]Myocardial injury = cTn values > 99th percentile e of myocardial ischaemia and a rise and/or fall of cTn values > 99th percentile URL.

Clinical criteria for MI

The clinical definition of MI denotes the presence of acute myocardial injury detected by abnormal cardiac biomarkers in the setting of evidence of acute myocardial ischaemia.

Criteria for myocardial injury

Detection of an elevated cTn value above the 99th percentile URL is defined as myocardial injury. The injury is considered acute if there is a rise and/or fall of cTn values.



ESC European Society of Cardiology

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2.1.1 Definizione universale di infarto miocardico

La definizione di infarto miocardico (IM) acuto sta ad indicare la presenza di miocitonecrosi nel contesto di un quadro clinico suggestivo di ischemia miocardica acuta[2]. La diagnosi di IM acuto viene posta sulla base della combinazione di alcuni criteri, in particolare il riscontro di un aumento e/o di una diminuzione dei marcatori biochimici cardiaci, preferibilmente delle troponine ad alta sensibilità, con almeno un valore al di sopra del 99° percentile del limite superiore di riferimento, associato ad almeno uno dei seguenti:

1. sintomi di ischemia,
2. nuove anomalie ST-T o nuovo blocco di branca sinistra all'ECG a 12 derivazioni,
3. comparsa di onde Q patologiche all'ECG,
4. riscontro alle indagini di imaging di una nuova perdita di miocardio vitale o di nuove alterazioni della cinesi parietale regionale,
5. rilievo angiografico o autoptico di trombosi intracoronarica.

Table 2 Electrocardiographic manifestations suggestive of acute myocardial ischaemia (in the absence of left ventricular hypertrophy and bundle branch block)

ST-elevation
New ST-elevation at the J-point in two contiguous leads with the cut-point: ≥1 mm in all leads other than leads V_2–V_3 where the following cut-points apply: ≥ 2mm in men ≥ 40 years; ≥ 2.5 mm in men < 40 years, or ≥1.5 mm in women regardless of age.[a]
ST-depression and T wave changes
New horizontal or downsloping ST-depression ≥ 0.5 mm in two contiguous leads and/or T inversion > 1 mm in two contiguous leads with prominent R wave or R/S ratio > 1.

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[a]When the magnitudes of J-point elevation in leads V2 and V3 are registered from a prior electrocardiogram, new J-point elevation ≥ 1 mm (as compared with the earlier electrocardiogram) should be considered an ischaemic response. For bundle branch block, see section below.

ESC GUIDELINES

ESC European Society of Cardiology

European Heart Journal (2018) 39, 119–177
doi:10.1093/eurheartj/ehx393

2017 ESC Guidelines for the management of acute myocardial infarction in patients presenting with ST-segment elevation

The Task Force for the management of acute myo
in patients presenting with ST-segment elevation
Society of Cardiology (ESC)

Authors/Task Force Members: Borja Ibanez* (Chairperson) (
(Chairperson) (Sweden), Stefan Agewall (Norway), Manuel J
Chiara Bucciarelli-Ducci (UK), Héctor Bueno (Spain), Alida
Filippo Crea (Italy), John A. Goudevenos (Greece), Sigrun H
Gerhard Hindricks (Germany), Adnan Kastrati (Germany),
(The Netherlands), Eva Prescott (Denmark), Marco Roffi (S
Marco Valgimigli (Switzerland), Christoph Varenhorst (Swe
(Belgium), Petr Widimsky (Czech Republic)

Document Reviewers: Jean-Philippe Collet (CPG Review Coordinator) (Fra
Steen Dalby Kristensen (CPG Review Coordinator) (Denmark), Victor Abo

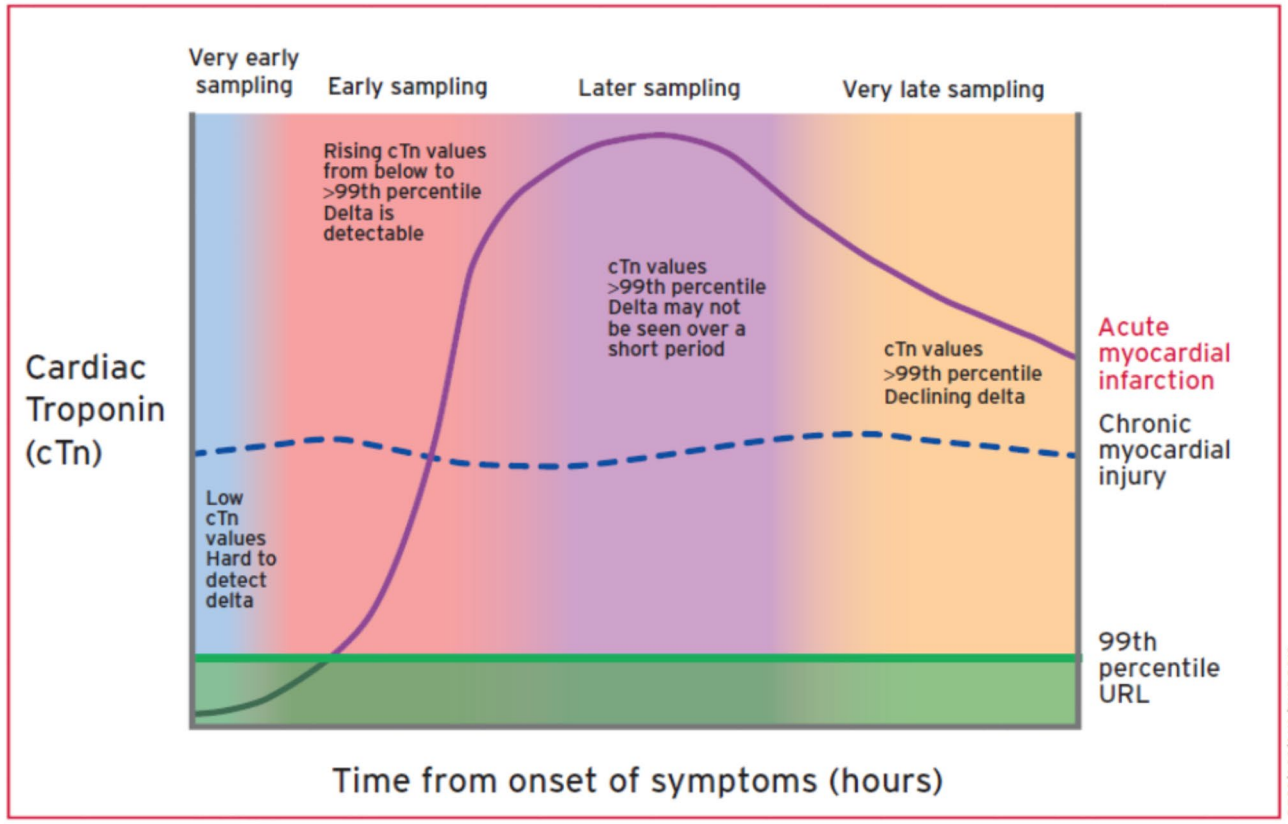


Figure 7 Illustration of early cardiac troponin kinetics in patients after acute myocardial injury including acute myocardial infarction. The timing of biomarker release into the circulation is dependent on blood flow and how soon after the onset of symptoms samples are obtained. Thus, the ability to consider small changes as diagnostic can be problematic. In addition, many comorbidities increase cTn values and, in particular, hs-cTn values, so that elevations can be present at baseline even in those with myocardial infarction who present early after the onset of symptoms. Changes in cTn values or deltas can be used to define acute compared with chronic events, and the ability to detect these is indicated in the figure. Increased cTn values can often be detected for days after an acute event. cTn = cardiac troponin; URL = upper reference limit.



