Liezen, 22. November 2017

Immer wenn in die Gerinnung eingegriffen werden muss
Aktuelles und Neues aus der Wissenschaft

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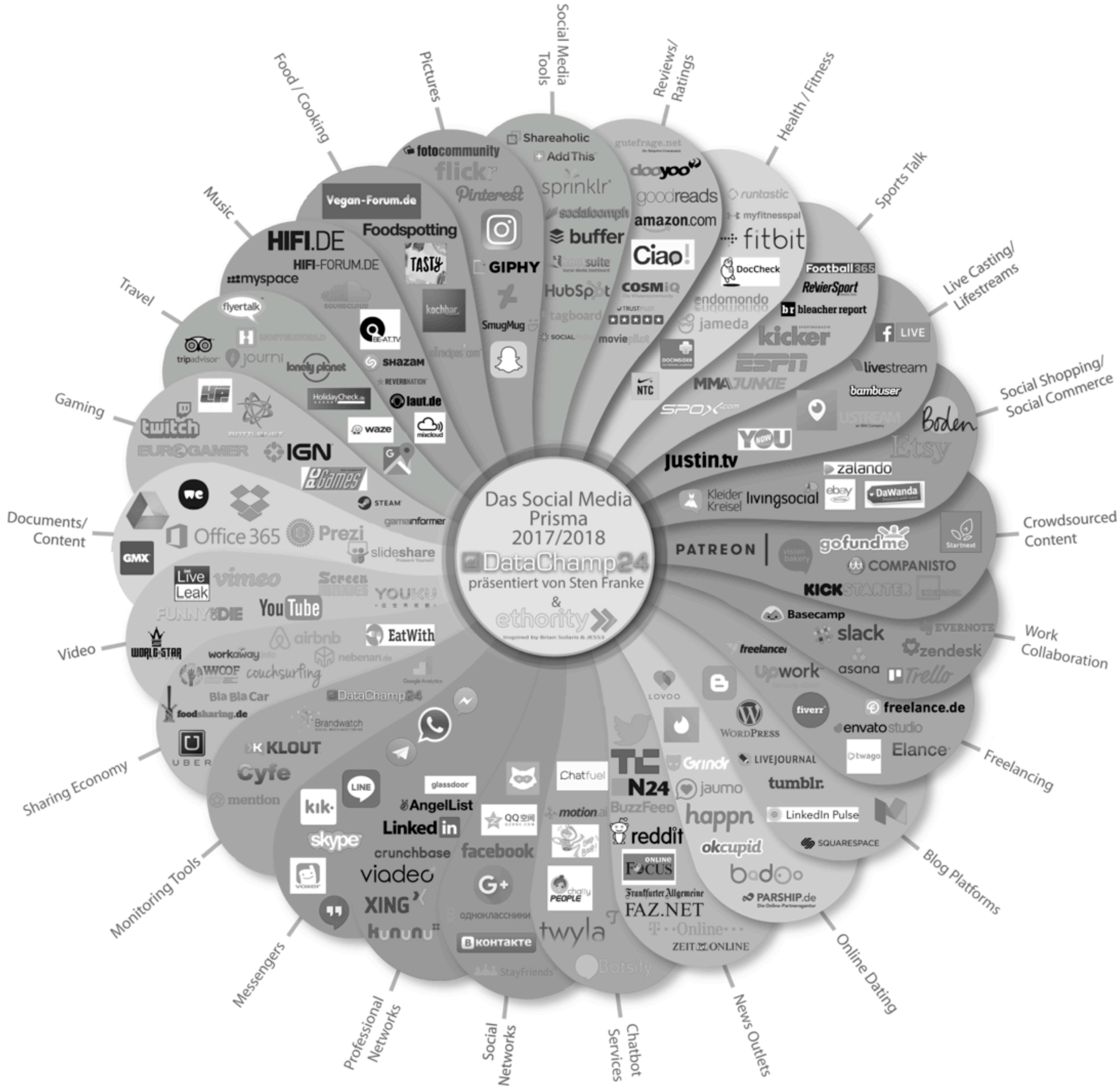
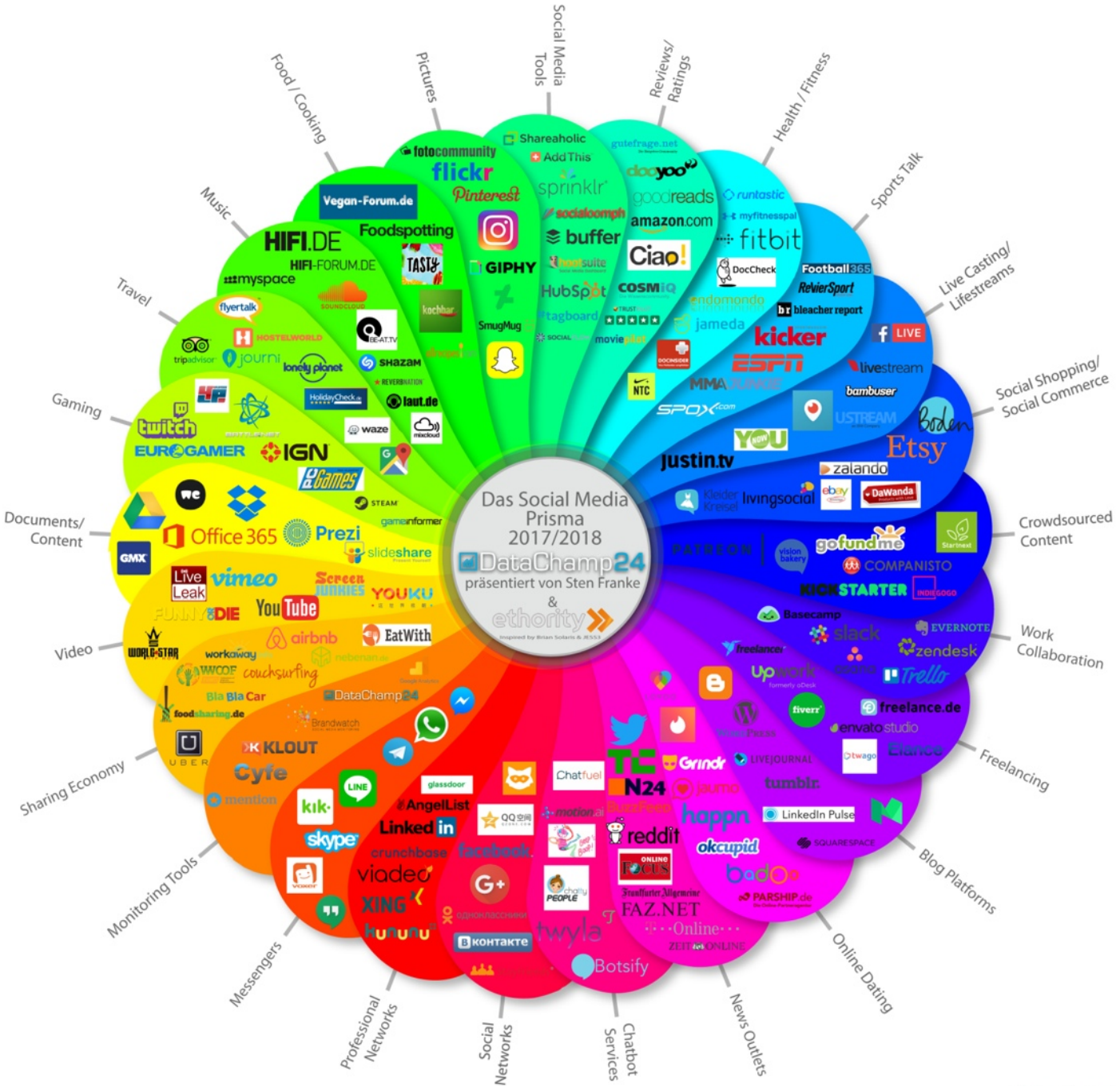
Hubert Wallner

Liezen, 22. November 2017



Mittwoch, 22. November 2017

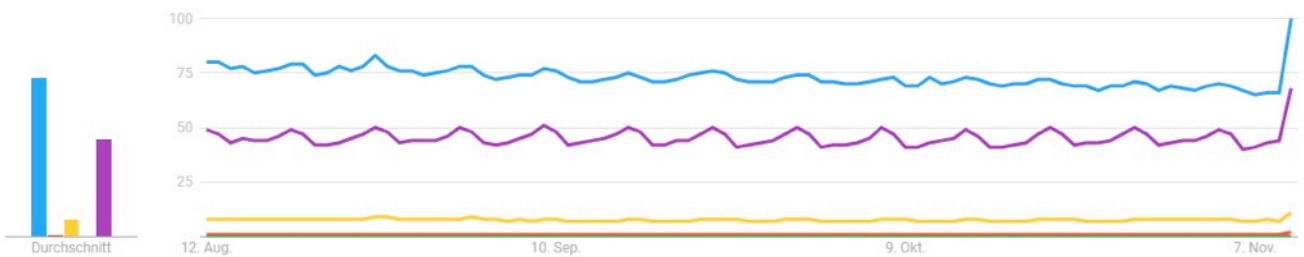

Das Social Media Prisma 2017/2018
DataChamp24
präsentiert von Sten Franke
&
ethority
Social Media Tools
Reviews/ Ratings
Health / Fitness
Sports Talk
Live Casting/ Lifestreams
Social Shopping/ Social Commerce
Crowdsourced Content
Work Collaboration
Freelancing
Blog Platforms
Online Dating
News Outlets
Chatbot Services
Social Networks
Professional Networks
Messengers
Monitoring Tools
Sharing Economy
Video
Documents/ Content
Gaming
Travel
Music
Food / Cooking
Pictures

Google Trends | Vergleichen

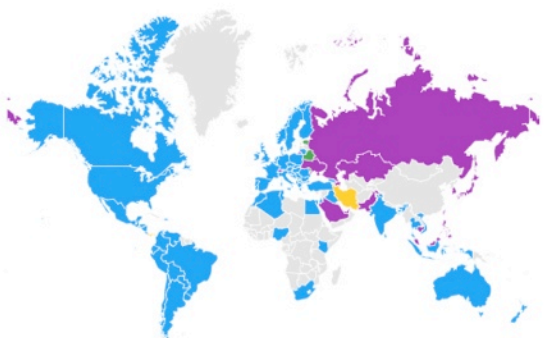
facebook	pinterest	instagram	musical.ly	youtube
Suchbegriff	Suchbegriff	Suchbegriff	Suchbegriff	Suchbegriff

Weltweit | Letzte 90 Tage | Alle Kategorien | Websuche

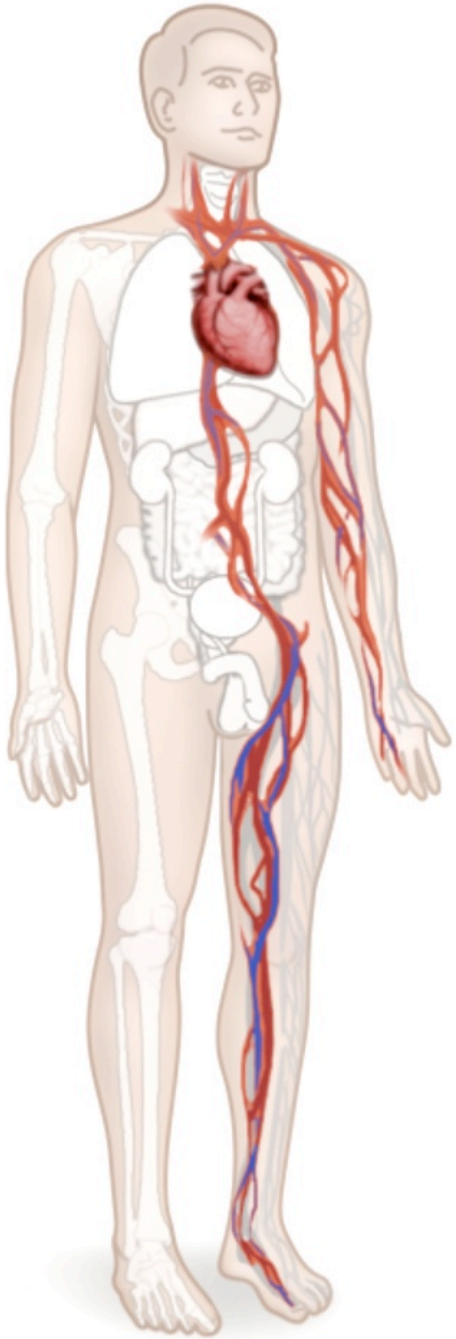
Interesse im zeitlichen Verlauf



Interesse nach Region

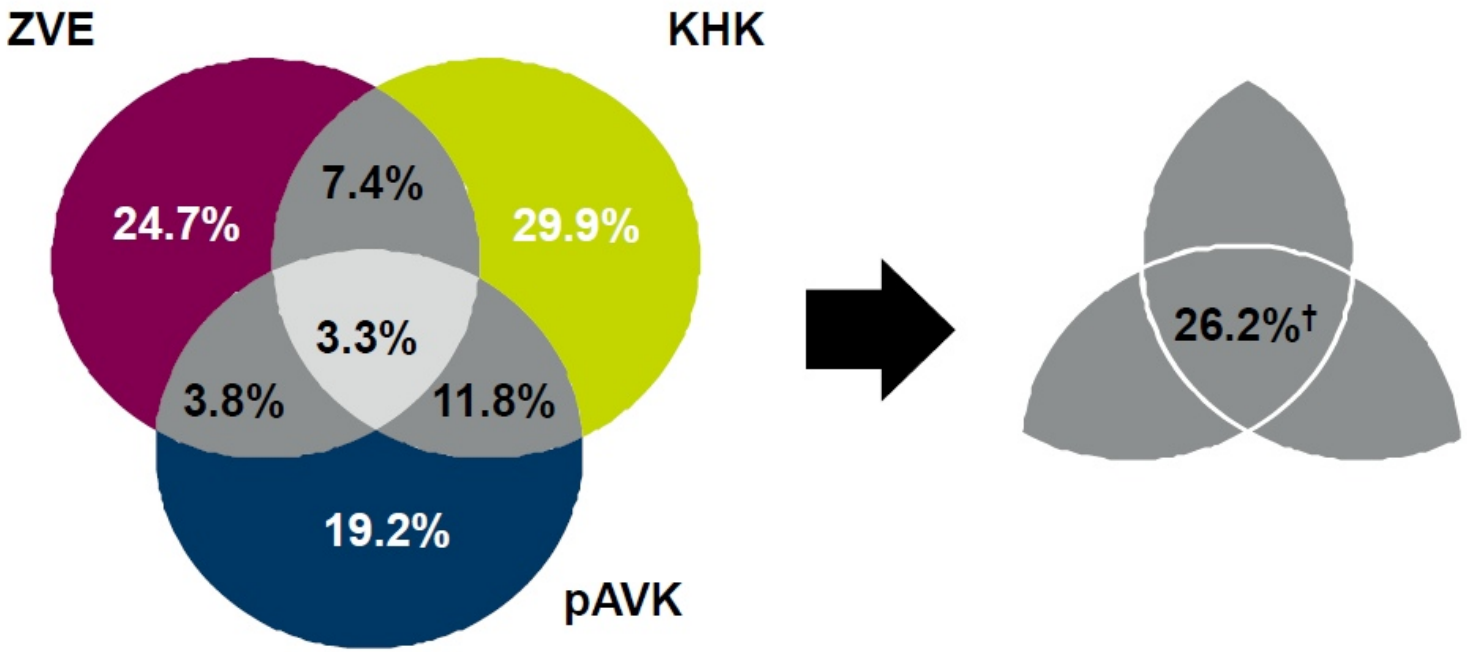



Kardiologie Angiologie
Neurologie
IGZ – Interdisziplinäres Gefäß Zentrum
Gefäßchirurgie
Radiologie



Manifestationen der Atherothrombose[1]

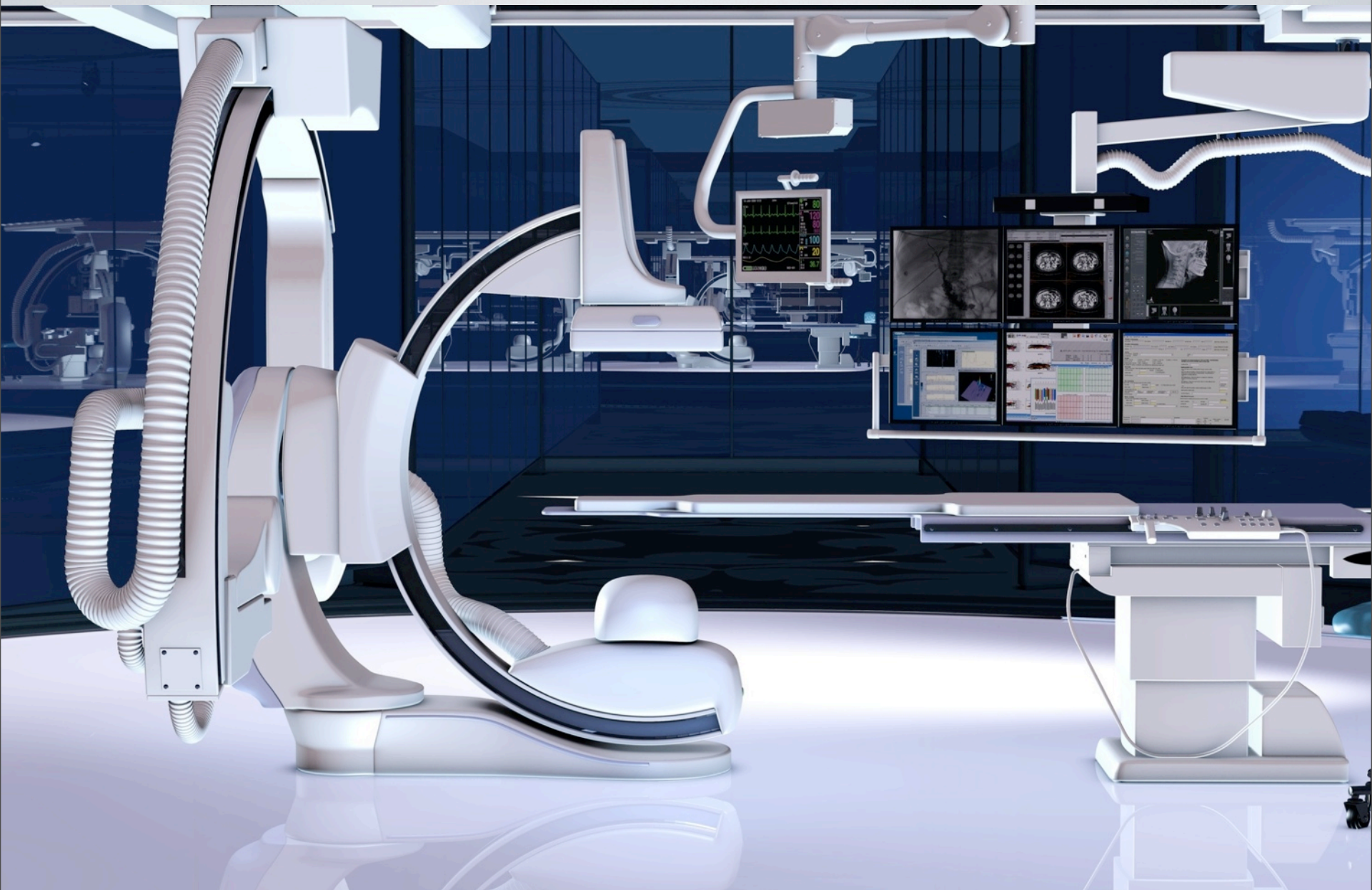
Daten der CAPRI-Studie (Clopidogrel versus Aspirin bei Patienten mit Risiko für ischämische Ereignisse; n=19,185)