ESC European Society of Cardiology

European Heart Journal (2018) 00, 1–33 doi:10.1093/eurheartj/ehy462

EXPERT CONSENSUS DOCUMENT

Fourth universal definition of myocardial infarction (2018)

Kristian Thygesen* (Denmark), Joseph S. Alpert* (USA), Allan S. Jaffe (USA), Bernard R. Chaitman (USA), Jeroen J. Bax (The Netherlands), David A. Morrow (USA), Harvey D. White* (New Zealand); the Executive Group on behalf of the European Society of Cardiology (ESC)/American College of Cardiology (ACC) American Heart Association (AHA)/World Heart Federation (WHF) Task Force for the Universal Definition of Myocardial Infarction

Authors/Task Force Members/Chairpersons: Kristian Thygesen* (Denmark), Joseph S. Alpert* (USA), Allan S. Jaffe (USA), Bernard R. Chaitman (USA), Jeroen J. Bax (The Netherlands), David A. Morrow (USA), Harvey D. White* (New Zealand), Hans Mickley (Denmark), Filippo Crea (Italy), Frans Van de Werf (Belgium), Bucciarelli-Ducci (UK), Hugo A. Katus (Germany), Fausto J. Pinto (Portugal), M. Antman (USA), Christian W. Hamm (Germany), Raffaele De Caterina (Italy), James L. Januzzi Jr (USA), Fred S. Apple (USA), Maria Angeles Alonso Garcia (Spain), S. Richard Underwood (UK), John M. Canty Jr (USA), Alexander R. (UK), P. J. Devereaux (Canada), Jose Luis Zamorano (Spain), Bertil Lindahl (Sweden), William S. Weintraub (USA), L. Kristin Newby (USA), Renu Virmani (USA), Pascal Vranckx (Belgium), Don Cutlip (USA), Raymond J. Gibbons (USA), Sidney C. Smith (USA), Dan Atar (Norway), Russell V. Luepker (USA), Ross Robertson (USA), Robert O. Bonow (USA), P. Gabriel Steg (France), Patrick O'Gara (USA), Keith A. A. Fox (UK)

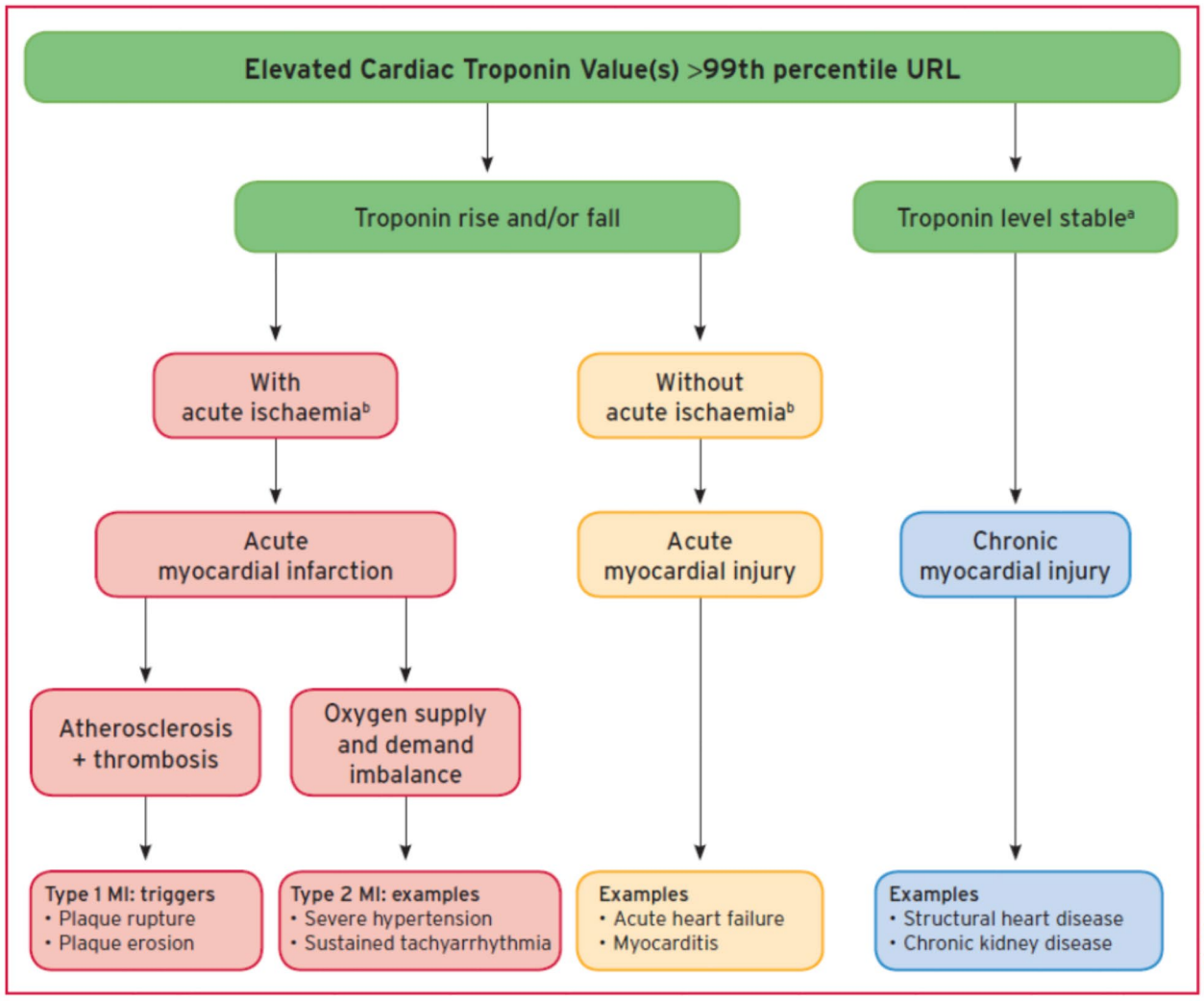


Figure 6 A model for interpreting myocardial injury. Ischaemic thresholds vary substantially in relation to the magnitude of the stressor and the extent of underlying cardiac disease. MI = myocardial infarction; URL = upper reference limit. [a]Stable denotes ≤ 20% variation of troponin values in the appropriate clinical context. [b]Ischaemia denotes signs and/or symptoms of clinical myocardial ischaemia.

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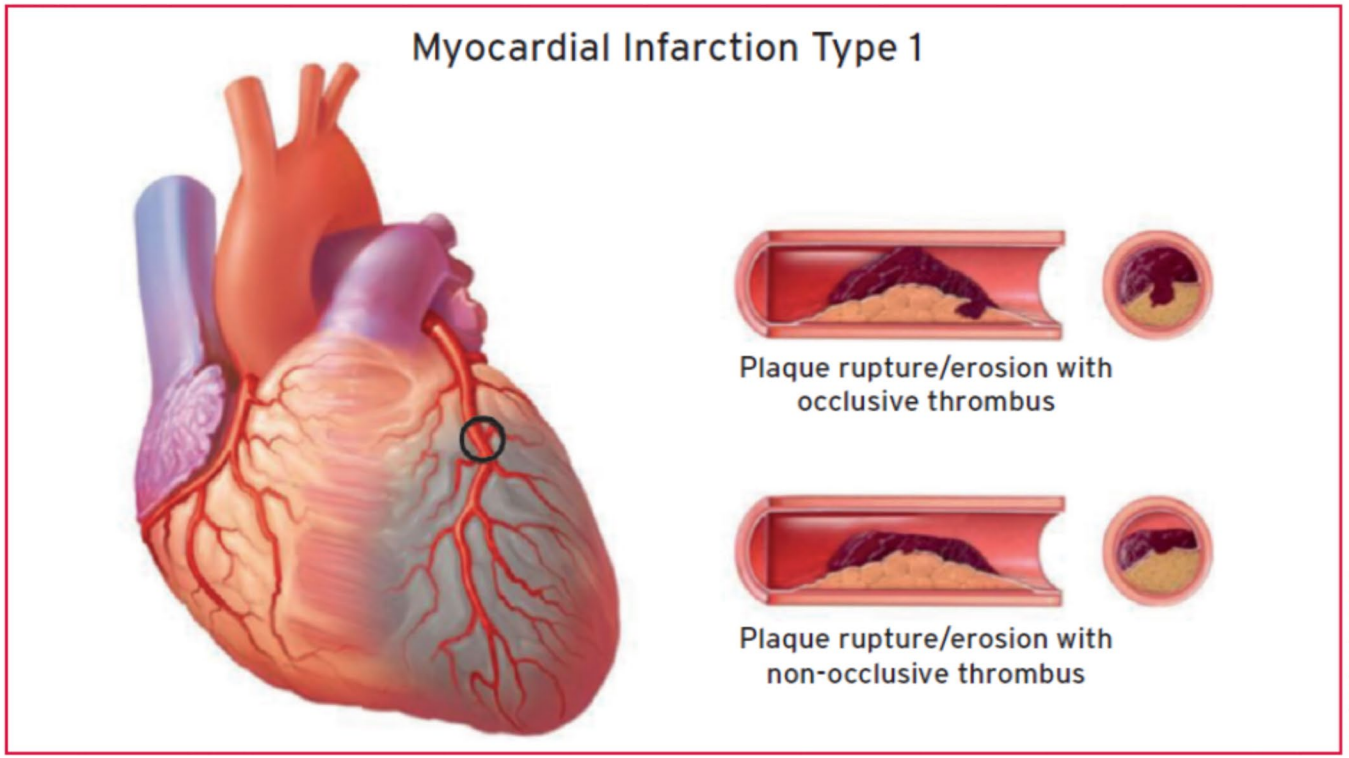
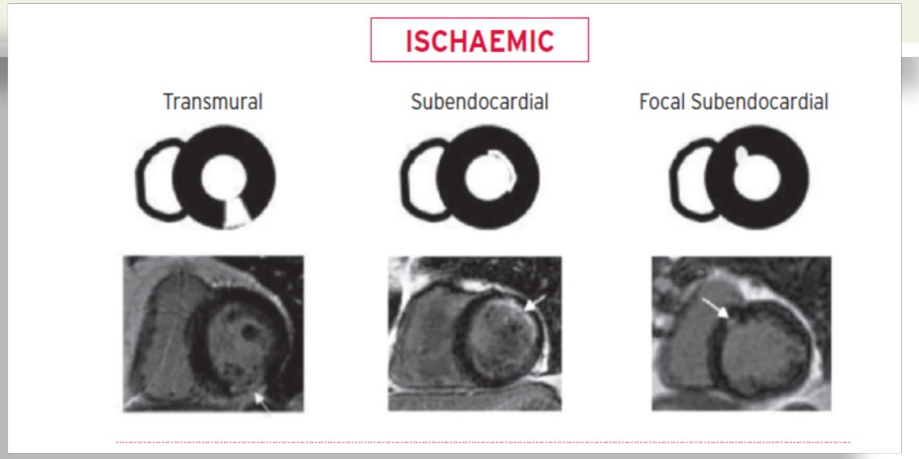