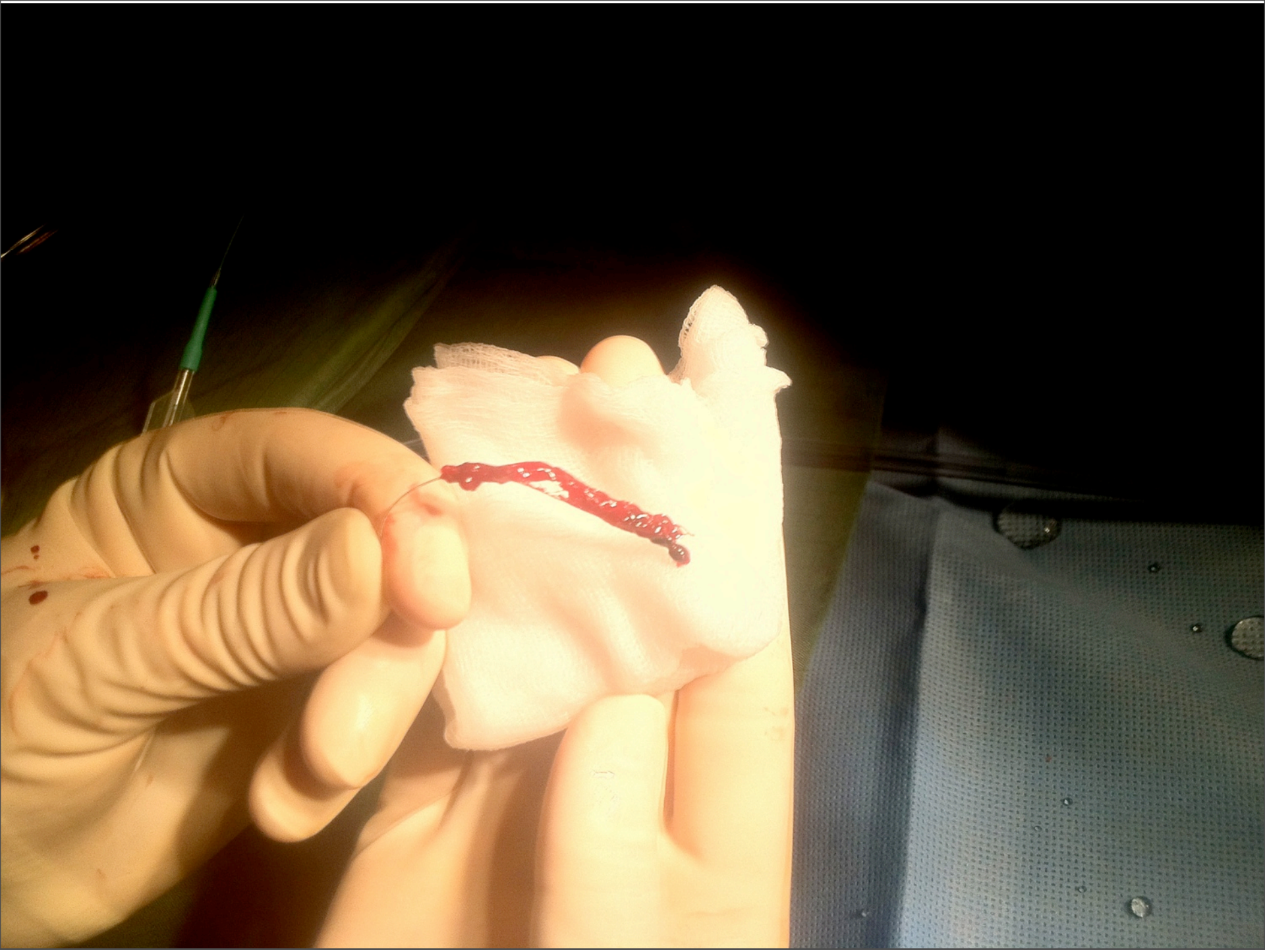
Bei ~26% der Patienten manifestiert sich die Atherothrombose in mehreren arteriellen Gefäßbetten.

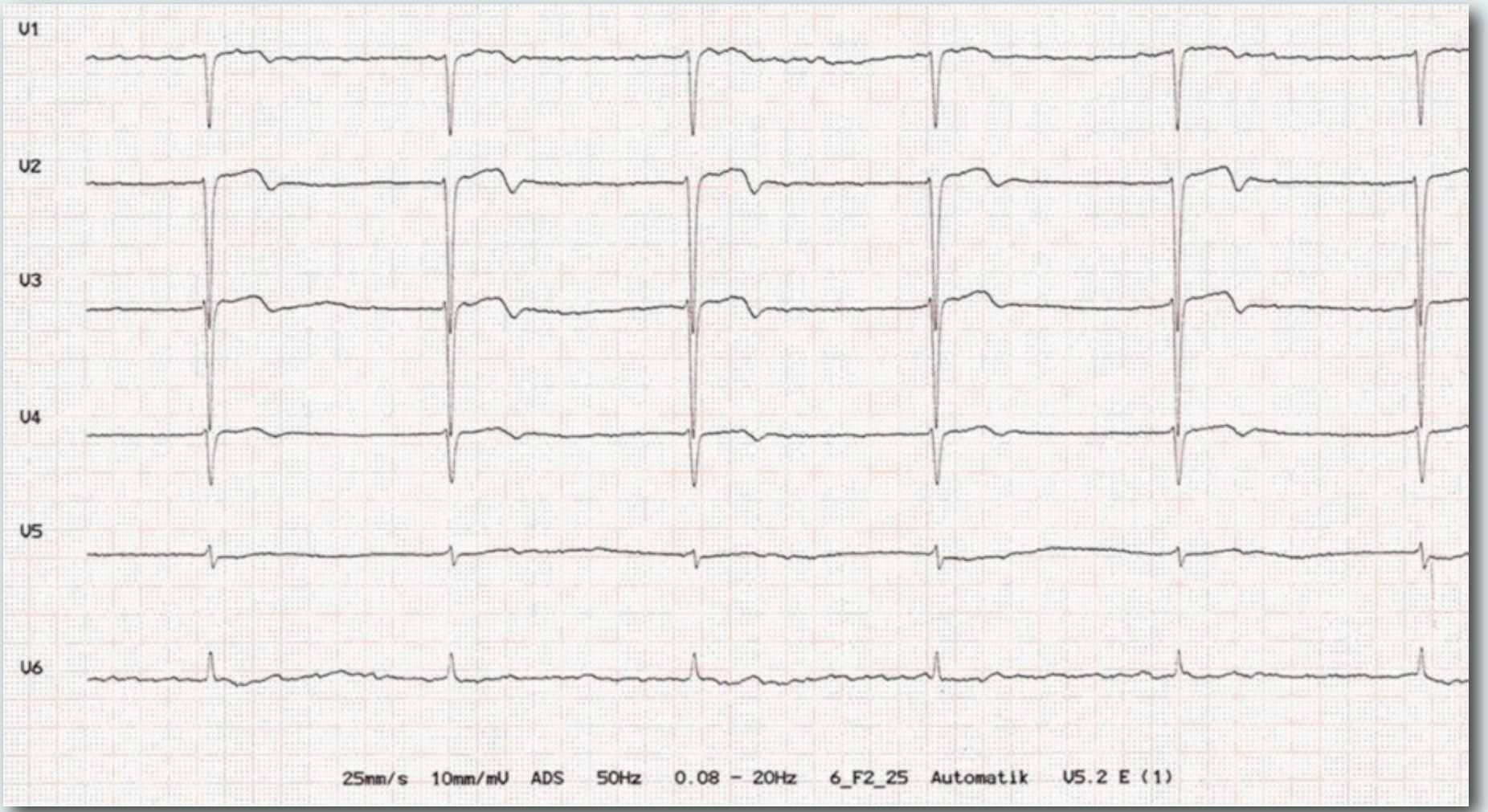
†gerundete Werte. ZVE: Zerebrovaskuläre Erkrankung; KHK: Koronare Herzkrankheit; pAVK: periphere arterile Verschlusskrankheit

1. Coccheri S. Eur Heart J 1998; 19(Suppl): 227.



D.O., geb.: 15.01.1965 am 31.01.2017




U1
U2
U3
U4
U5
U6
25mm/s 10mm/mV ADS 50Hz 0.08 - 20Hz 6_F2_25 Automatik V5.2 E (1)

Dabigatran - Pradaxa®
Rivaroxaban - Xarelto®
Apixaban - Eliquis®
Edoxaban - Lixiana®

Zulassungsstudien der NOAK bei VHF

Dabigatran	**RE-LY** NEJM 2009; 361: 1139
Rivaroxaban	**ROCKET-AF** NEJM 2011; 365: 883
Apixaban	**ARISTOTLE** NEJM 2011; 365: 883
Edoxaban	**ENGAGE-AF** NEJM 2013; 369: 2093

„Signifikanzen“ für NOAK vs. Warfarin

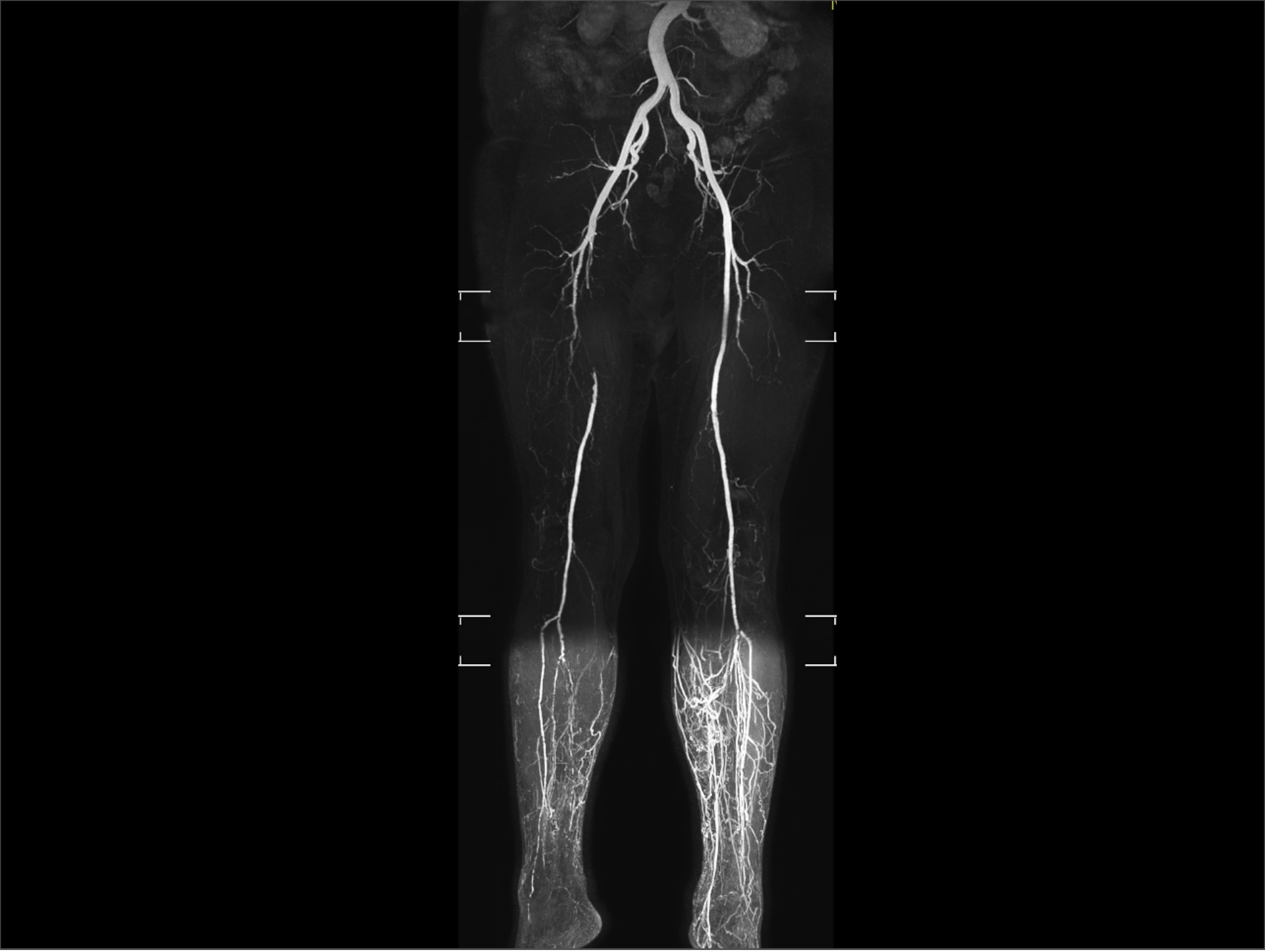
Überblick – qualitativ, Gesamtstudie

vs. Warfarin	Insult + SSE	ischäm. Insult	schwere Blutungen	Hirn-blutungen
Dabigatran 2 x 110mg	↔	↔	↓	↓
Dabigatran 2 x 150mg	↓	↓	↔	↓
Rivaroxaban 1 x 20mg	↔	↔	↔	↓
Apixaban 2 x 5mg	↓	↔	↓	↓
Edoxaban 1 x 30mg	↔	↑	↓	↓
Edoxaban 1 x 60mg	↔	↔	↓	↓

Antikoagulantien - November 2017

	Post-OP VTE Proph	Int. VTE Proph.	VTE Therapie	ACS	VH-Flimmern	Klappen-ersatz
VKA*	+	-	+	+	+	+
UFH**	+	-	+	+	-	-
NMH***	+	+	+	+	+	-
Fondaparinux	+	+	+	+	-	-
Dabigatran	+	-	+	-	+	-
Rivaroxaban	+	-	+	+	+	-
Apixaban	+	-	+	-	+	-
Edoxaban	-	-	+	-	+	-

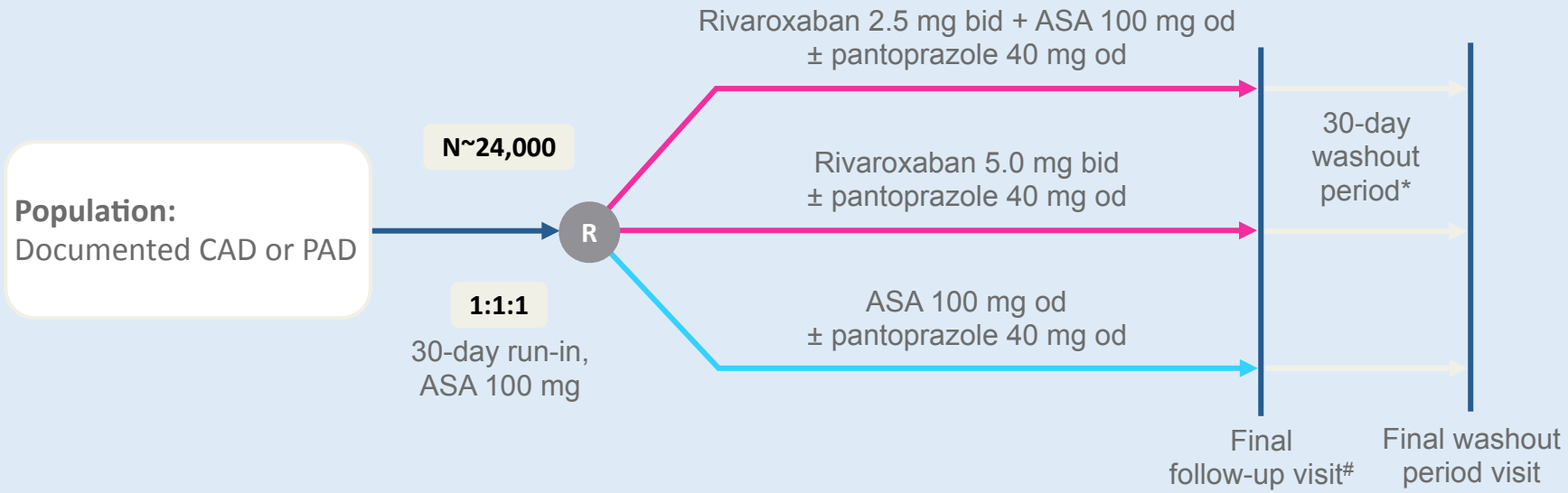
*Vitamin K Antagonist, **unfraktioniertes Heparin, ***niedermolekulares Heparin



COMPASS

Official study title: A Randomized Controlled Trial of Rivaroxaban for the Prevention of Major Cardiovascular Events in Patients With Coronary or Peripheral Artery Disease (COMPASS - Cardiovascular OutcoMes for People Using Anticoagulation StrategieS)

Objective: efficacy and safety of rivaroxaban, low-dose rivaroxaban plus ASA or ASA alone for reducing risk of MI, stroke or cardiovascular death in CAD or PAD