Figure 3 Myocardial infarction type 1.



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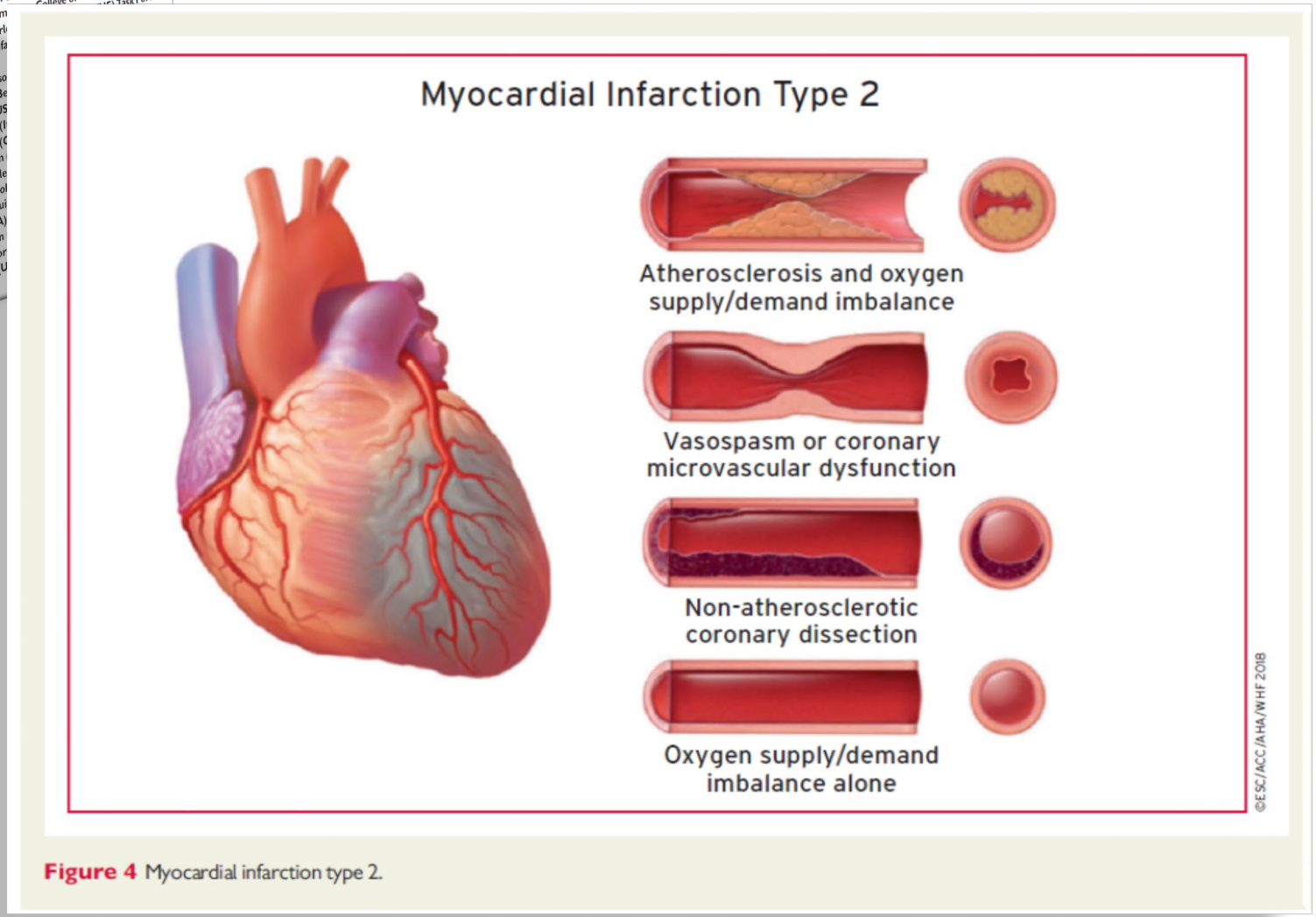


Figure 4 Myocardial infarction type 2.

Myocardial Infarction Subtypes in Patients With Type 2 Diabetes Mellitus and the Effect of Liraglutide Therapy (from the LEADER Trial)

Steven P. Marso, MD[a,*], Michael A. Nauck, MD[b], Tea Monk Fries, MD PhD[c], Søren Rasmussen, PhD[c], Marianne Bach Treppendahl, MD PhD[c], and John B. Buse, MD PhD[d] the LEADER Publication Committee on behalf of the LEADER Trial Investigators

Table 1
All myocardial infarctions and symptomatic myocardial infarctions according to subtype

Variable	Liraglutide, events	Placebo, events	*p*-value
All myocardial infarctions	359 (100%)	421 (100%)	0.022*
First	292 (81%)	339 (81%)	–
Recurrent	67 (19%)	82 (19%)	–
Symptomatic myocardial infarction	297 (83%)	344 (82%)	–
Silent myocardial infarction	62 (17%)	77 (18%)	–
Outcome			
Nonfatal / fatal	342 (95%) / 17 (5%)	393 (93%) / 28 (7%)	0.28†
Symptomatic myocardial infarctions	297 (100%)	344 (100%)	
ST-segment elevation myocardial infarction / non–ST-segment elevation myocardial infarction	48 (16%) / 249 (84%)	38 (11%) / 306 (89%)	0.06†
Type‡			
1 / 2–5	241 (81%) / 56 (19%)	277 (81%) / 67 (19%)	0.92†
2	43 (14%)	43 (13%)	–
3	5 (2%)	10 (3%)	–
4a	4 (1%)	7 (2%)	–
4b	4 (1%)	7 (2%)	–
5	0 (0%)	0 (0%)	–
Troponin available§	229 (100%)	282 (100%)	
≤5x upper reference limit / > 5x upper reference limit	90 (39%) / 139 (61%)	93 (33%) / 189 (67%)	0.16†
≤10x upper reference limit / > 10x upper reference limit	111 (48%) / 118 (52%)	126 (45%) / 156 (55%)	0.42†

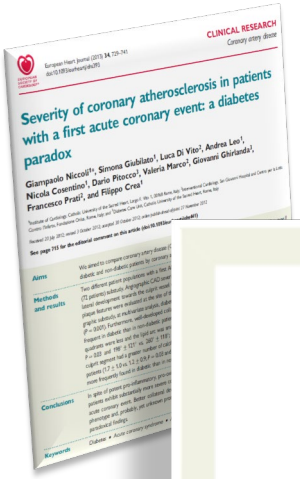
* Poisson regression adjusted for individual trial observation time.

† Fisher's exact test.