Short design: Randomized, double-blind, controlled trial

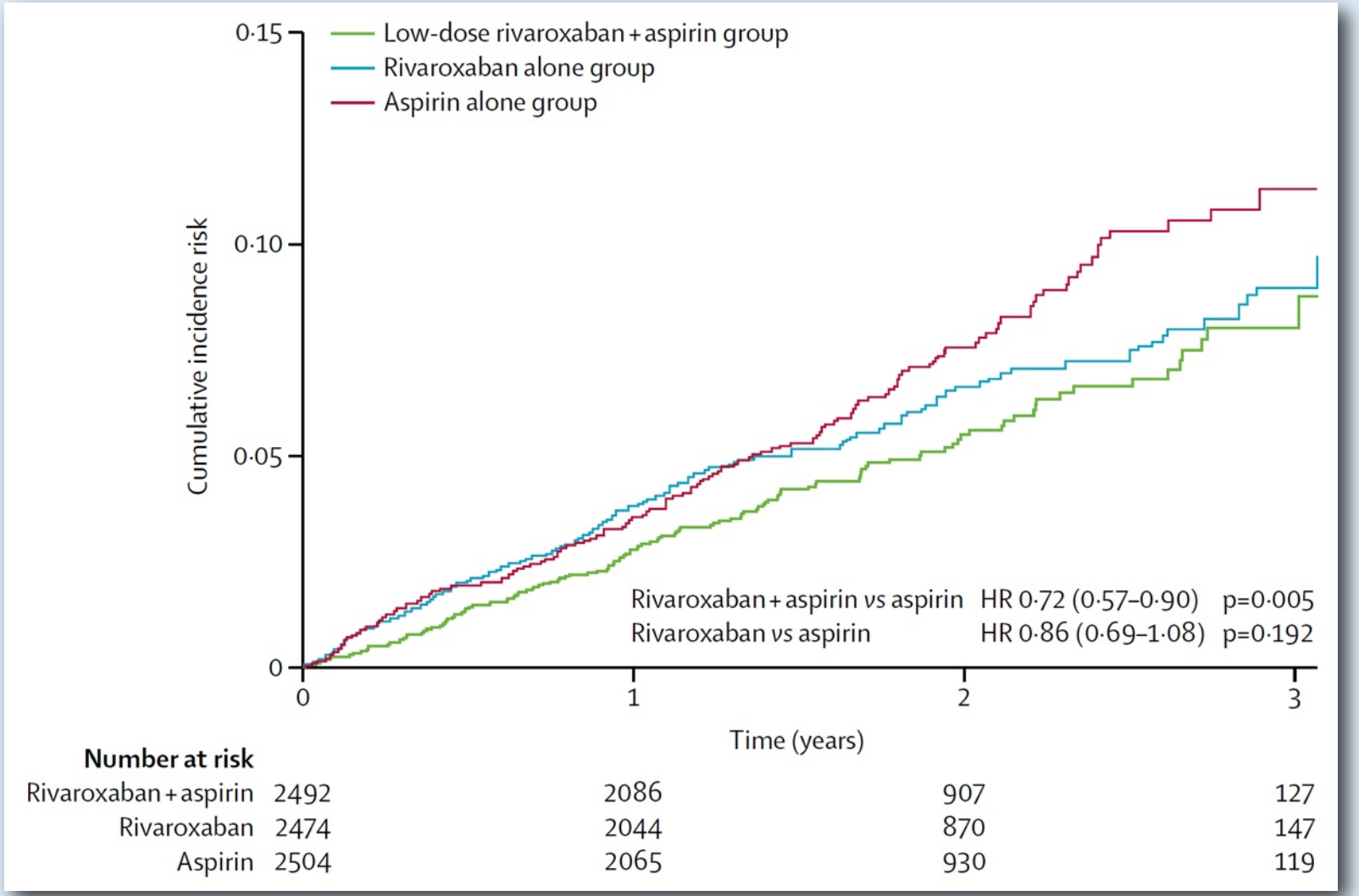
Indication: CAD/PAD

Start: Q2-13
LPLV: Q1-18

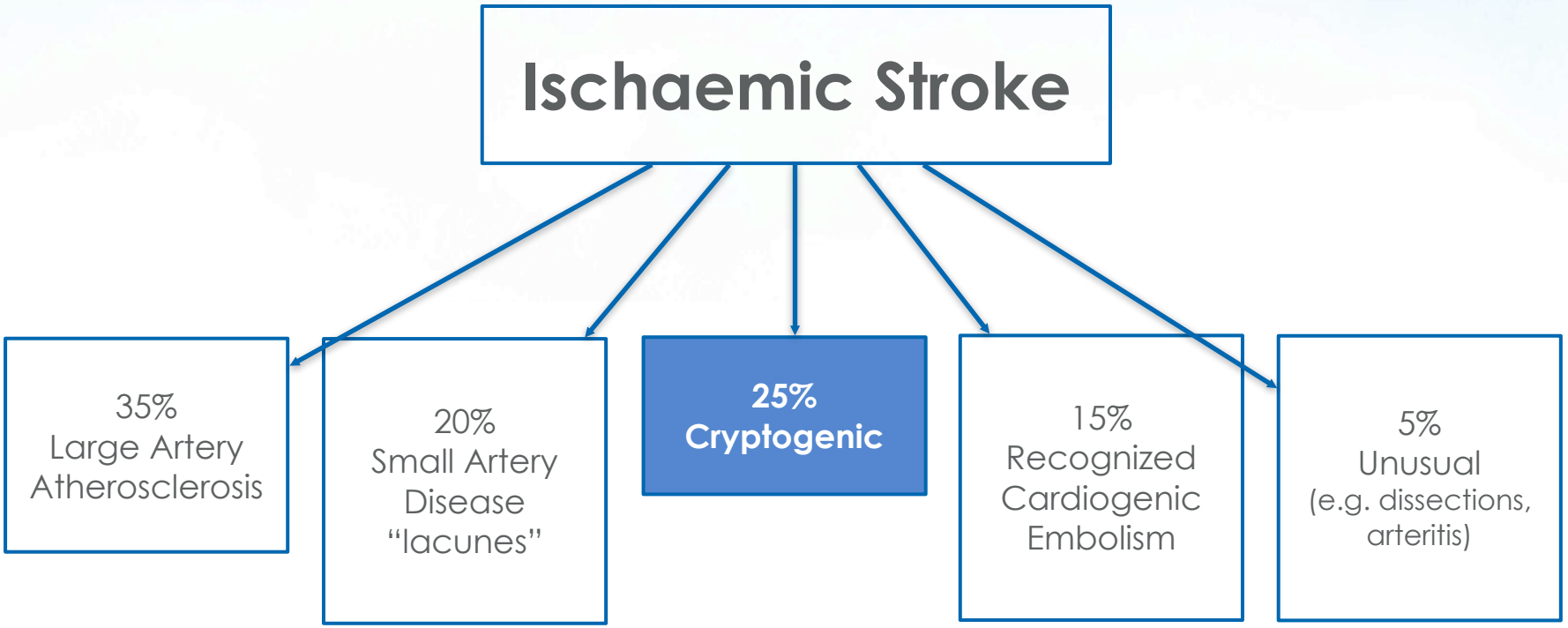
*Patients treated according to local standard of care; #≤30 days of the required pre-specified number of events having occurred
www.clinicaltrials.gov/show/NCT01776424

COMPASS

COMPASS


Low-dose rivaroxaban + aspirin group
Rivaroxaban alone group
Aspirin alone group
Cumulative incidence risk
0·15
0·10
0·05
0
Rivaroxaban + aspirin vs aspirin HR 0·72 (0·57–0·90) p=0·005
Rivaroxaban vs aspirin HR 0·86 (0·69–1·08) p=0·192
0
1
2
3
Time (years)
Number at risk
Rivaroxaban + aspirin 2492 2086 907 127
Rivaroxaban 2474 2044 870 147
Aspirin 2504 2065 930 119

Distribution of ischaemic stroke subtypes



What is ESUS?

A Case for a New Clinical Construct

Panel 2: Criteria for diagnosis of embolic stroke of undetermined source*

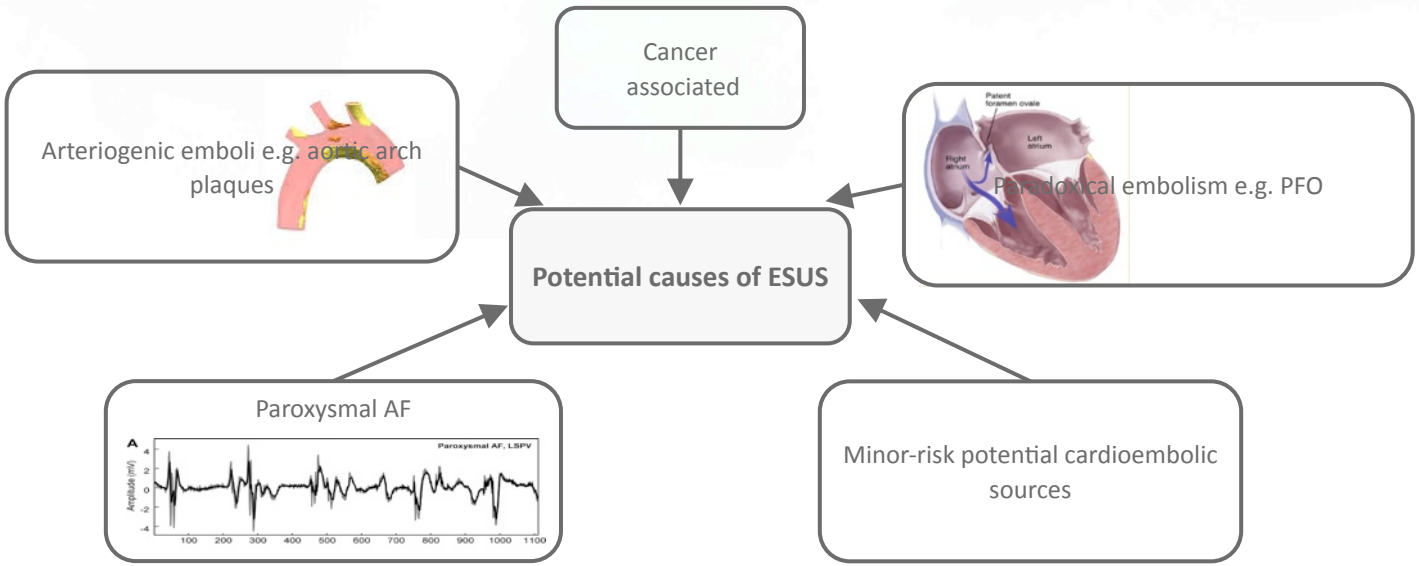
- Stroke detected by CT or MRI that is not lacunar†
- Absence of extracranial or intracranial atherosclerosis causing ≥50% luminal stenosis in arteries supplying the area of ischaemia
- No major-risk cardioembolic source of embolism‡
- No other specific cause of stroke identified (eg, arteritis, dissection, migraine/vasospasm, drug misuse)

*Requires minimum diagnostic assessment (panel 3). †Lacunar defined as a subcortical infarct smaller than or equal to 1·5 cm (≤2·0 cm on MRI diffusion images) in largest dimension, including on MRI diffusion-weighted images, and in the distribution of the small, penetrating cerebral arteries; visualisation by CT usually needs delayed imaging greater than 24–48 h after stroke onset. ‡Permanent or paroxysmal atrial fibrillation, sustained atrial flutter, intracardiac thrombus, prosthetic cardiac valve, atrial myxoma or other cardiac tumours, mitral stenosis, recent (<4 weeks) myocardial infarction, left ventricular ejection fraction less than 30%, valvular vegetations, or infective endocarditis.

Hart RG *et al*, *Lancet Neurol* 2014;13:429–438

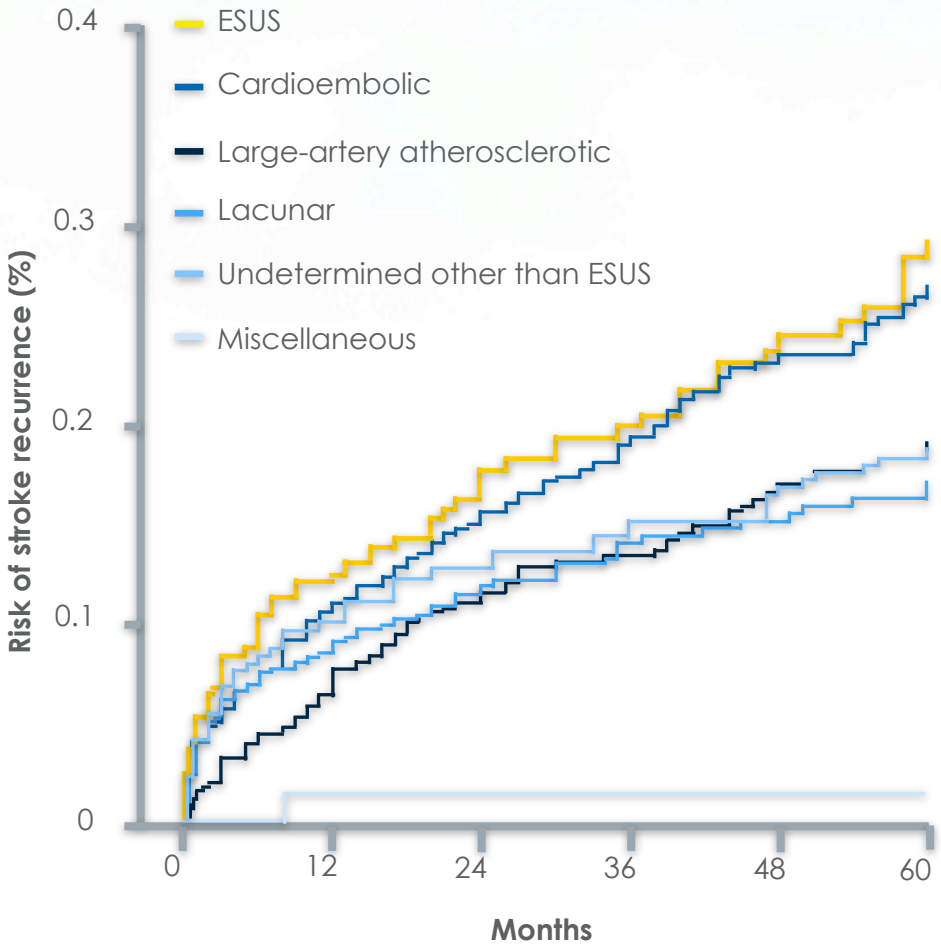
ESUS

embolic stroke of unknown source



1. Hart RG *et al*, *Lancet Neurol* 2014;13:429–438; 2. The ESPRIT Study Group *Lancet* 2006;367:1665–1673;
3. CAPRIE Steering Committee. *Lancet* 1996;348:1329–1339;

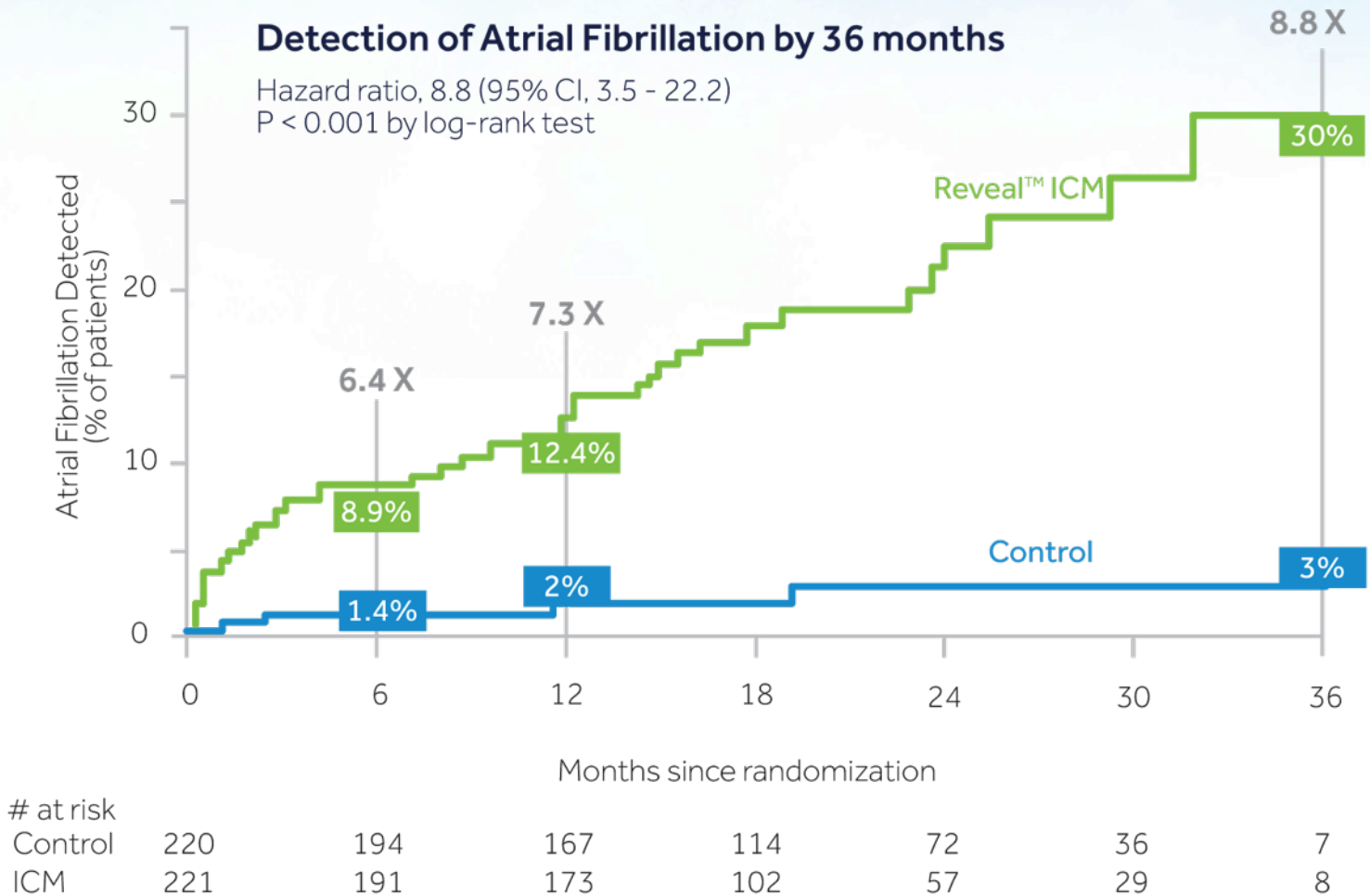
ESUS: 5-year stroke recurrence



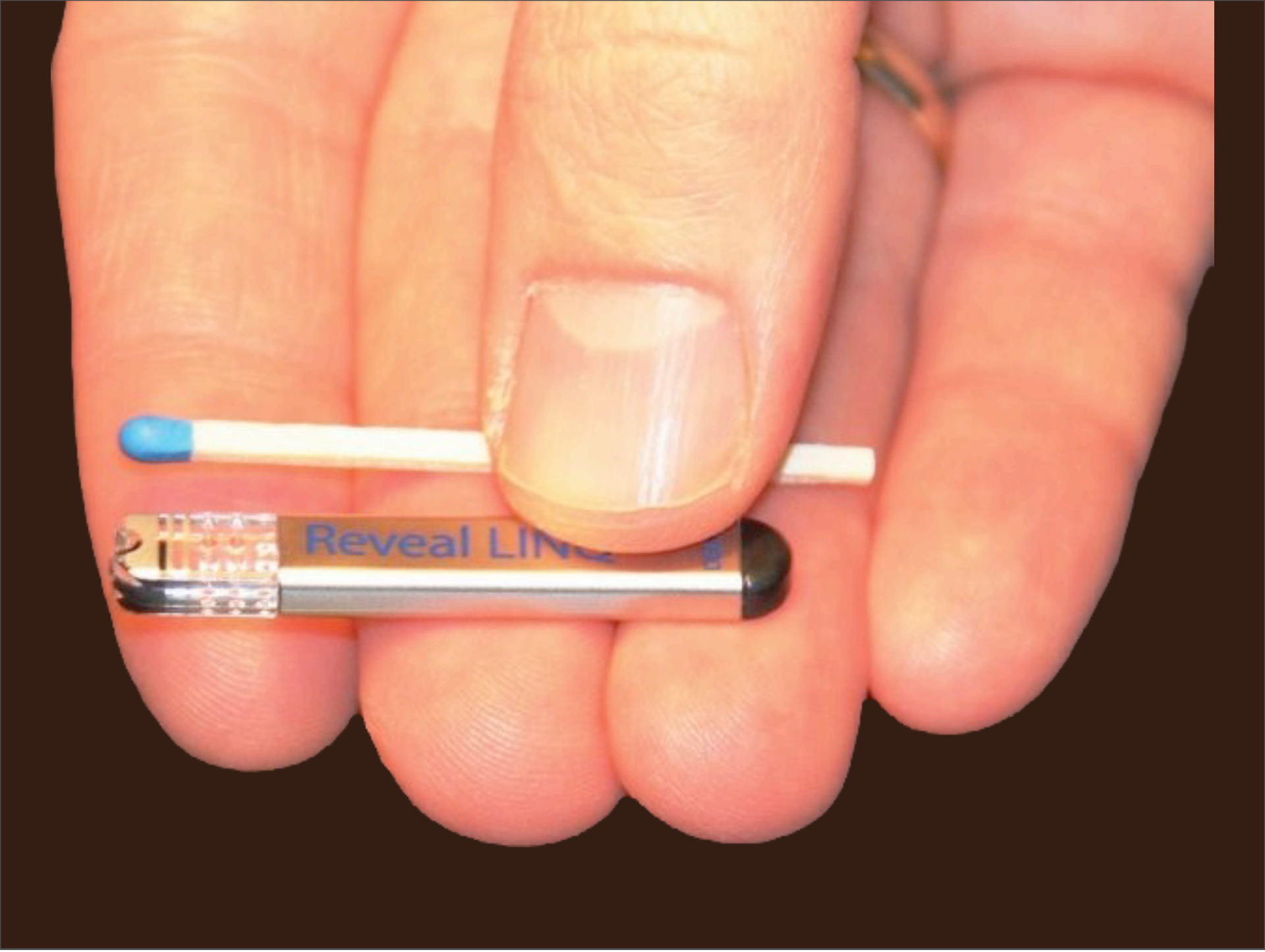
Ntaios G et al. Stroke 2015

CRYSTAL AF study

AF detection after cryptogenic stroke



Sanna T et al. N Engl J Med 2014

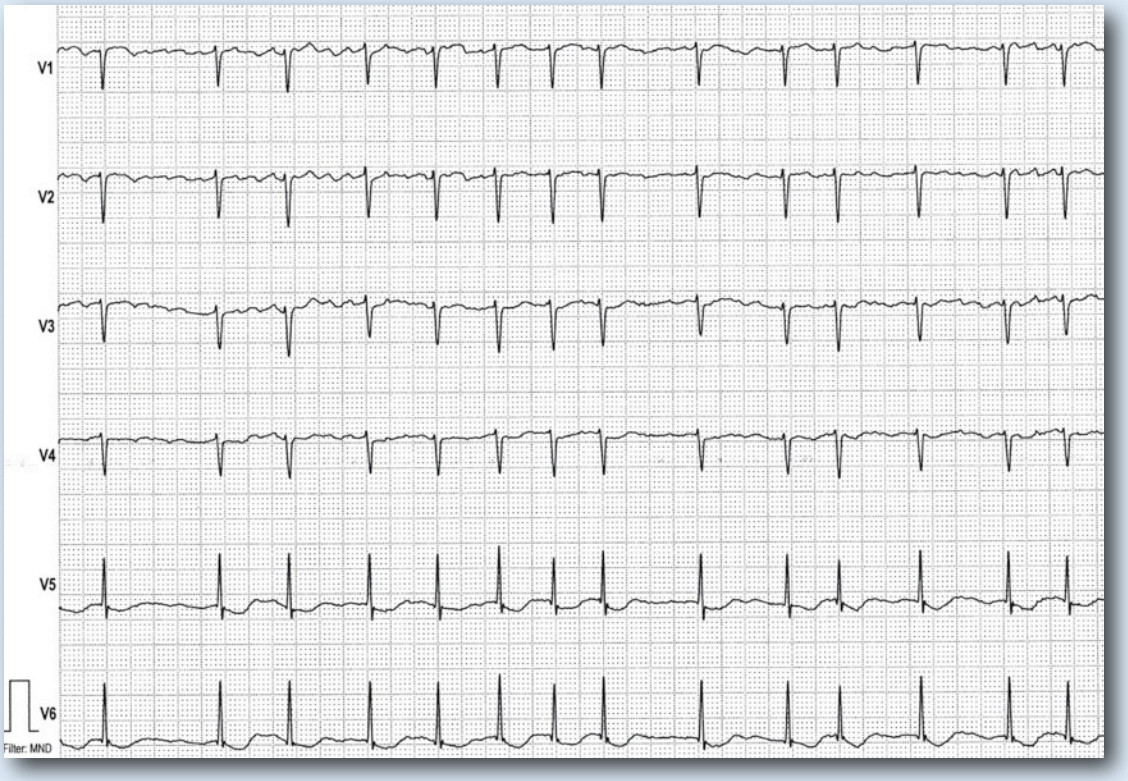

Reveal

VORHOFFLIMMERN & ACS & STENT

- **Patient**
- **78 Jahre**
- **Hypertonie**
- **Z.n. Magenblutung**
- **Hb 11,5 g/dl**
- **Chronisches Vorhofflimmern**
- **NSTEMI ACS**
- **GFR 62 ml/min**

VORHOFFLIMMERN & ACS & STENT

VORHOFFLIMMERN & ACS & STENT



Labor

GFR 68

Hb normal

CK-max 290

hs Troponin 58

EKG

Diagnose

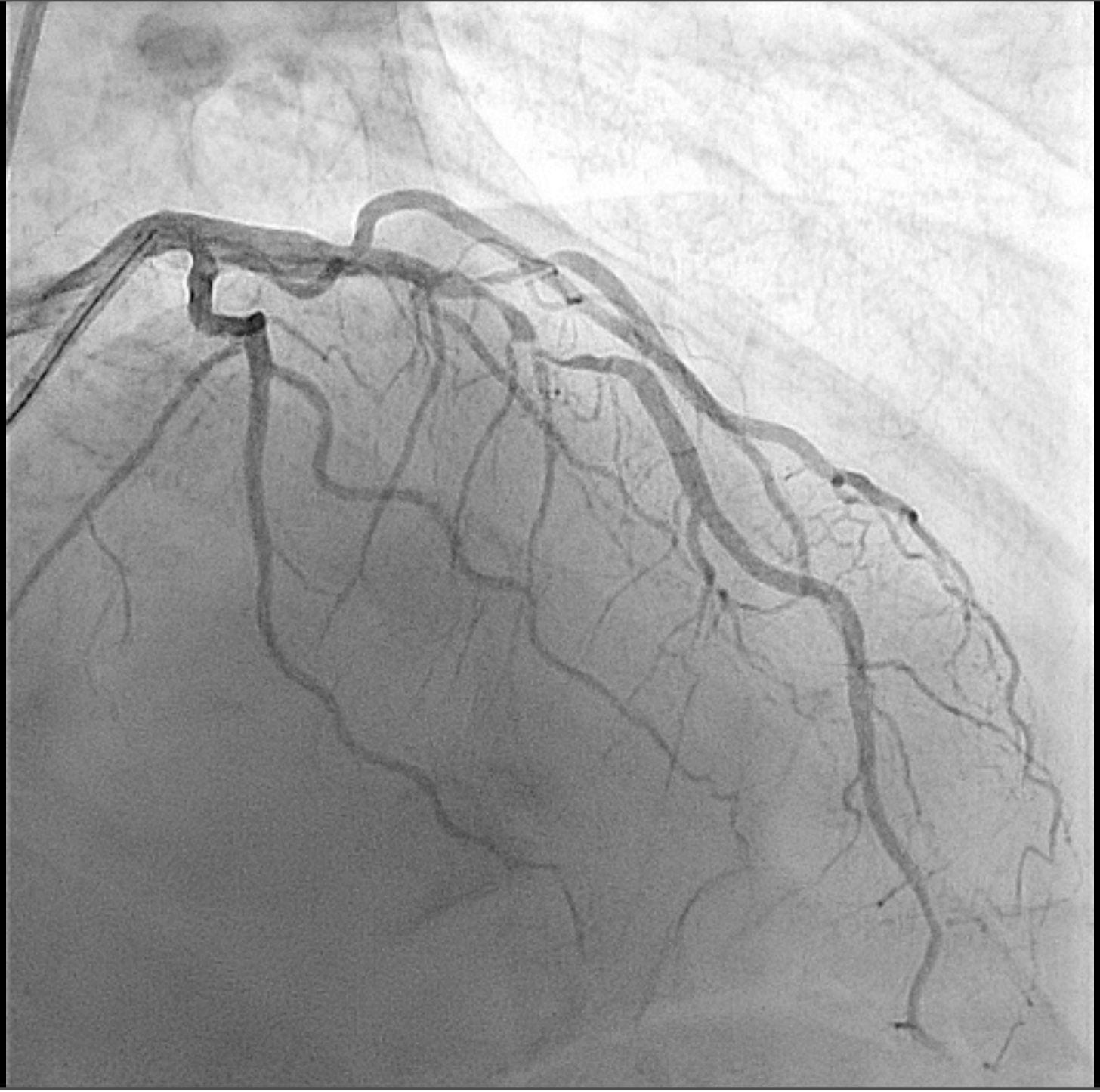
NSTEMI

GRACE 149

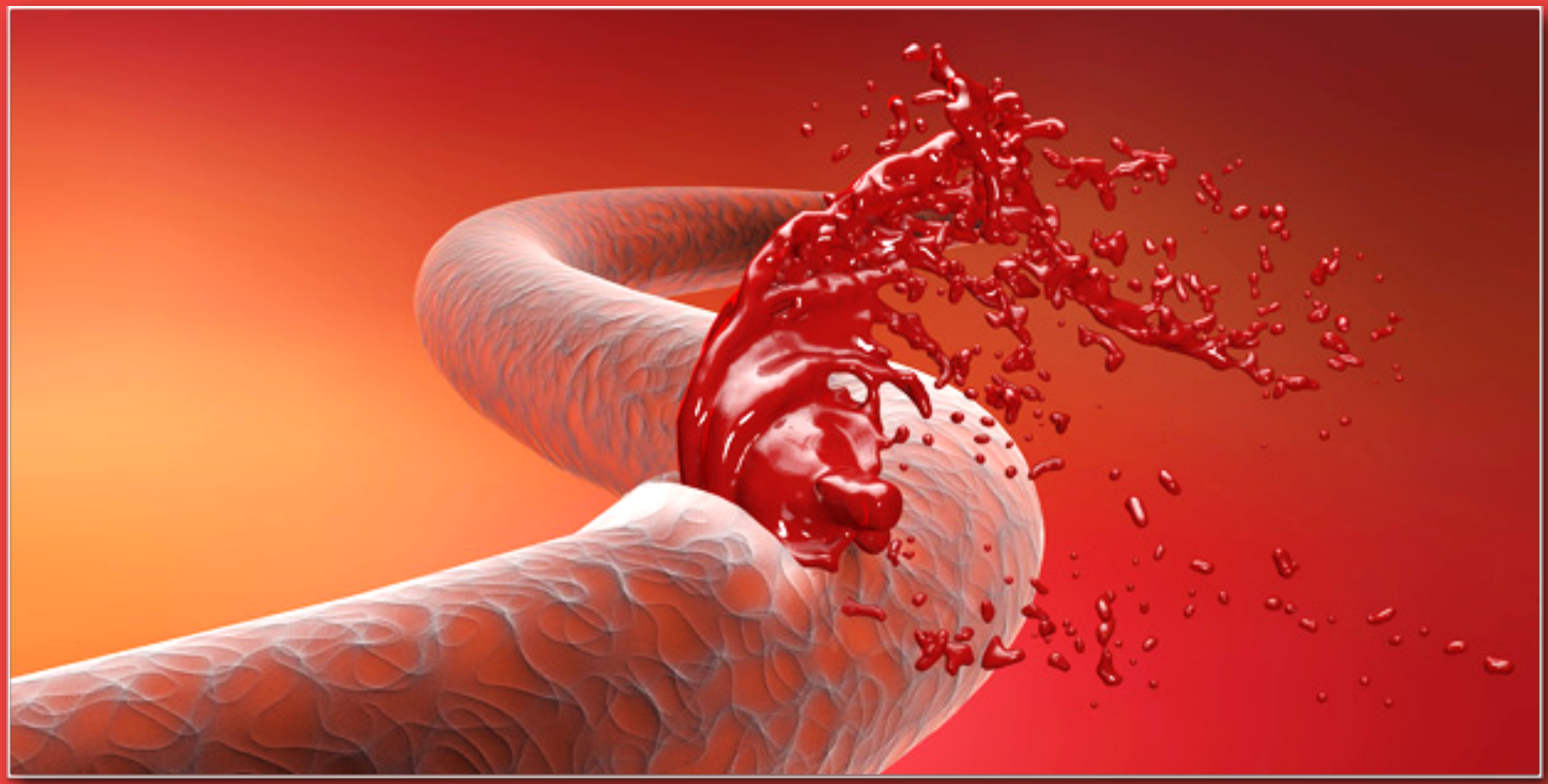
CRUSADE 16

HAS-BLED 4

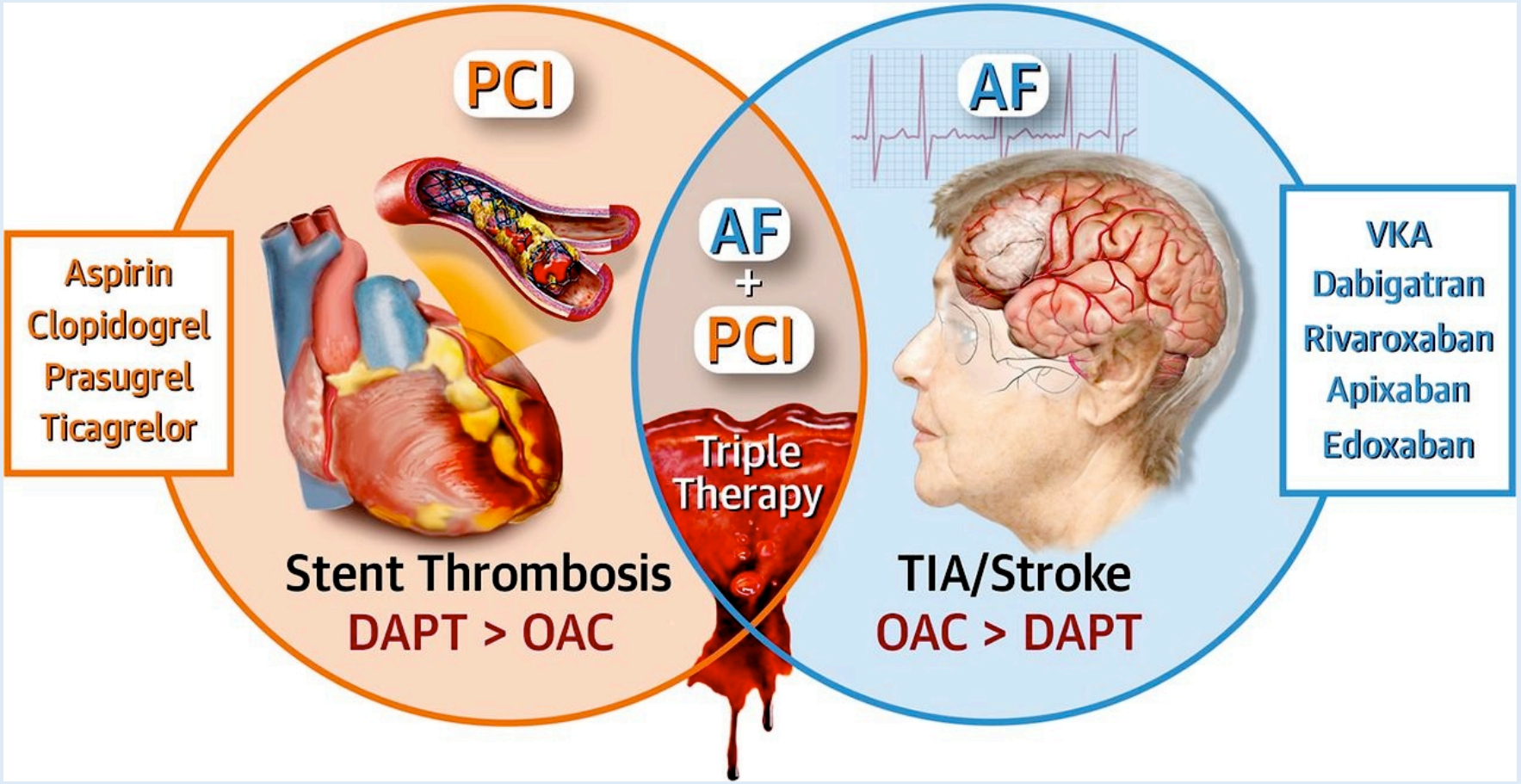
Geplante Koronarangiografie



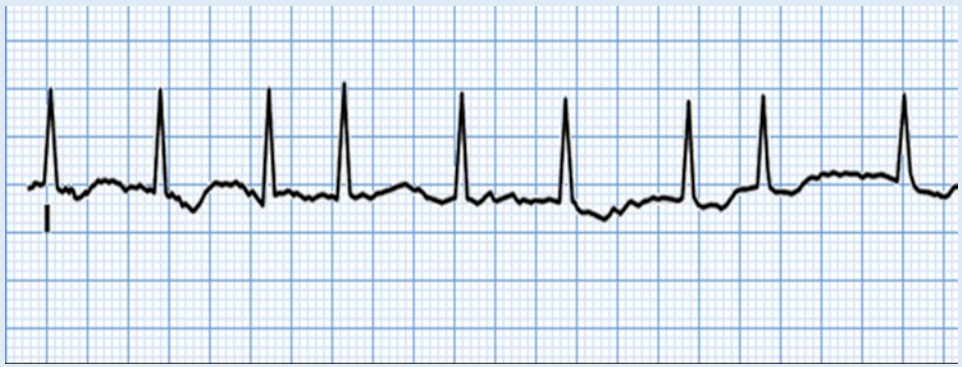
schwerwiegende Blutungskomplikationen

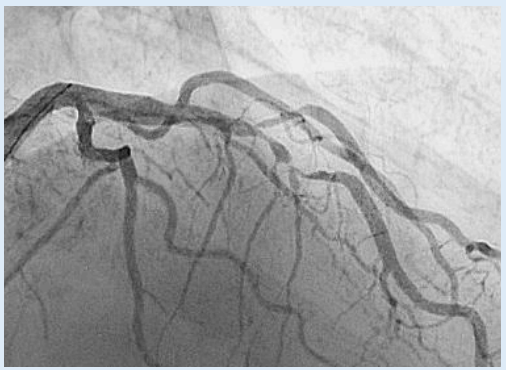


Das Problem


PCI
Aspirin
Clopidogrel
Prasugrel
Ticagrelor
Stent Thrombosis
DAPT > OAC
AF
+
PCI
Triple Therapy
AF
VKA
Dabigatran
Rivaroxaban
Apixaban
Edoxaban
TIA/Stroke
OAC > DAPT