‡ Type 1, spontaneous myocardial infarction; type 2, myocardial infarction secondary to ischemia, due to an imbalance between oxygen supply and demand; type 3, sudden cardiac death due to suspected myocardial infarction; type 4a, myocardial infarction associated with percutaneous coronary intervention; type 4b, myocardial infarction associated with stent thrombosis; type 5, myocardial infarction associated with coronary artery bypass graft.

§ Includes patients within each treatment arm with troponin levels available.

Am J Cardiol 2018;121:1467–1470



Severity of coronary atherosclerosis in patients with a first acute coronary event: a diabetes paradox

Giampaolo Niccoli[1*], Simona Giubilato[1], Luca Di Vito[2], Andrea Leo[1], Nicola Cosentino[1], Dario Pitocco[3], Valeria Marco[1], Giovanni Ghirlanda[3], Francesco Prati[2], and Filippo Crea[1]

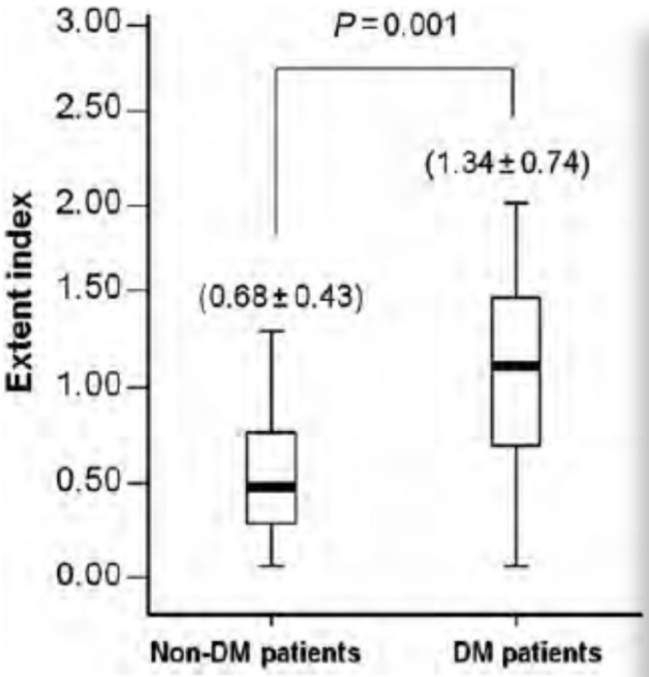


Figure 2 Extent index and age according to the presence or absence of diabetes mellitus. Diabetic patients had a significantly higher extent index when compared with patients without diabetes mellitus ($P = 0.001$), while age did not differ between the two groups.

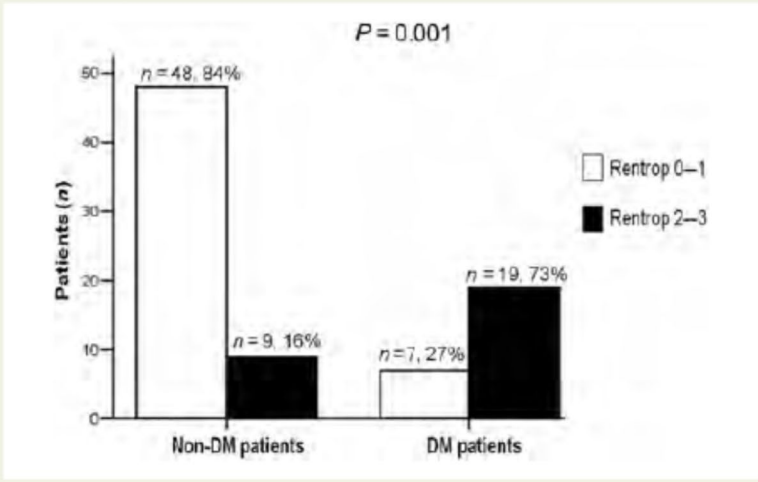
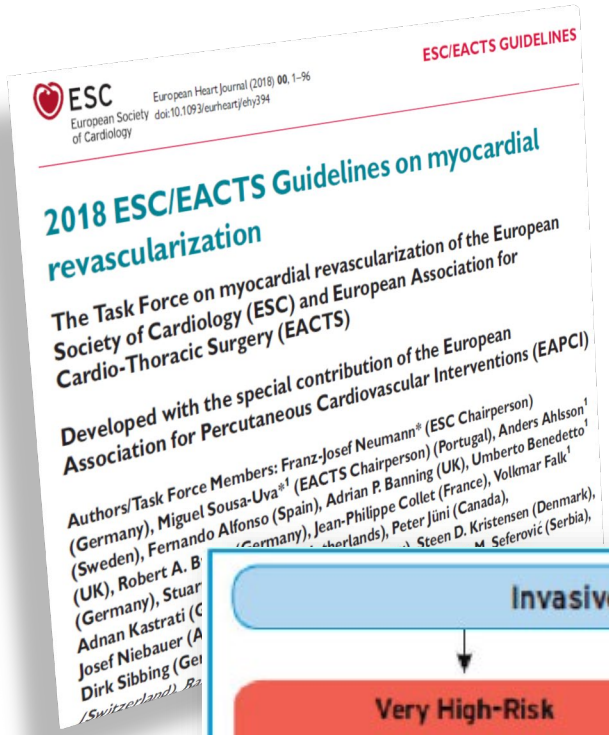


Figure 3 The rate of Rentrop 0–1 and Rentrop 2–3 in patients with and without diabetes mellitus. Good collaterals were more frequent in diabetics than in non-diabetic patients ($P = 0.001$).

Niccoli G. et al. European Heart Journal 2013



ESC European Society of Cardiology

European Heart Journal (2018) 00, 1–96 doi:10.1093/eurheart/ehy394

ESC/EACTS GUIDELINES

2018 ESC/EACTS Guidelines on myocardial revascularization

The Task Force on myocardial revascularization of the European Society of Cardiology (ESC) and European Association for Cardio-Thoracic Surgery (EACTS)

Developed with the special contribution of the European Association for Percutaneous Cardiovascular Interventions (EAPCI)

Authors/Task Force Members: Franz-Josef Neumann* (ESC Chairperson) (Germany), Miguel Sousa-Uva*[1] (EACTS Chairperson) (Portugal), Anders Ahlsson[1] (Sweden), Fernando Alfonso (Spain), Adrian P. Banning (UK), Umberto Benedetto[1] (UK), Robert A. B
(Germany), Stuar
Adnan Kastrati (C
Josef Niebauer (A
Dirk Sibbing (Ge
(Switzerland), Ra
(Germany), Jean-Philippe Collet (France), Volkmar Falk[1]
herlands), Peter Jüni (Canada),
Steen D. Kristensen (Denmark),
M. Seferović (Serbia),

GRACE score

)(Global Registry of Acute Coronary Events

)Age (years	
40>	0
49–40	18
59–50	36
69–60	55
79–70	73
80≤	91

)Heart rate (bpm	
70>	0
89–70	7
109–90	13
149–110	23
199–150	36
200<	46

)Systolic BP (mmHg	
80>	63
99–80	58
119–100	47
139–120	37
159–140	26
199–160	11
200<	0

Killip class	
Class I	0
Class II	21
Class III	43
Class IV	64

Creatinine (mg/dL)	
0.0- 0.39	2
0.4–0.79	5
0.8–1.19	8
1.2–1.59	11
1.6–1.99	14
0.2–3.99	23
>4	31

Cardiac arrest at admission	43
Elevated cardiac markers	15
ST-segment deviation	30

Eur Heart J 2005; 26 (9):865-872.

Invasive evaluation in Non-ST-Elevation Acute Coronary Syndromes

Very High-Risk

- Haemodynamic instability or cardiogenic shock
- Recurrent/ongoing chest pain refractory to medical txt
- Life-threatening arrhythmias or cardiac arrest
- Mechanical complications of MI
- Acute heart failure
- Recurrent dynamic ST-T wave changes[a]

High-Risk

- Established diagnosis of non-ST-elevation myocardial infarction based on cardiac troponins
- Dynamic ST/T-changes (symptomatic or silent)
- GRACE score >140

Intermediate Risk

- Diabetes mellitus or renal insufficiency[b]
- LVEF <40% or congestive heart failure
- Early post-infarction angina or prior PCI/CABG
- GRACE risk score >109 and <140 or recurrent symptoms/ischaemia on non-invasive testing.

Immediate Invasive (<2 hours) IC

Early Invasive (<24 hours) IA

Invasive (<72 hours) IA

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CABG = coronary artery bypass grafting; GRACE = Global Registry of Acute Coronary Events; LVEF = left ventricular ejection fraction; MI =myocardial infarction; PCI = percutaneous coronary intervention.

[a]Particularly intermittent ST-elevation; [b]Estimated glomerular filtration rate <60mL/min/1.73m²

According to ESC NSTE-ACS 2015 Guidelines

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An Invasive or Conservative Strategy in Patients With Diabetes Mellitus and Non–ST-Segment Elevation Acute Coronary Syndromes

A Collaborative Meta-Analysis of Randomized Trials

Michelle L. O'Donoghue, MD, MPH,* Ajay Vaidya, MD, MPH,† Rizwan Afsal, MSc,‡ Joakim Alfredsson, MD, PhD,§ William E. Boden, MD,‖ Eugene Braunwald, MD,* Christopher P. Cannon, MD,* Tim C. Clayton, MSc,¶ Robbert J. de Winter, MD, PhD,# Keith A. A. Fox, MB ChB,** Bo Lagerqvist, MD, PhD,†† Peter A. McCullough, MD, MPH,‡‡ Sabina A. Murphy, MPH,* Rudolf Spacek, MD, PhD,§§ Eva Swahn, MD, PhD,§ Fons Windhausen, MD,# Marc S. Sabatine, MD, MPH*

Boston, Massachusetts; San Francisco, California; Hamilton, Ontario, Canada; Linköping and Uppsala, Sweden; Albany, New York; London and Edinburgh, United Kingdom; Amsterdam, the Netherlands; Novi, Michigan; and Prague, Czech Republic

Table 2 Pooled 12-Month Event Numbers, RR (95% CI), and ARR (95% CI) for an Invasive Versus Conservative Treatment Strategy, Stratified by DM Status

Endpoint	DM Status	Invasive Strategy	Conservative Strategy	RR (95% CI)	ARR (95% CI)
Death, MI, or rehospitalization with ACS	DM	247/892	293/876	0.87 (0.73–1.03)	5.1% (0.1% to 10.2%)
	No DM	722/3,940	874/3,934	0.86 (0.70–1.06)	3.2% (−0.9% to 7.4%)
Death or MI	DM	162/903	184/886	0.89 (0.68–1.16)	2.2% (−3.4% to 7.9%)
	No DM	401/4,058	406/4,057	1.04 (0.79–1.37)	0.1% (−3.0% to 2.8%)
Death	DM	85/903	82/886	1.01 (0.70–1.45)	−0.4% (−4.1% to 3.2%)
	No DM	130/4,058	128/4,057	1.00 (0.68–1.48)	−0.1% (−1.4% to 1.3%)
Nonfatal MI	DM	84/903	119/886	0.71 (0.55–0.92)	3.7% (1.1% to 6.3%)
	No DM	280/4,058	294/4,057	0.98 (0.74–1.29)	0.1% (−1.7% to 1.9%)
Rehospitalization with ACS	DM	135/892	185/876	0.75 (0.61–0.92)	5.6% (2.2% to 9.1%)
	No DM	422/3,940	599/3,934	0.75 (0.61–0.93)	3.3% (0.4% to 6.2%)

Values are n/N unless otherwise indicated. Number of subjects in denominators reflects those with ascertainment for the composite endpoint. Interaction testing for the RR between diabetic and nondiabetic patients: death/MI/ACS, p interaction = 0.83; death/MI, p interaction = 0.33; death, p interaction = 0.87; nonfatal MI, p interaction = 0.09; rehospitalization with ACS, p interaction = 0.68). ARR interaction testing: death/MI/ACS, p interaction = 0.24; death/MI, p interaction = 0.27; death, p interaction = 0.77; nonfatal MI, p interaction = 0.02; rehospitalization with ACS, p interaction = 0.20.
ACS = acute coronary syndrome(s); ARR = absolute risk reduction; CI = confidence interval; DM = diabetes mellitus; MI = myocardial infarction; RR = relative risk.

ESC/EACTS GUIDELINES

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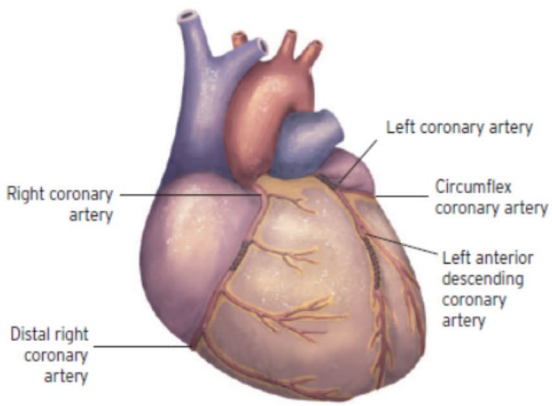
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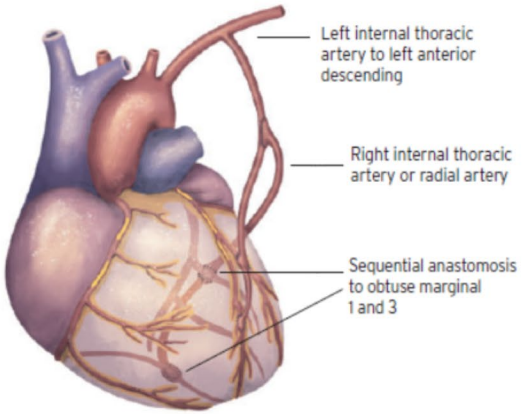
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FAVOURS PCI

Clinical characteristics

Presence of severe co-morbidity (not adequately reflected by scores)

Advanced age/frailty/reduced life expectancy

Restricted mobility and conditions that affect the rehabilitation process

Anatomical and technical aspects

MVD with SYNTAX score 0–22

Anatomy likely resulting in incomplete revascularization with CABG due to poor quality or missing conduits

Severe chest deformation or scoliosis

Sequelae of chest radiation

Porcelain aorta[a]

FAVOURS CABG

Clinical characteristics

Diabetes

Reduced LV function (EF ≤35%)

Contraindication to DAPT

Recurrent diffuse in-stent restenosis

Anatomical and technical aspects

MVD with SYNTAX score ≥23

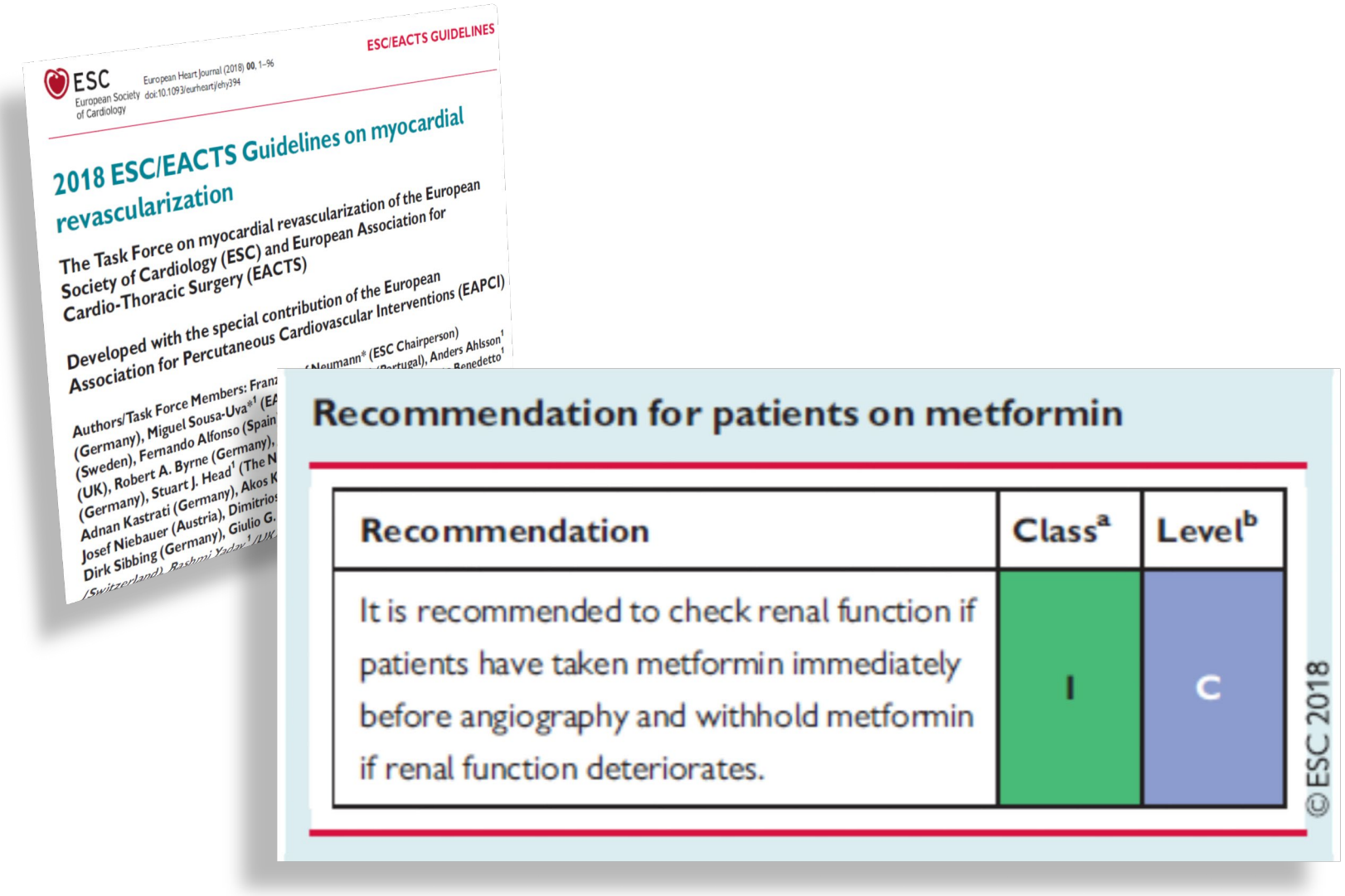
Anatomy likely resulting in incomplete revascularization with PCI