Das Problem - Die Lösung





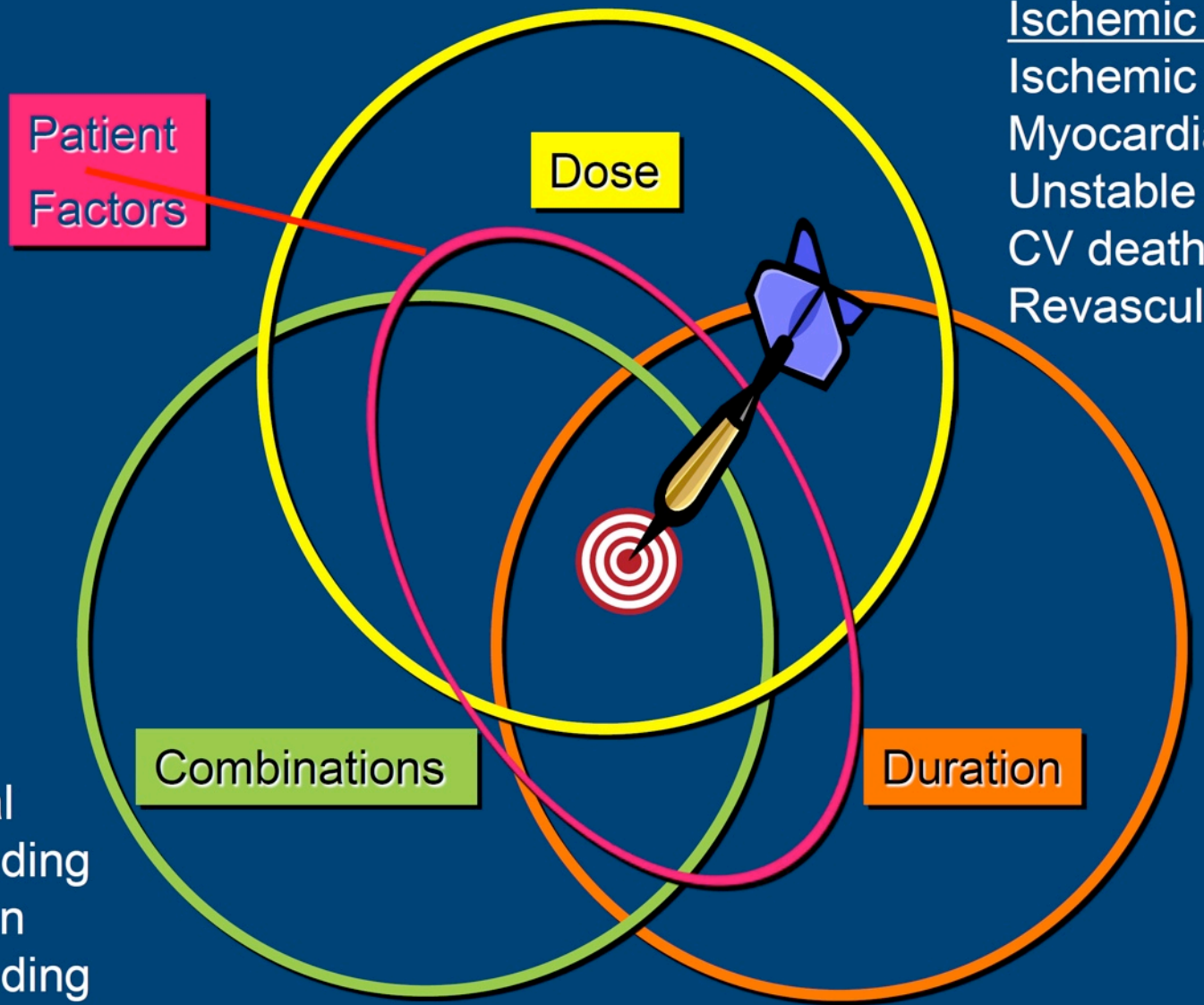
Antikoagulation

- Zerebrovaskuläre ischämische Ereignisse
- Blutung

DAPT

- Stent Thrombose
- Blutung

The Sweet Spot for Antithrombotics

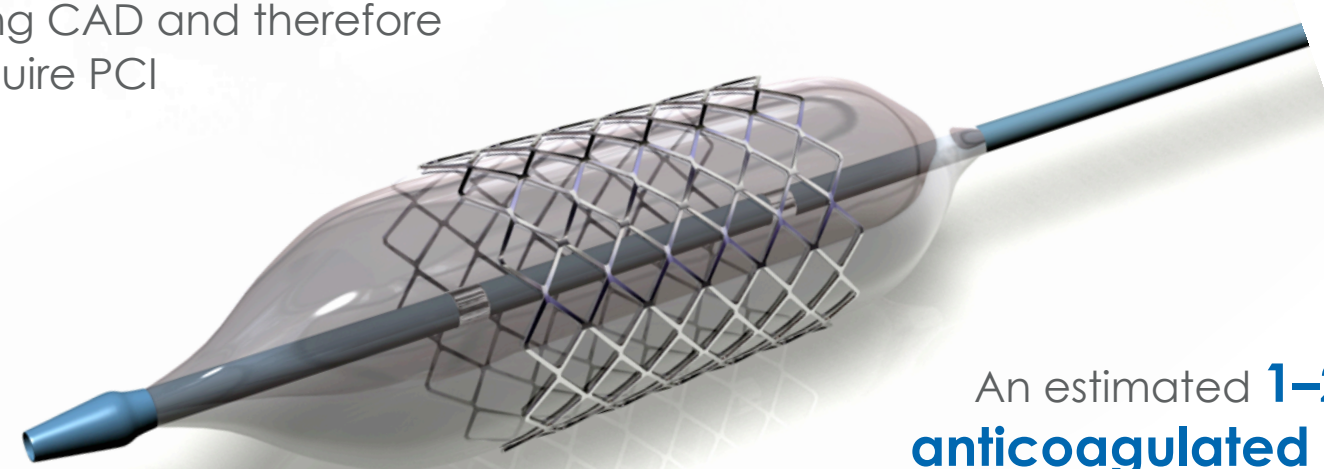


Ischemic Events
Ischemic stroke
Myocardial infarction
Unstable angina
CV death
Revascularization

Bleeding
Intracranial
Major bleeding
Transfusion
Minor bleeding

AF & PCI

20–30% of patients with AF and an indication for continuous OAC have coexisting CAD and therefore may require PCI

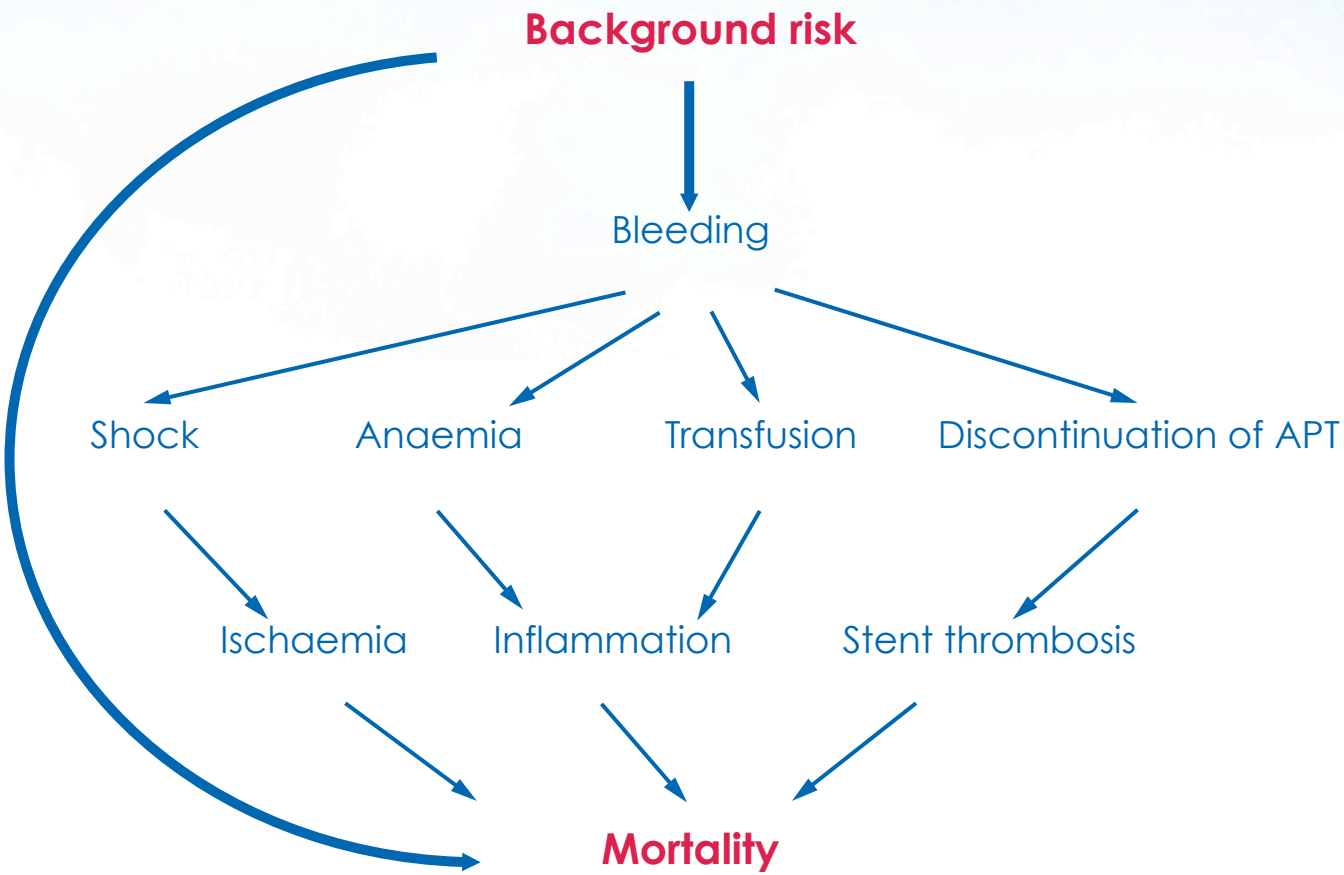


An estimated **1–2 million anticoagulated patients** in Europe are candidates for PCI procedures

Stenting requires follow-up treatment with antiplatelets, which puts anticoagulated patients at **higher risk of bleeding**

CAD; coronary artery disease; PCI, percutaneous coronary intervention
Lip et al. Thromb Haemost 2010

Blutungen erhöhen die Mortalität



Compared with patients without bleeding, patients who experience bleeding are more likely to die, not only early (in hospital) but also late (after discharge)

APT, antiplatelet therapy; PCI, percutaneous coronary intervention; Steg et al. Eur Heart J 2011

NOACS - DAPT

RE-LY[1]	ROCKET-AF[2]	ARISTOTLE[3]	ENGAGE AF[4]
4.5% received DAPT	**0%** DAPT not permitted	**0%** DAPT not permitted	**0%** DAPT not permitted
32% ASA alone	36% ASA alone	31% ASA alone	29% ASA alone
1.9% clopidogrel alone		1.9% clopidogrel alone	2.3 % clopidogrel alone

RE-LY is the only NOAC AF trial in which concomitant ASA + clopidogrel was not contraindicated[1]

ASA, acetylsalicylic acid; DAPT, dual antiplatelet therapy

1. Dans AL et al. Circulation 2013; 2. Patel MR et al. N Engl J Med 2011;
3. Granger CB et al. N Engl J Med 2011; 4. Giugliano RP et al. N Engl J Med 2013

PCI - NOACS - APT

PIONEER AF-PCI[1]
(rivaroxaban)
Parallel assignment
Complete

RE-DUAL PCI[2,3]
(dabigatran)
Parallel assignment
Complete

ESC 2017

AUGUSTUS ACS/PCI[4]
(apixaban)
2x2 factorial
Ongoing

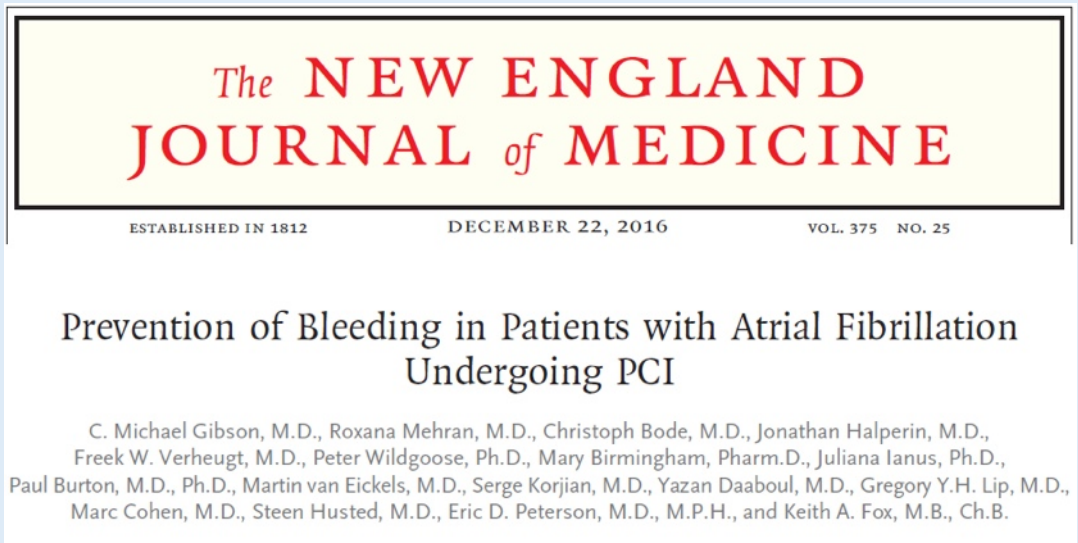
ENTRUST-AF-PCI[5]
(edoxaban)
Parallel assignment
Ongoing

*Patients receiving OAC + antiplatelet

1. Gibson et al. N Engl J Med 2016; 2. Cannon et al. Clin Cardiol 2016; 3. ClinicalTrials.gov: NCT02164864;
4. ClinicalTrials.gov: NCT02415400; 5. ClinicalTrials.gov: NCT02866175

Evidenz für duale Therapie

1. PIONEER AF 2016



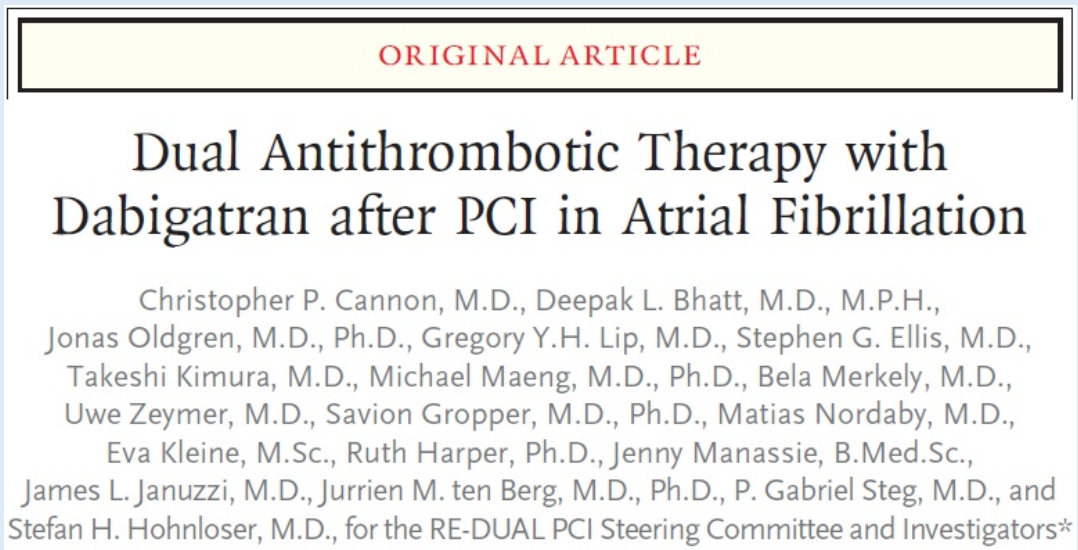
The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 DECEMBER 22, 2016 VOL. 375 NO. 25

Prevention of Bleeding in Patients with Atrial Fibrillation Undergoing PCI

C. Michael Gibson, M.D., Roxana Mehran, M.D., Christoph Bode, M.D., Jonathan Halperin, M.D., Freek W. Verheugt, M.D., Peter Wildgoose, Ph.D., Mary Birmingham, Pharm.D., Juliana Ianus, Ph.D., Paul Burton, M.D., Ph.D., Martin van Eickels, M.D., Serge Korjian, M.D., Yazan Daaboul, M.D., Gregory Y.H. Lip, M.D., Marc Cohen, M.D., Steen Husted, M.D., Eric D. Peterson, M.D., M.P.H., and Keith A. Fox, M.B., Ch.B.