Severely calcified coronary artery lesions limiting lesion expansion

Need for concomitant interventions

Ascending aortic pathology with indication for surgery

Concomitant cardiac surgery



ESC/EACTS GUIDELINES

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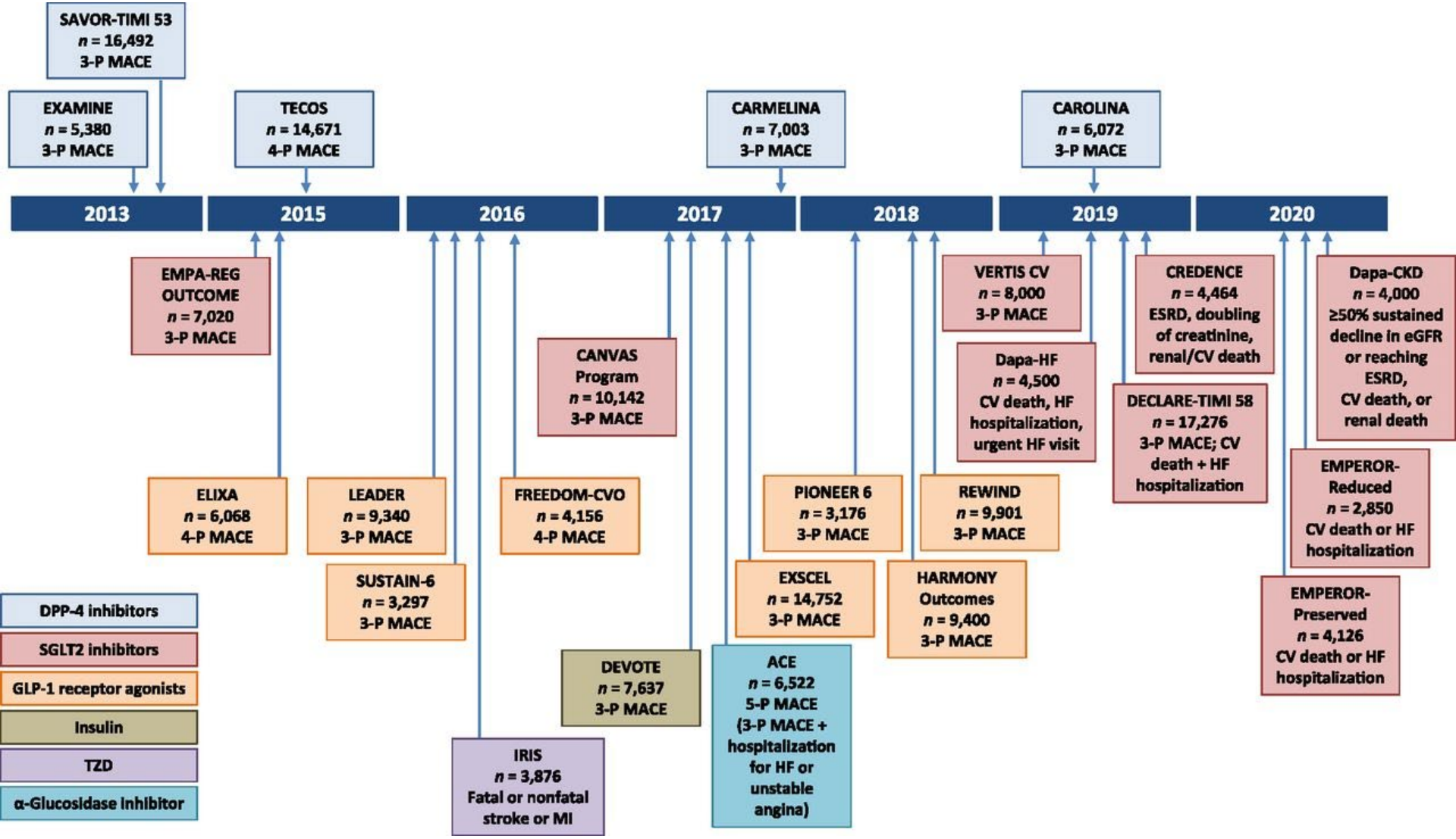
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Developed with the special contribution of the European Association for Percutaneous Cardiovascular Interventions (EAPCI)

Recommendation for patients on metformin

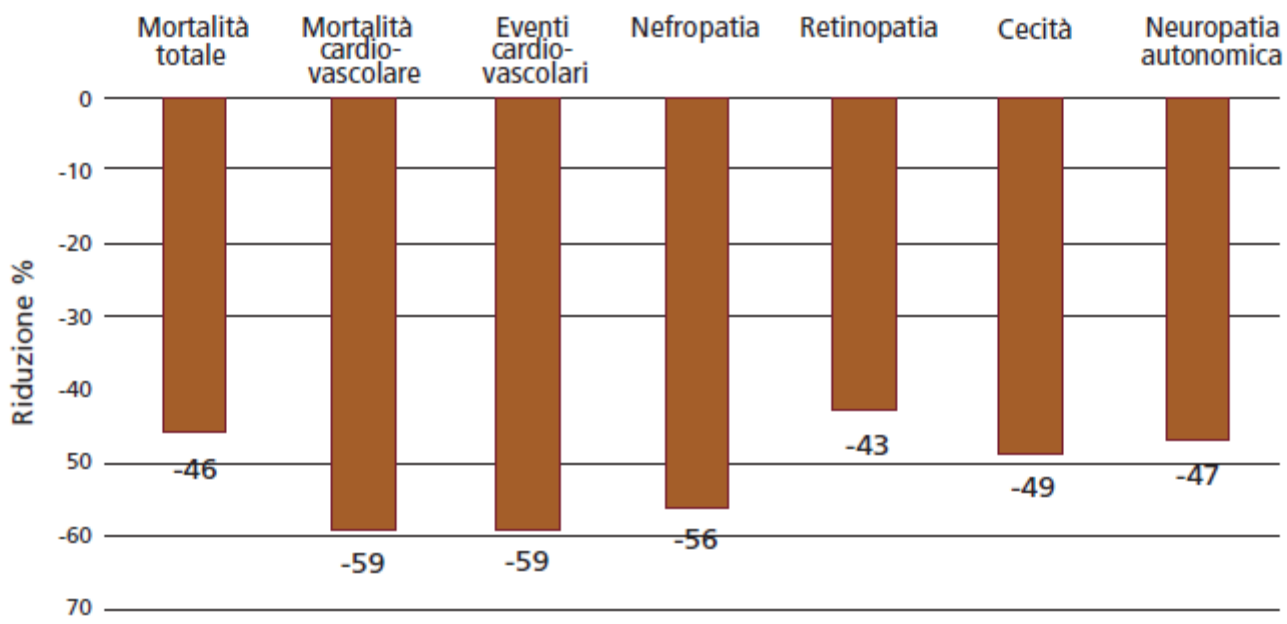
Recommendation	Class[a]	Level[b]
It is recommended to check renal function if patients have taken metformin immediately before angiography and withhold metformin if renal function deteriorates.	I	C