2. RE-DUAL PCI 2017

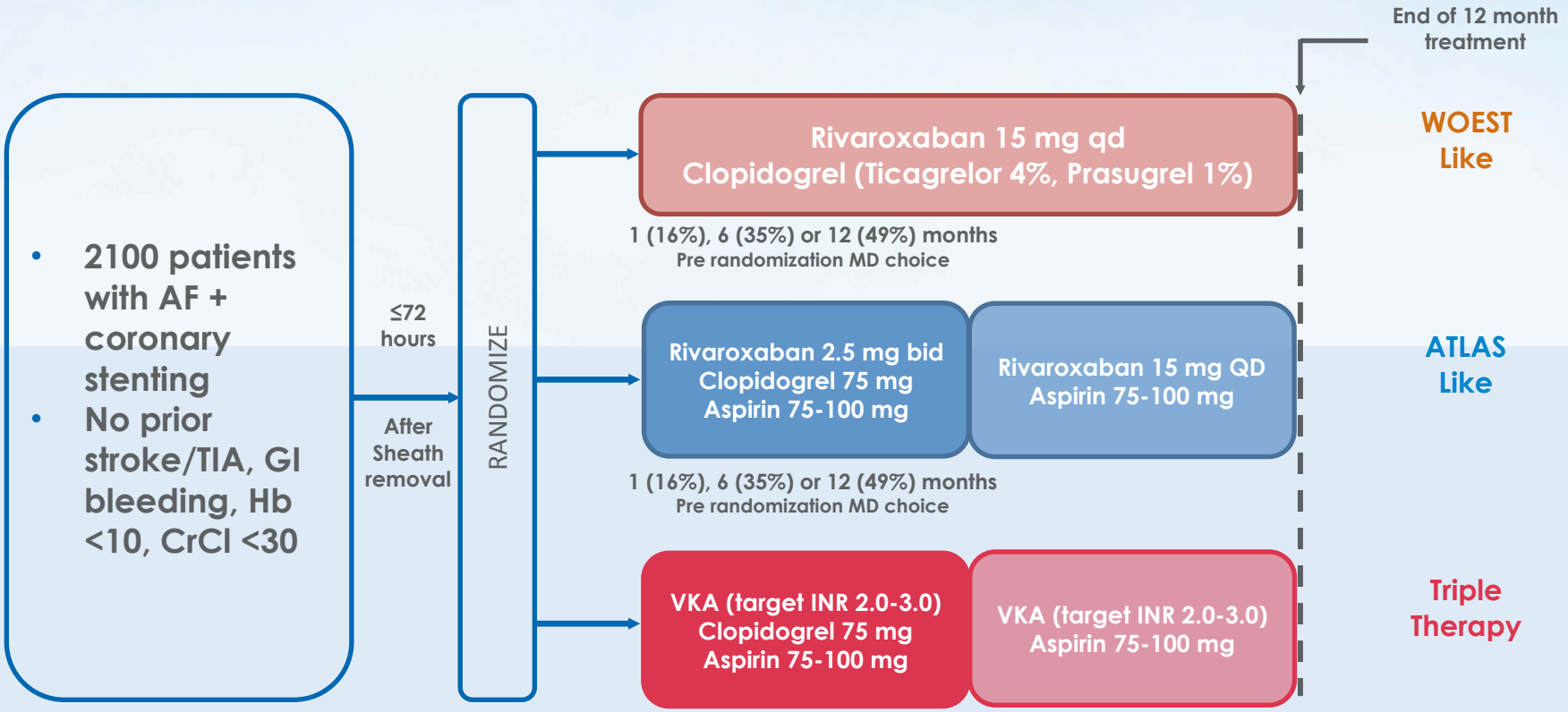


ORIGINAL ARTICLE

Dual Antithrombotic Therapy with Dabigatran after PCI in Atrial Fibrillation

Christopher P. Cannon, M.D., Deepak L. Bhatt, M.D., M.P.H., Jonas Oldgren, M.D., Ph.D., Gregory Y.H. Lip, M.D., Stephen G. Ellis, M.D., Takeshi Kimura, M.D., Michael Maeng, M.D., Ph.D., Bela Merkely, M.D., Uwe Zeymer, M.D., Savion Gropper, M.D., Ph.D., Matias Nordaby, M.D., Eva Kleine, M.Sc., Ruth Harper, Ph.D., Jenny Manassie, B.Med.Sc., James L. Januzzi, M.D., Jurrien M. ten Berg, M.D., Ph.D., P. Gabriel Steg, M.D., and Stefan H. Hohnloser, M.D., for the RE-DUAL PCI Steering Committee and Investigators*

PIONEER AF-PCI

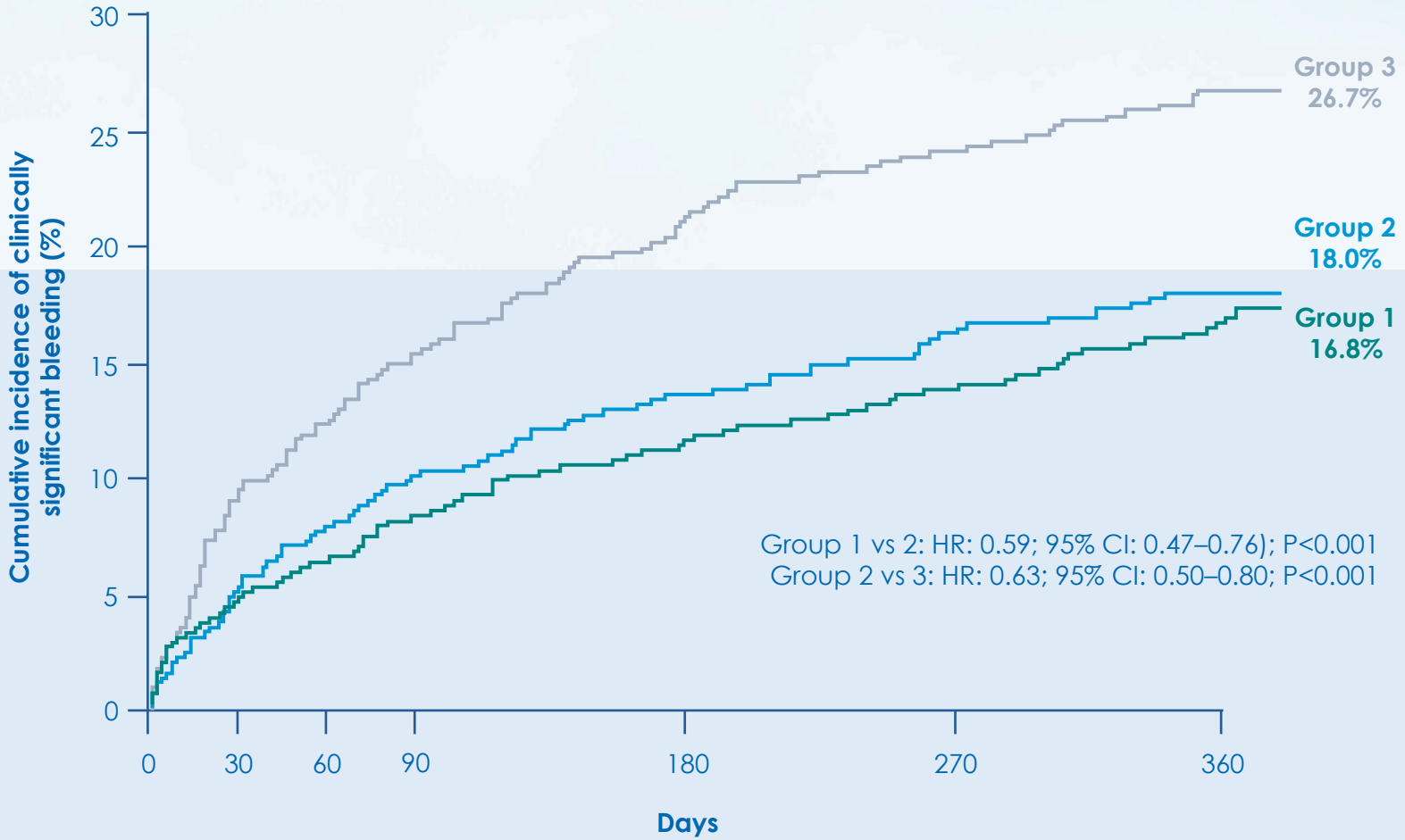


- Primary endpoint: TIMI major + minor + bleeding requiring medical attention
- Secondary endpoint: CV death, MI, and stroke

Gibson CM et al. N Engl J Med 2016; Gibson CM et al. Circulation 2016

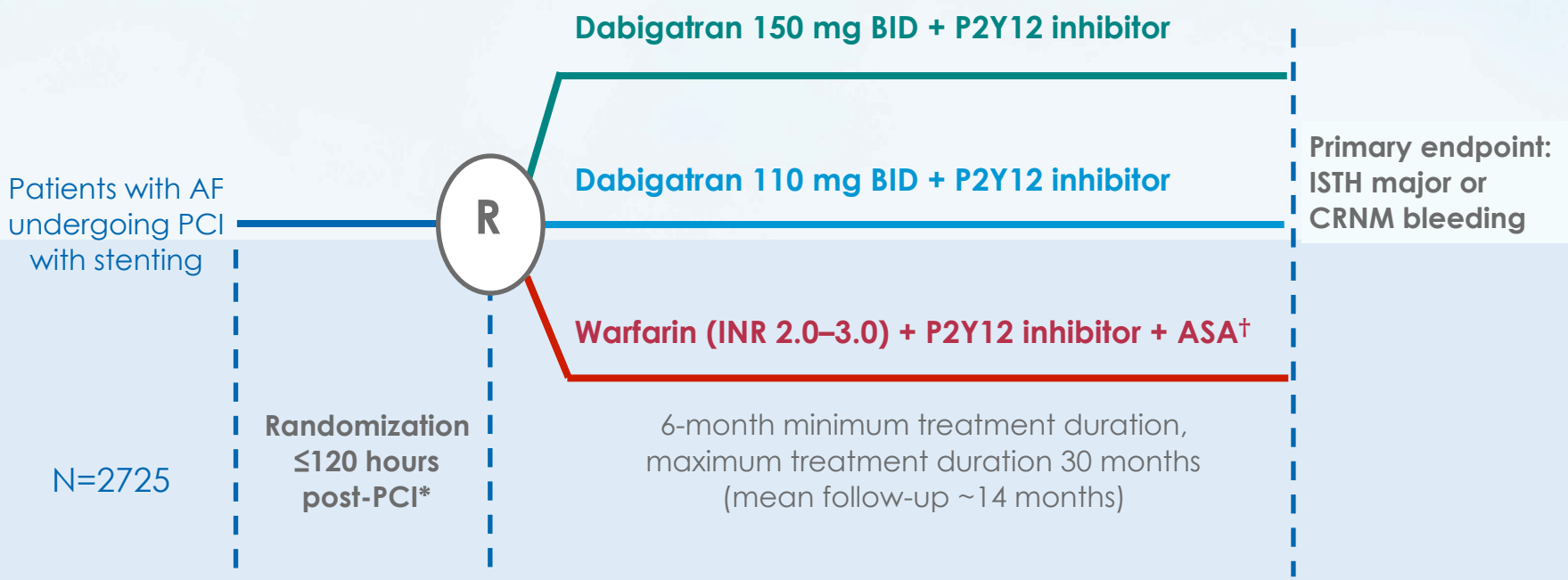
PIONEER AF-PCI

Composite of bleeding events*



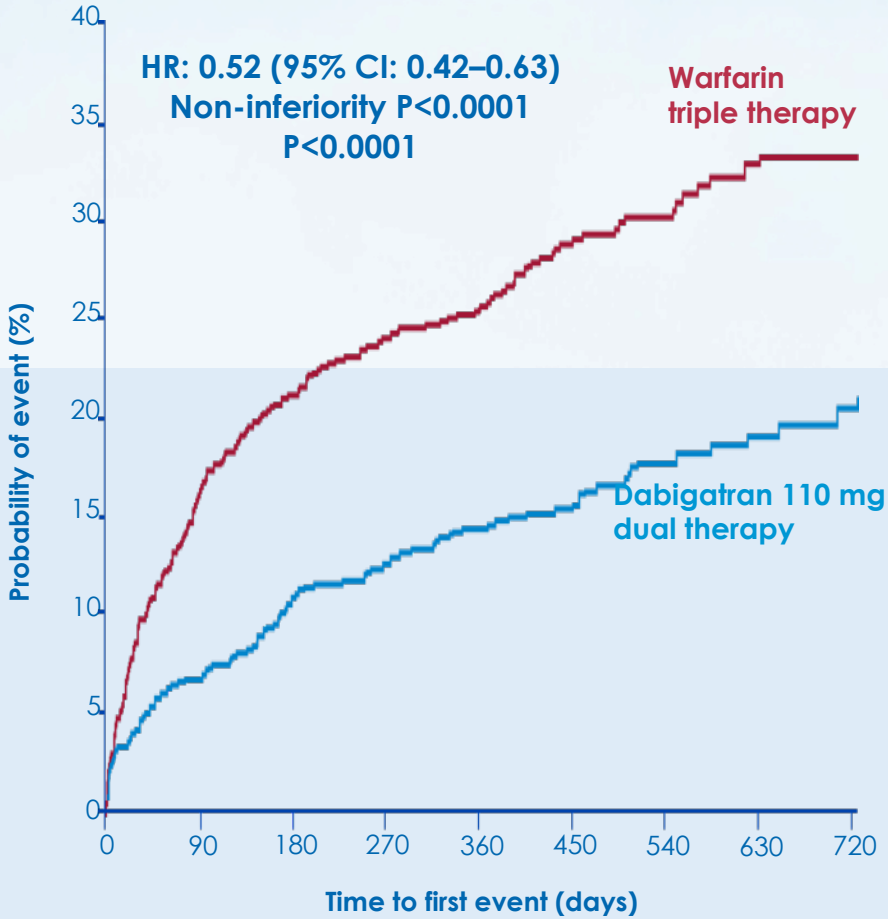
*Composite of major bleeding or minor bleeding according to TIMI criteria or bleeding requiring medical attention; †Trial not powered to definitively establish superiority or noninferiority. TIMI, Thrombolysis in Myocardial Infarction; Gibson et al. N Engl J Med 2016

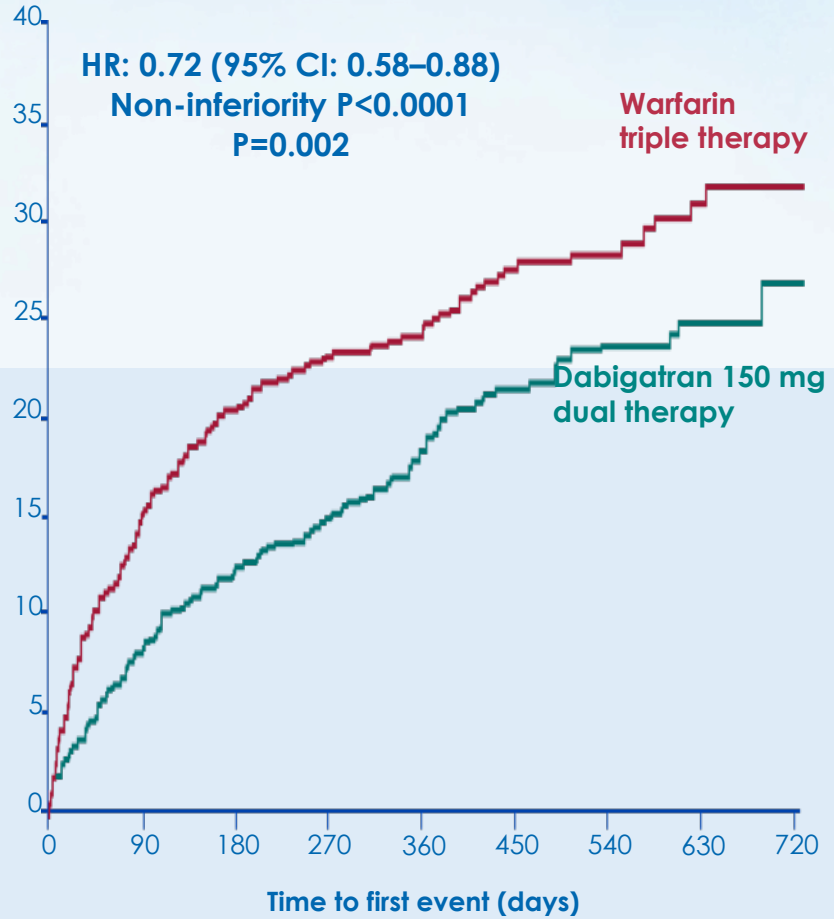
RE-DUAL PCI



*Study drug should be administered 6 hours after sheath removal and no later than ≤120 hrs post-PCI (≤72 hrs is preferable).
PROBE, prospective, randomized, open, blinded end-point; R, randomization; BMS, bare metal stent; DES, drug-eluting stent.
ClinicalTrials.gov: NCT02164864; Cannon et al. Clin Cardiol 2016; Cannon et al. N Engl J Med 2017

RE-DUAL PCI





For the dabigatran 150 mg vs warfarin comparison, elderly patients outside the USA (≥80 years) and Japan (≥70 years) are excluded. Full analysis set presented

CRNMBE, clinically relevant non-major bleeding event; ISTH, International Society on Thrombosis and Haemostasis;