© ESC 2018



Diabetes Care 2018 Jan; 41(1): 14-31

FIGURA 3. Effetti della terapia intensiva multifattoriale: risultati dello studio STENO-2 dopo 13 anni



Italian Barometer Diabetes Observatory 2017

Table 9.2—Recommendations for statin and combination treatment in adults with diabetes

Age	ASCVD	Recommended statin intensity^ and combination treatment*
<40 years	No	None†
	Yes	High • If LDL cholesterol ≥70 mg/dL despite maximally tolerated statin dose, consider adding additional LDL-lowering therapy (such as ezetimibe or PCSK9 inhibitor)#
≥40 years	No	Moderate‡
	Yes	High • If LDL cholesterol ≥70 mg/dL despite maximally tolerated statin dose, consider adding additional LDL-lowering therapy (such as ezetimibe or PCSK9 inhibitor)

*In addition to lifestyle therapy. ^For patients who do not tolerate the intended intensity of statin, the maximally tolerated statin dose should be used. †Moderate-intensity statin may be considered based on risk-benefit profile and presence of ASCVD risk factors. ASCVD risk factors include LDL cholesterol ≥100 mg/dL (2.6 mmol/L), high blood pressure, smoking, chronic kidney disease, albuminuria, and family history of premature ASCVD. ‡High-intensity statin may be considered based on risk-benefit profile and presence of ASCVD risk factors. #Adults aged <40 years with prevalent ASCVD were not well represented in clinical trials of non-statin–based LDL reduction. Before initiating combination lipid-lowering therapy, consider the potential for further ASCVD risk reduction, drug-specific adverse effects, and patient preferences.

Standards of Medical Care in Diabetes — ADA 2018



ESC European Society of Cardiology — European Heart Journal (2018) 00, 1–98 — doi:10.1093/eurheartj/ehy339 — ESC/ESH GUIDELINES

2018 ESC/ESH Guidelines for the management of arterial hypertension

The Task Force for the management of arterial hypertension of the European Society of Cardiology (ESC) and the European Society of Hypertension (ESH)

Authors/Task Force Members: Bryan Williams* (ESC Chairperson) (UK), Giuseppe Mancia* (ESH Chairperson) (Italy), Wilko Spie… Enrico Agabiti Rosei (Italy), Michel Azizi (France), Miche… Denis L. Clement (Belgium), Antonio Coca (Spain), Giov… Anna Dominiczak (UK), Thomas Kahan (Sweden), Felix … Josep Redon (Spain), Luis Ruilope (Spain), Alberto Zanch… (Ireland), Sverre E. Kjeldsen (Norway), Reinhold Kreutz … Stephane Laurent (France), Gregory Y. H. Lip (UK), Rich… Krzysztof Narkiewicz (Poland), Frank Ruschitzka (Switz… Roland E. Schmieder (Germany), Evgeny Shlyakhto (Rus…

Table 5 Ten year cardiovascular risk categories (Systematic COronary Risk Evaluation system)

Very high risk	**People with any of the following:**
	Documented CVD, either clinical or unequivocal on imaging. • **Clinical CVD** includes acute myocardial infarction, acute coronary syndrome, coronary or other arterial revascularization, stroke, TIA, aortic aneurysm, and PAD • **Unequivocal documented CVD on imaging** includes significant plaque (i.e. ≥50% stenosis) on angiography or ultrasound; it does not include increase in carotid intima-media thickness • **Diabetes mellitus with target organ damage**, e.g. proteinuria or a with a major risk factor such as grade 3 hypertension or hypercholesterolaemia • **Severe CKD** (eGFR <30 mL/min/1.73 m^2) • **A calculated 10 year SCORE of ≥10%**
High risk	**People with any of the following:** • **Marked elevation of a single risk factor**, particularly cholesterol >8 mmol/L (>310 mg/dL), e.g. familial hypercholesterolaemia or grade 3 hypertension (BP ≥180/110 mmHg) • **Most other people with diabetes mellitus** (except some young people with type 1 diabetes mellitus and without major risk factors, who may be at moderate-risk)
	Hypertensive LVH
	Moderate CKD eGFR 30-59 mL/min/1.73 m^2)
	A calculated 10 year SCORE of 5-10%
Moderate risk	**People with:** • **A calculated 10 year SCORE of ≥1 to <5%** • **Grade 2 hypertension** • **Many middle-aged people belong to this category**
Low risk	**People with:** • **A calculated 10 year SCORE of <1%**

European Heart Journal 29 august 2018



Algoritmo per lo screening diagnostico della Cardiopatia Ischemica

Paziente asintomatico con ECG normale

Controllo annuale

ECO cuore entro 3 anni

normale

Rivalutare entro 2-3 anni

Alterazione cinetica regmentaria ± ridotta FE

IVS, disfunzione diatolica

Ottimizzare controllo pressorio, lipidico, glicemico e peso

Rivalutazione entro 2-3 anni

Paziente asintomatico con ECG anormale

Paziente con elevata probabilità di coronaropatia silente, indipendetemente da ECG o ECO cuore

ECG da sforzo (se non indicato/eseguibile), SPECT o ECO cuore con stress farmacologico

positivo o dubbio

Coronorografia se indicata

Se non indicata coronorografia, terapia medica ottimale

negativo

Rivalutare entro 2-3 anni



Trattamento

I soggetti con diabete con malattia cardiovascolare devono essere sottoposti a idoneo trattamento fino al raggiungimento dei valori ottimali di tutti i fattori di rischio cardiovascolare e a terapia antiaggregante come riportato nelle sezioni del capitolo sui fattori di rischio. ***I A***

Nei soggetti con diabete con malattia cardiovascolare è indicato il trattamento con aspirina e statina (se non ci sono controindicazioni in atto) e si dovrebbe considerare una terapia con ACE-inibitore o ARB per ridurre il rischio di eventi cardiovascolari. Nei pazienti con precedente infarto del miocardio il trattamento con beta-bloccanti andrebbe continuato per almeno 2 anni dall'evento. ***I A***

Nei pazienti con pregressi eventi cardiovascolari maggiori non sufficientemente controllati con la metformina, o con intolleranza o controindicazioni alla metformina, inibitori SGLT2, GLP-1 agonisti a lunga durata d'azione e pioglitazone dovrebbero essere considerati farmaci di prima scelta. ***II B***

L'uso di sulfaniluree si associa a un aumento del rischio di eventi cardiovascolari maggiori e di mortalità cardiovascolare e/o per tutte le cause. Tali effetti avversi sono più evidenti per glibenclamide. La glibenclamide non è quindi raccomandata per il trattamento delle persone con diabete. ***III B***

Nei soggetti con diabete classe funzionale NYHA 1 o a rischio per tale complicanza, il rischio di sviluppare scompenso cardiaco, probabilmente secondario a ritenzione idrica, controindica l'uso dei tiazolidinedioni (pioglitazone). ***II A***