Cannon et al. N Engl J Med 2017

NOACS - Dosis

"If a NOAC is used,
the **LOWEST TESTED DOSE** for stroke prevention should be used
in combination therapy":

Dabigatran 110 mg twice a day *(n = 6015, RE-LY)*

Edoxaban 30 mg once a day *(n = 7034, ENGAGE AF)*

Apixaban 2.5 mg twice a day *(n = 428, ARISTOTLE)*

Rivaroxaban 15 mg once a day *(n = 1474, ROCKET AF)*

Ticagrelor - Prasugrel

Should be avoided (no data available),

UNLESS there is a clear need for these agents

(e.g. stent thrombosis on dual/triple therapy with clopidogrel)

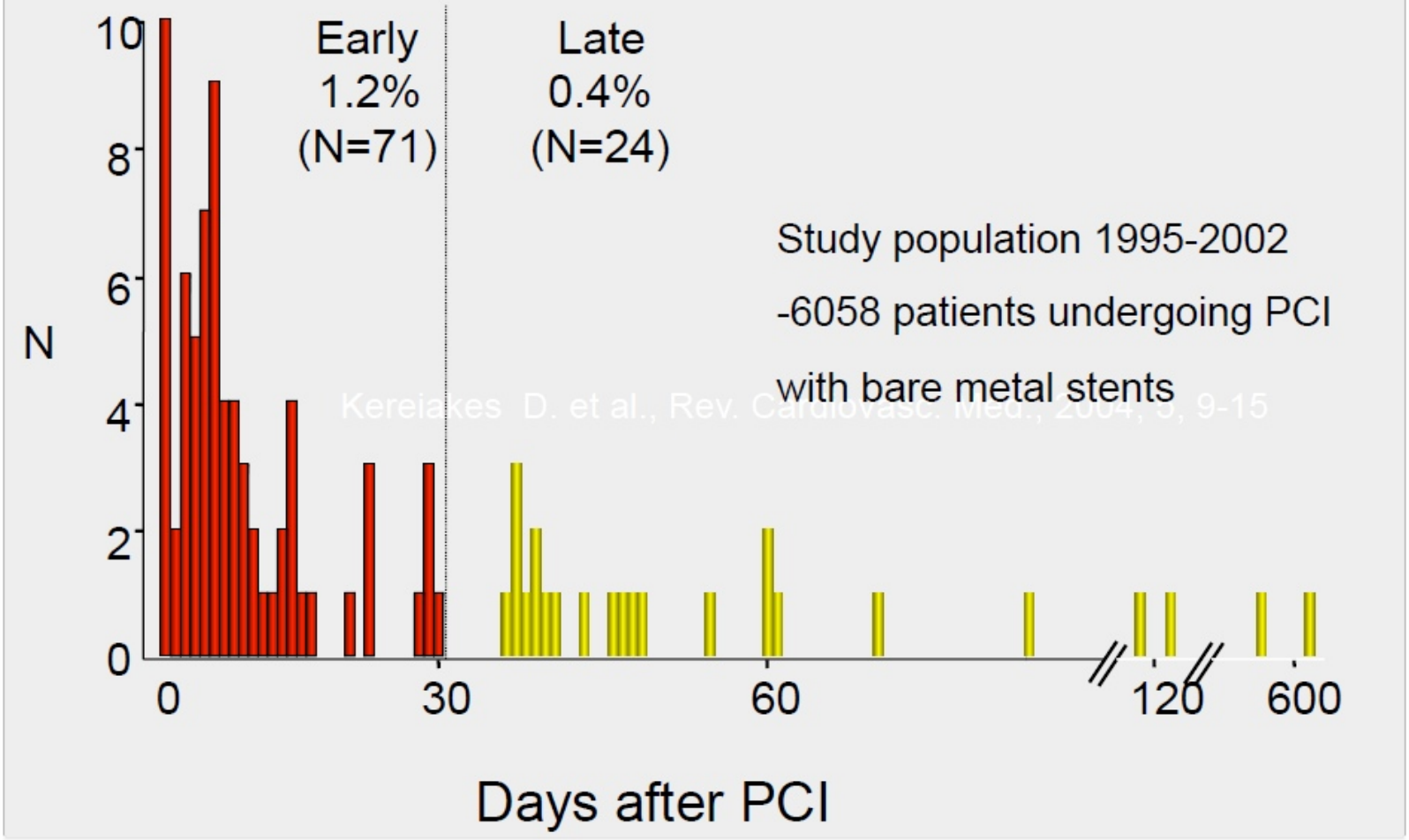
Kirchhof P et al. Eur Heart J 2016

Stent Thrombose

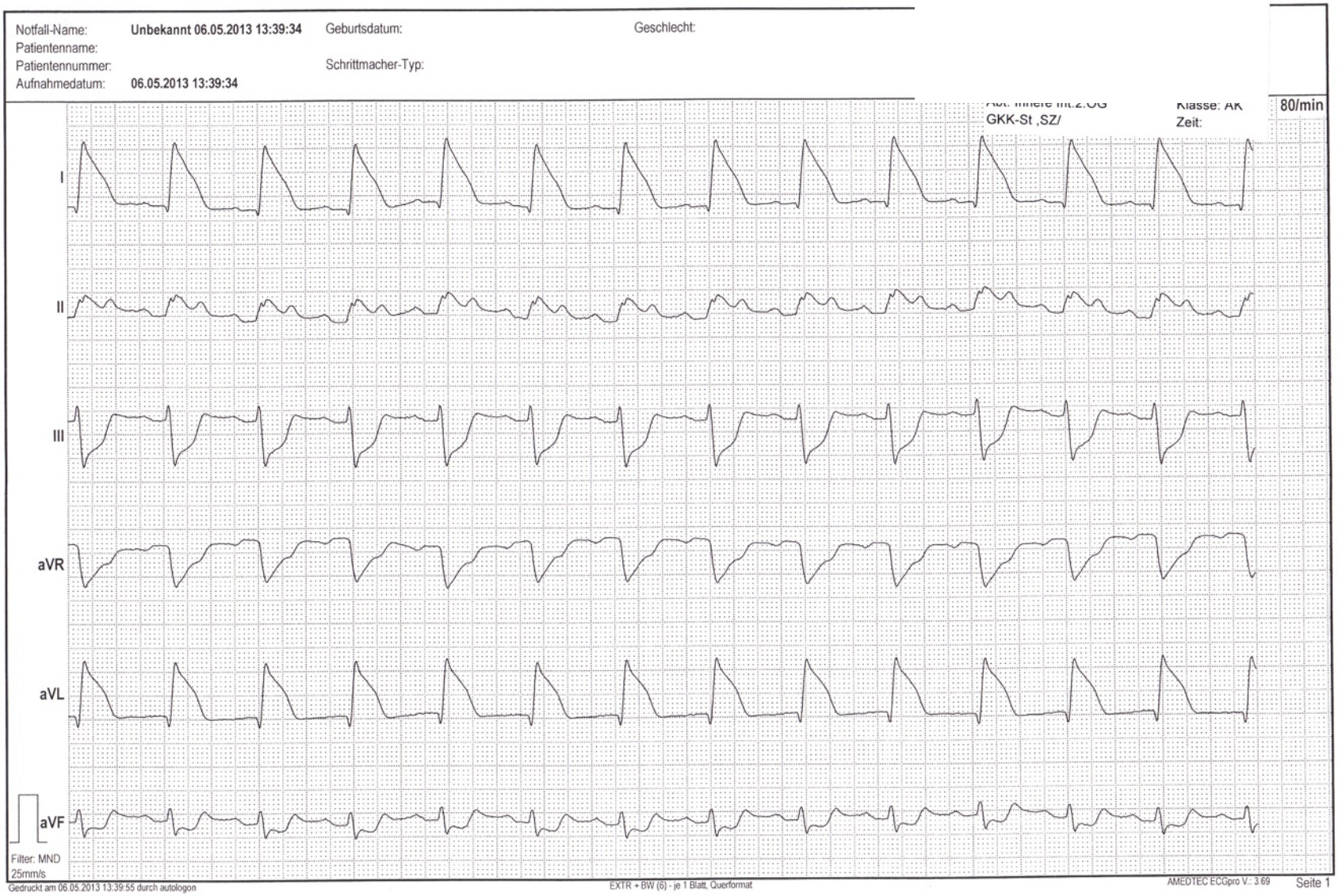
Frühe ≤ 1 Mo	Späte > 1 Mo ≤ 1Jahr	Sehr späte > 1Jahr

Tag 0	bis Tag 1	Akute Stentthrombose
>Tag 1	bis 1 Monat	Subakute Stentthrombose (SAT)
>1 Monat	to 1 Jahr	Späte Stentthrombose (LST)
(VLST)	> 1 year	Sehr späte Stentthrombose (VLST)

Stent Thrombose



Wenaweser P et al. Eur Heart J 2005;26:1180-7


Notfall-Name: Unbekannt 06.05.2013 13:39:34
Geburtsdatum:
Geschlecht:
Patientenname:
Patientennummer:
Schrittmacher-Typ:
Aufnahmedatum: 06.05.2013 13:39:34
GKK-St ,SZ/
Klasse: AK
Zeit:
80/min
I
II
III
aVR
aVL
aVF
Filter: MND
25mm/s
Gedruckt am 06.05.2013 13:39:55 durch autologon
EXTR + BW (6) - je 1 Blatt, Querformat
AMEDTEC ECGpro V.: 3.69
Seite 1

Notfall-Name: **Unbekannt 06.05.2013 13:39:34** Geburtsdatum: Geschlecht:

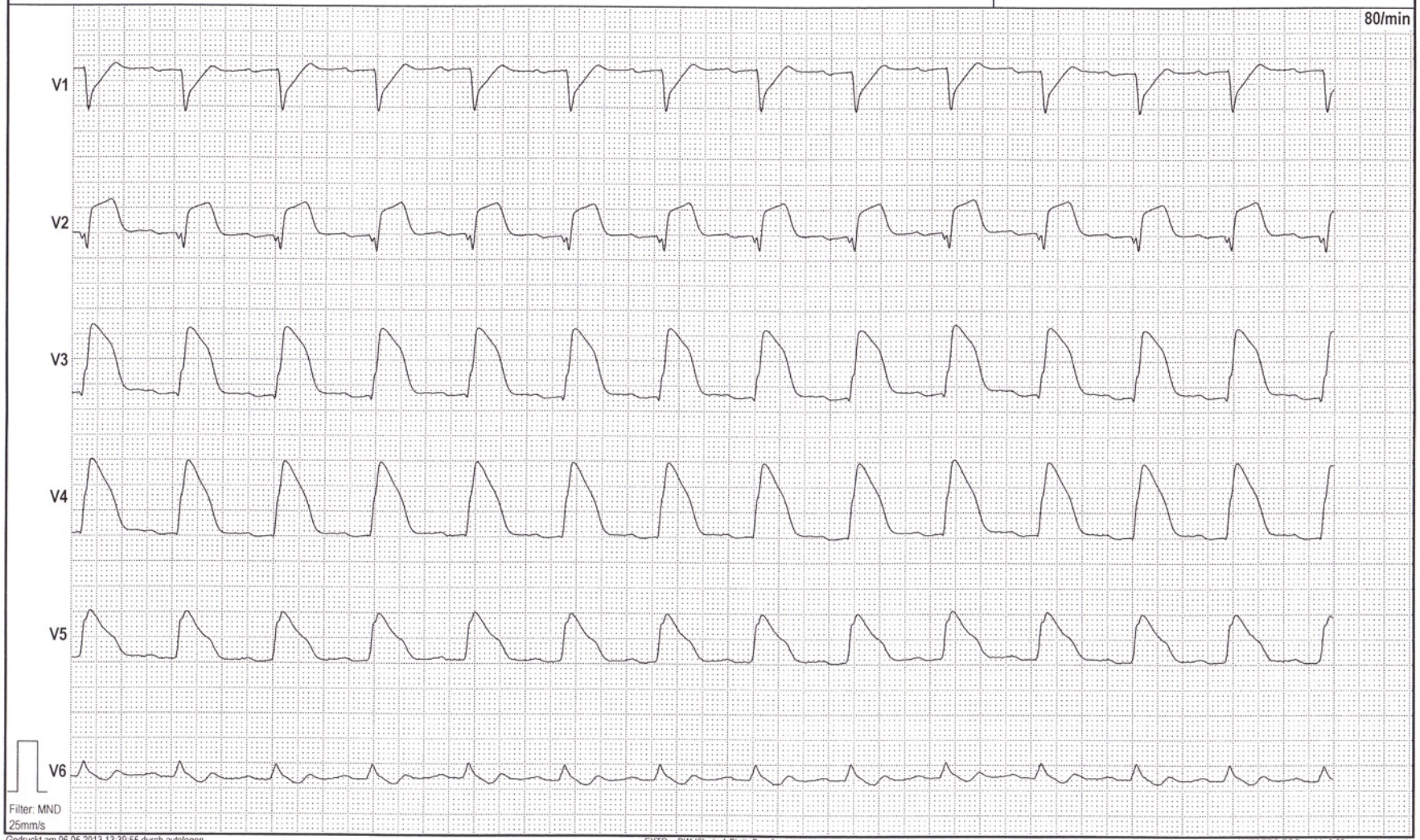
Patientenname:

Patientennummer: Schrittmacher-Typ:

Aufnahmedatum: **06.05.2013 13:39:34**

Kardinal Schwarzenberg`sches Krankenhaus

Tel.: Fax:

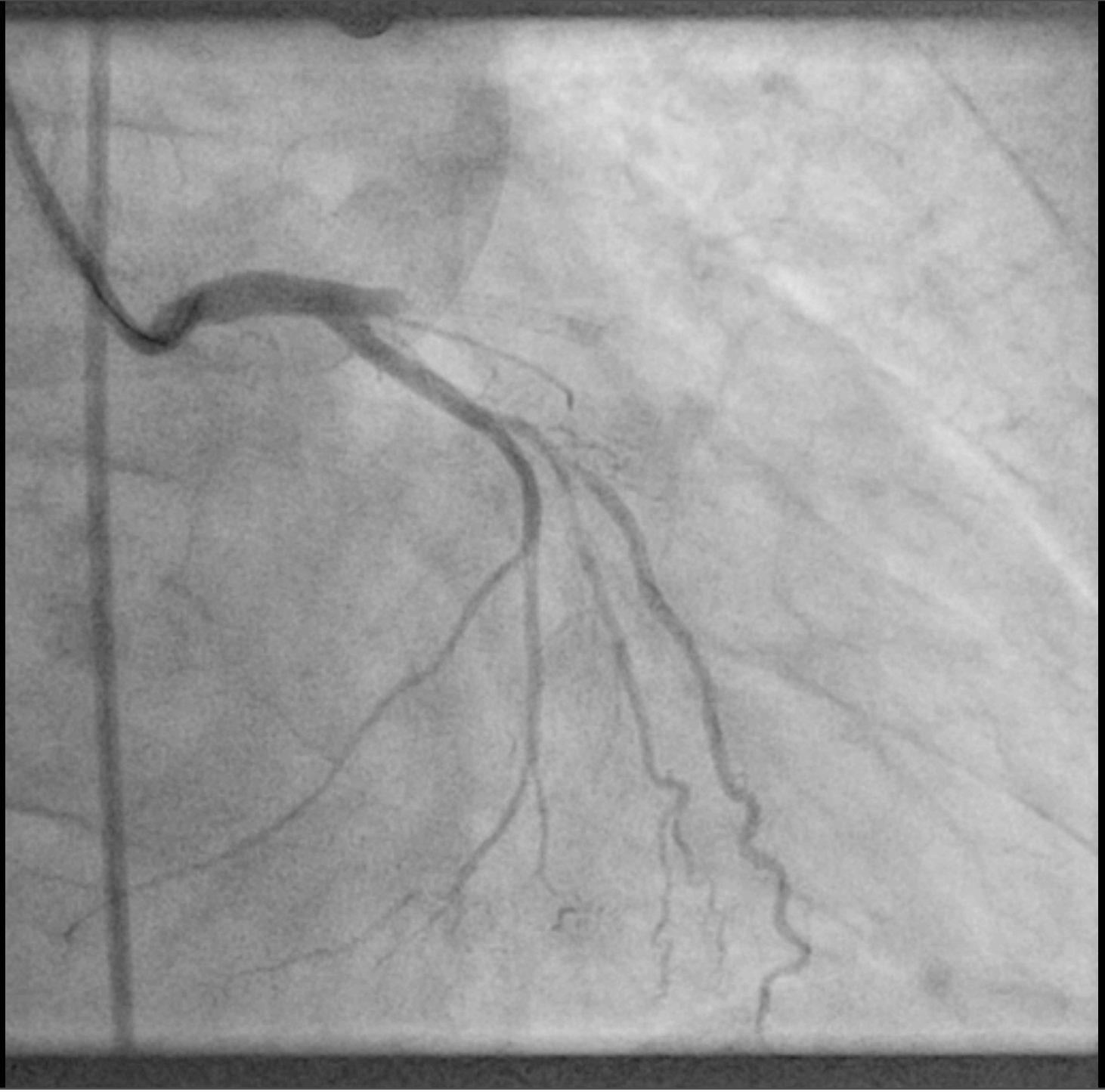


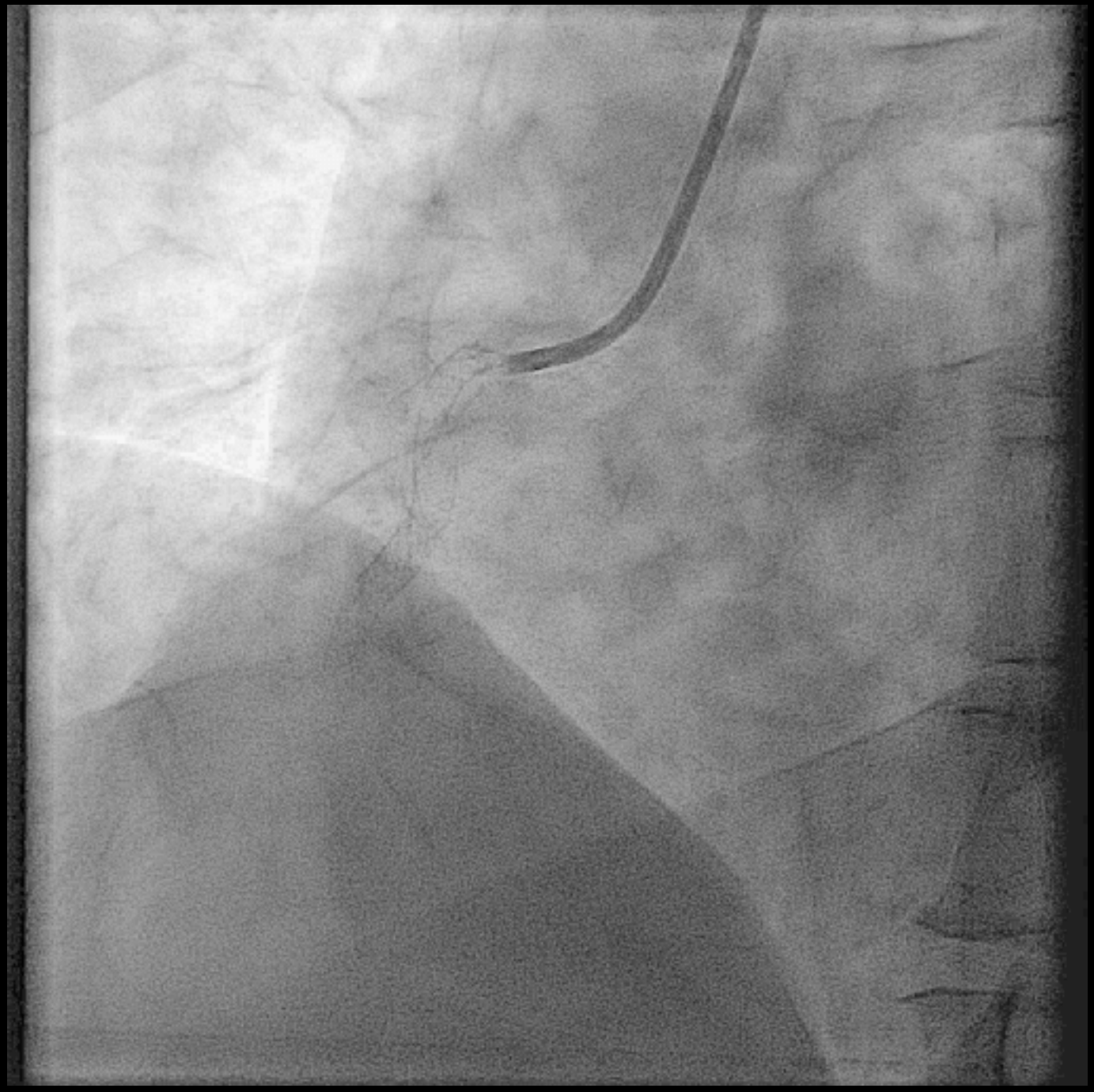
Gedruckt am 06.05.2013 13:39:55 durch autologon