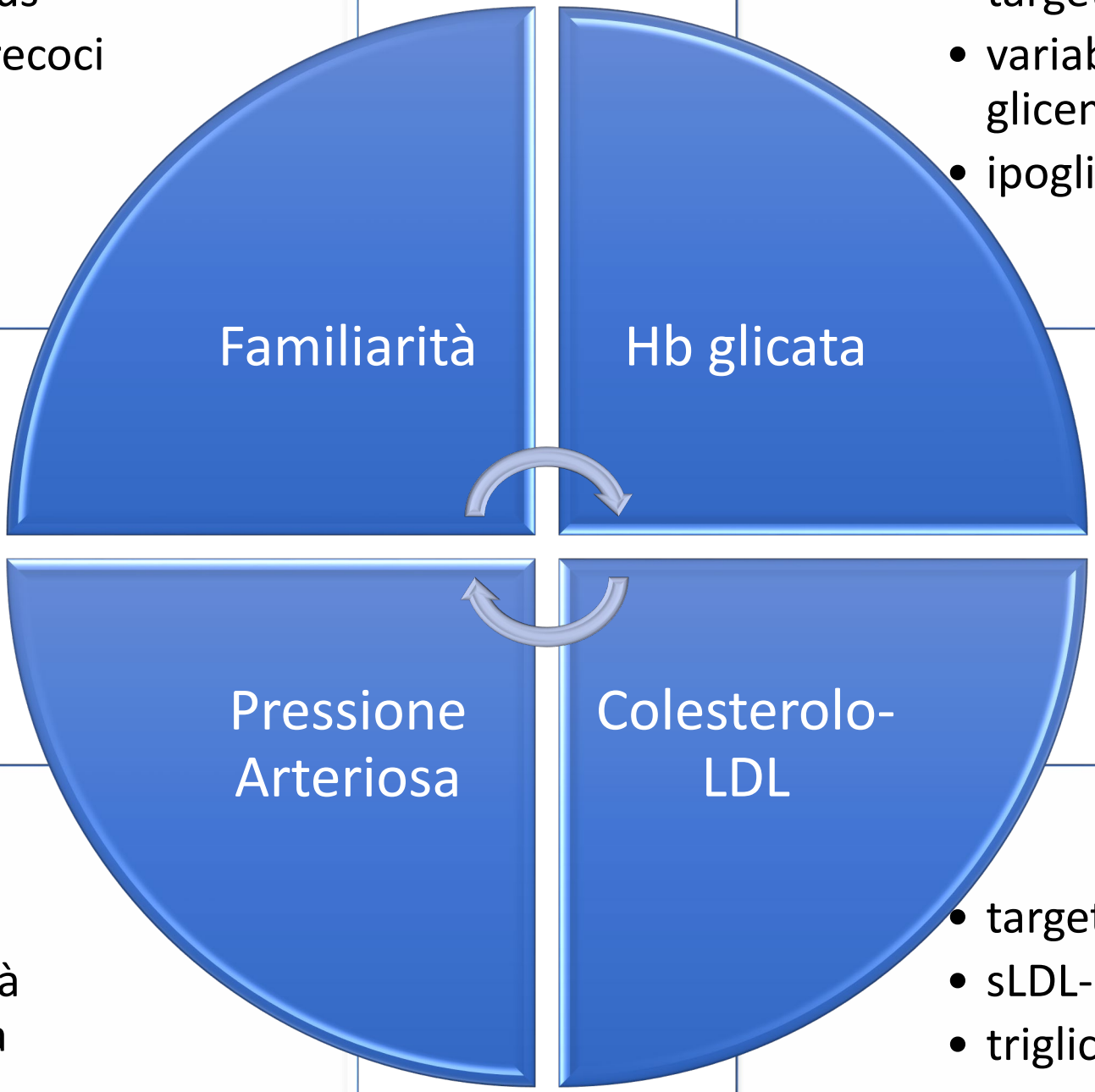
Nei pazienti con diabete tipo 2 con insufficienza cardiaca congestizia stabile la metformina può essere utilizzata se la funzione renale è normaleo fino ad un Filtrato Glomerulare > 30 ml/min, ma dovrebbe essere evitata nei pazienti instabili o ospedalizzati con insufficienza cardiaca congestizia. ***III B***



- Familiarità
  - IMA - Ictus
  - eventi precoci
- Hb glicata
  - target
  - variabilità glicemica
  - ipoglicemia
- Colesterolo-LDL
  - target
  - sLDL-C sHDL-C
  - trigliceridemia
- Pressione Arteriosa
  - target
  - variabilità pressoria
- Funzionalità Renale
  - eGFR
  - microalbuminuria
- Danno oculare
  - retinopatia
- Neuropatia
  - periferica
  - neurovegetativa
- Anemia
  - carenza marziale
  - carenze vitaminiche
- Obesità
  - BMI
  - Girovita
- Malnutrizione e e cronicità
  - sarcopenia
  - osteopenia
- fattori di rischio modificabili
  - fumo
  - attività fisica
  - stress
- comorbidità
  - complessità
  - instabilità clinica
  - turbe cognitive
  - interazione tra farmaci

- IMA - Ictus
- eventi precoci

- target
- variabilità glicemica
- ipoglicemia

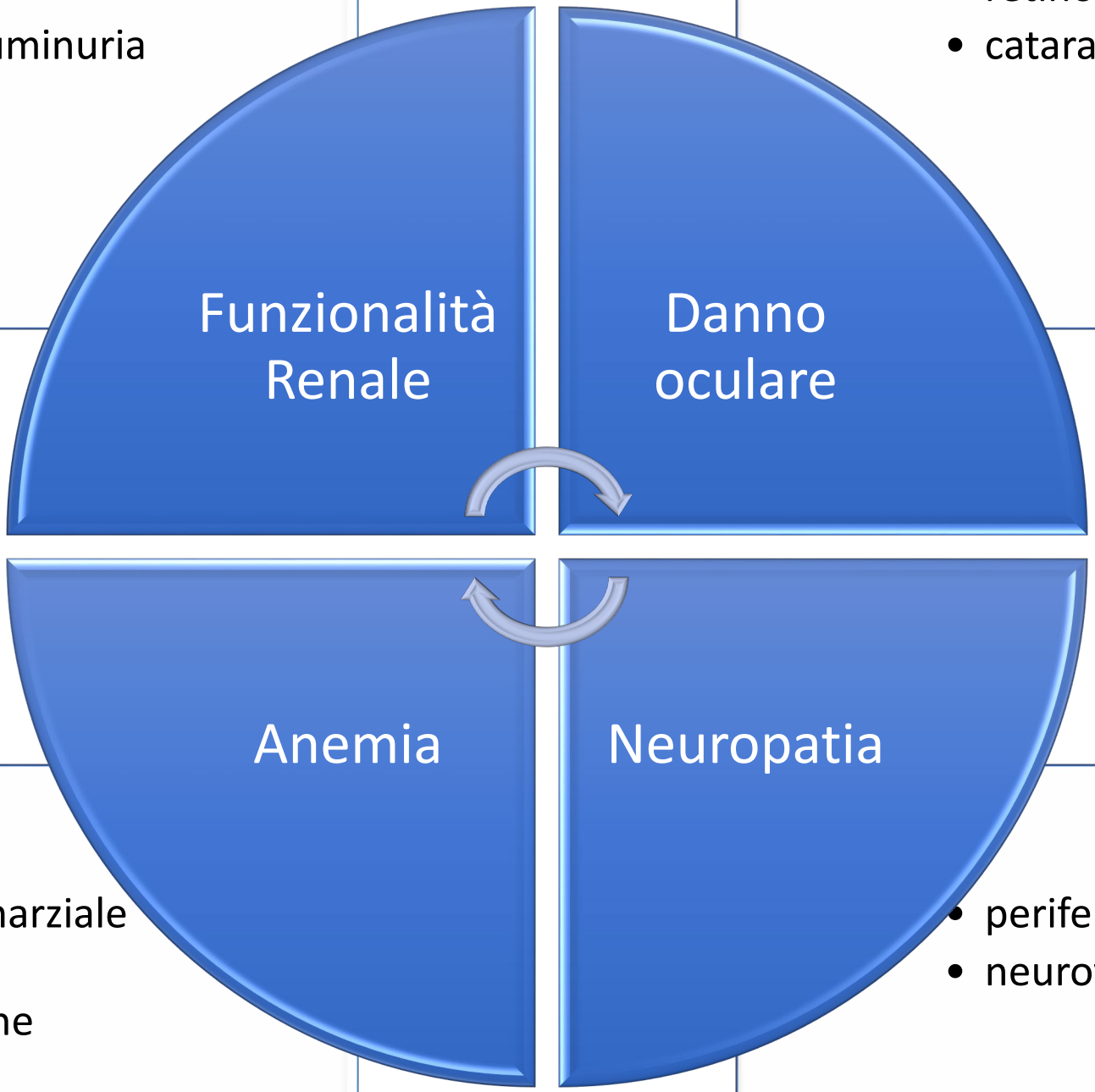


- target
- variabilità pressoria

- target
- sLDL-C sHDL-C
- trigliceridemia

- eGFR
- microalbuminuria

- retinopatia
- cataratta



- carenza marziale
- carenze vitaminiche

- periferica
- neurovegetativa



- BMI
- Girovita

- sarcopenia
- osteopenia

- complessità
- instabilità clinica
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- interazione tra farmaci

- fumo
- attività fisica
- stress

Take-Home Messages

- ✓ *Il Diabete Mellito è una condizione ad elevato rischio cardiovascolare; tale rischio aumenta per la presenza di danno d'organo, di comorbidità e con l'aumentare della durata di malattia e dell'età del paziente*
- ✓ *Il Diabete Mellito è una condizione ad elevata complessità clinica; la sua complessità aumenta per la presenza di danno d'organo, di comorbidità e con l'aumentare della durata di malattia e dell'età del paziente*
- ✓ *Il diabetologo deve acquisire le competenze cliniche per gestire la complessità clinica del paziente diabetico e, in caso di malattia coronarica, per potere concordare con lo specialista cardiologo il miglior percorso di cura.*


Conoscenza
+
Consapevolezza
=
Competenza