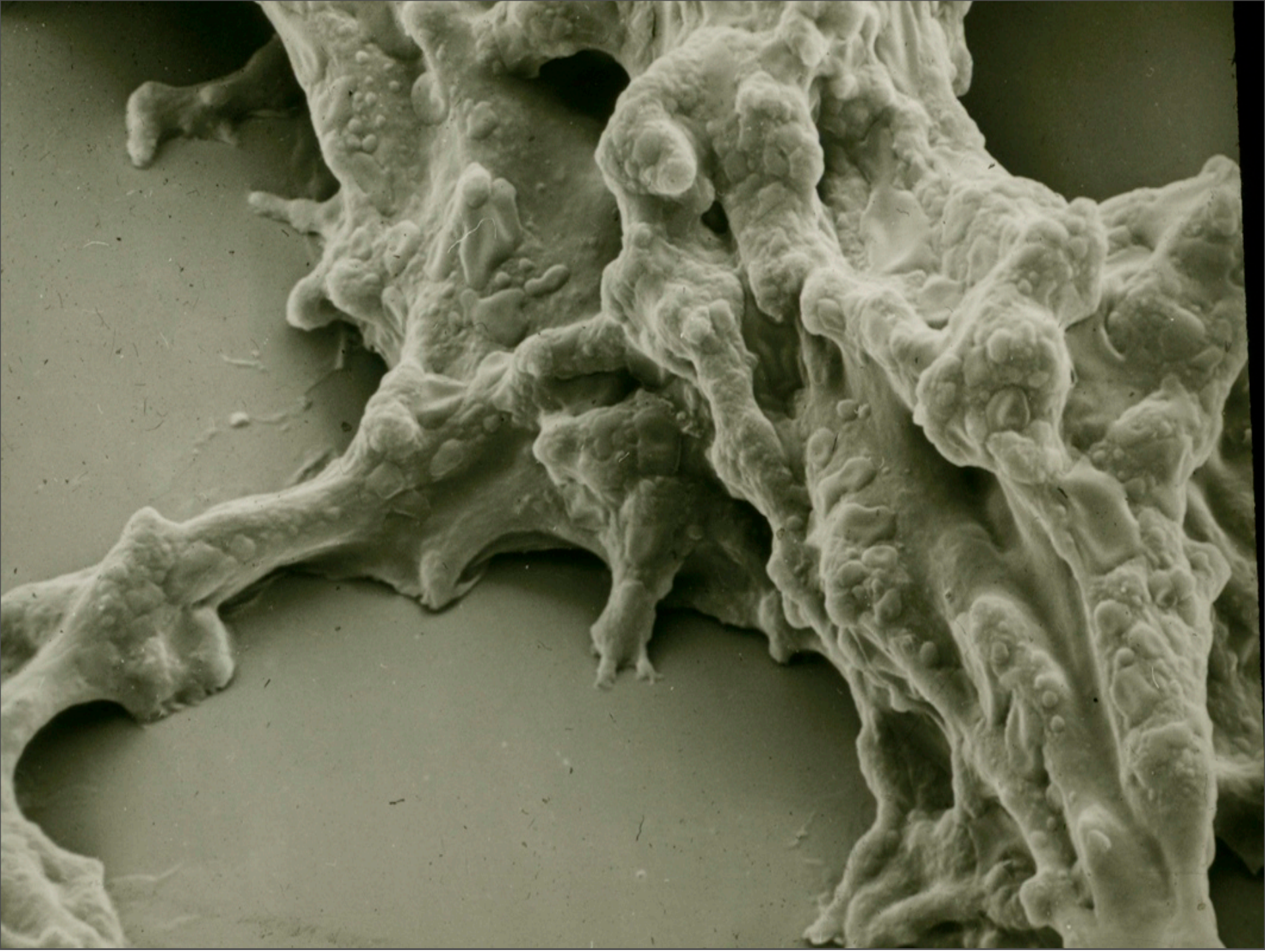
EXTR + BW (6) - je 1 Blatt, Querformat

AMEDTEC ECGpro V.: 3.69

Seite 2

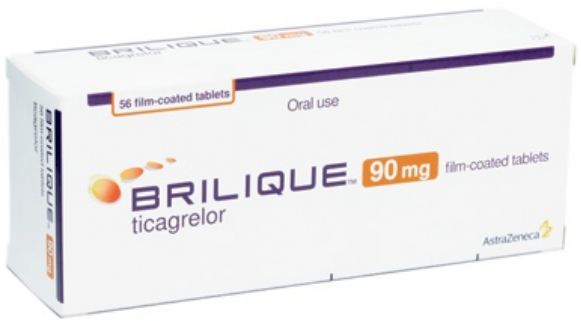






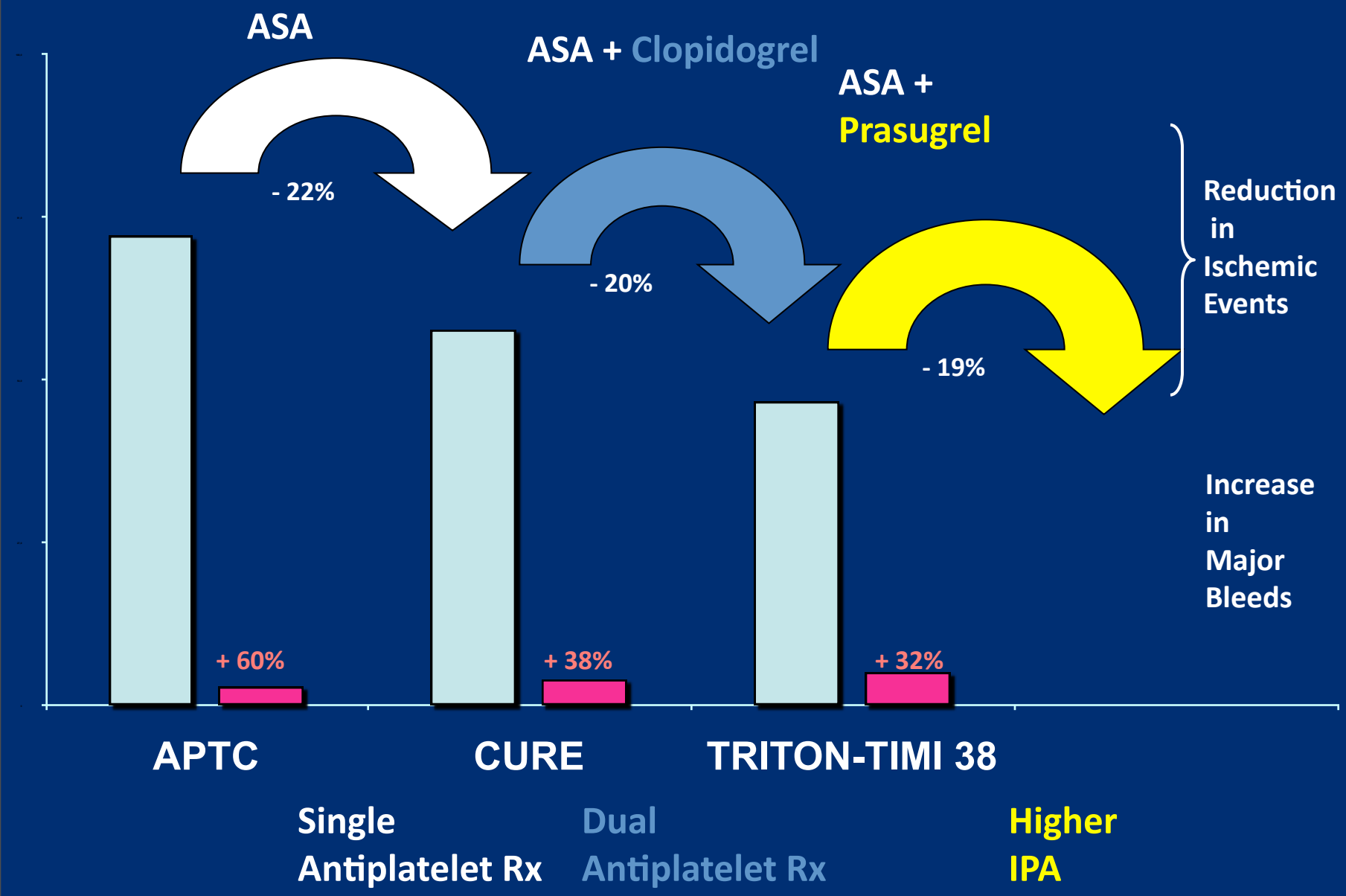

ASPIRIN®
Wirkstoff: Acetylsalicylsäure
BAYER
20 Tabletten N2


Plavix 75 mg
Clopidogrel
comprimés pelliculés
30 comprimés pelliculés

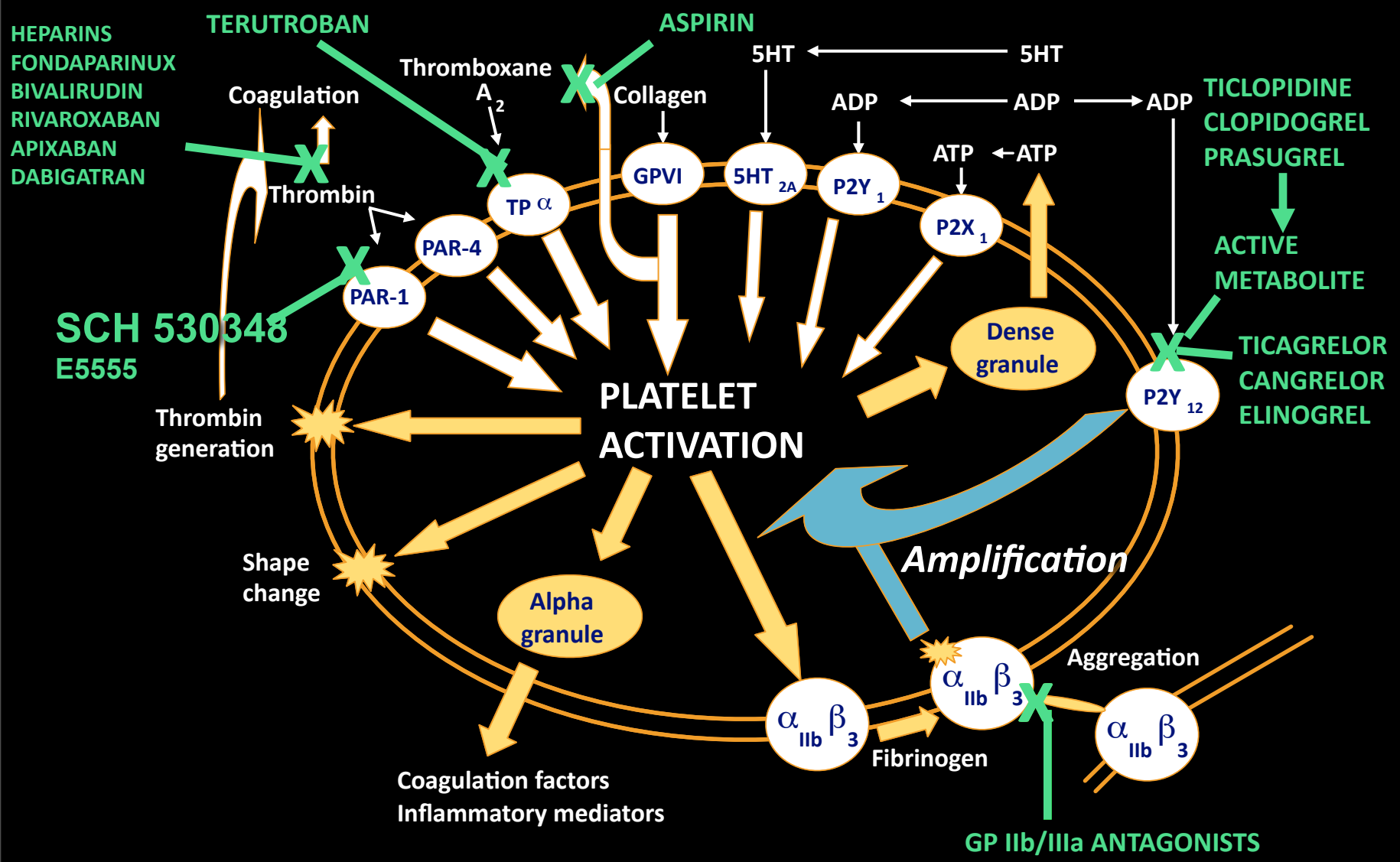

56 film-coated tablets
Oral use
BRILIQUE 90 mg film-coated tablets
ticagrelor
AstraZeneca


28 film-coated tablets
Efient 10 mg
film-coated tablets
prasugrel
Oral use
Lilly

Antiplatelet Therapy in ACS

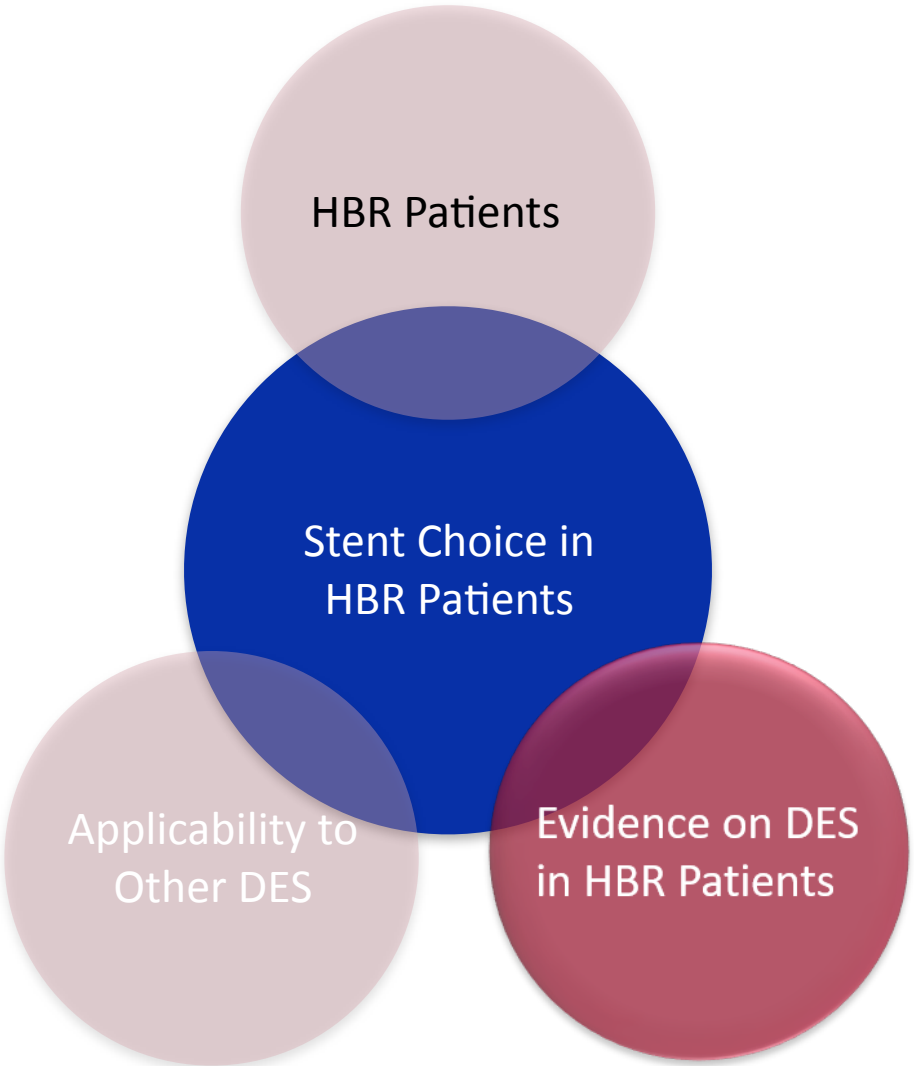


Plättcheninhibitoren

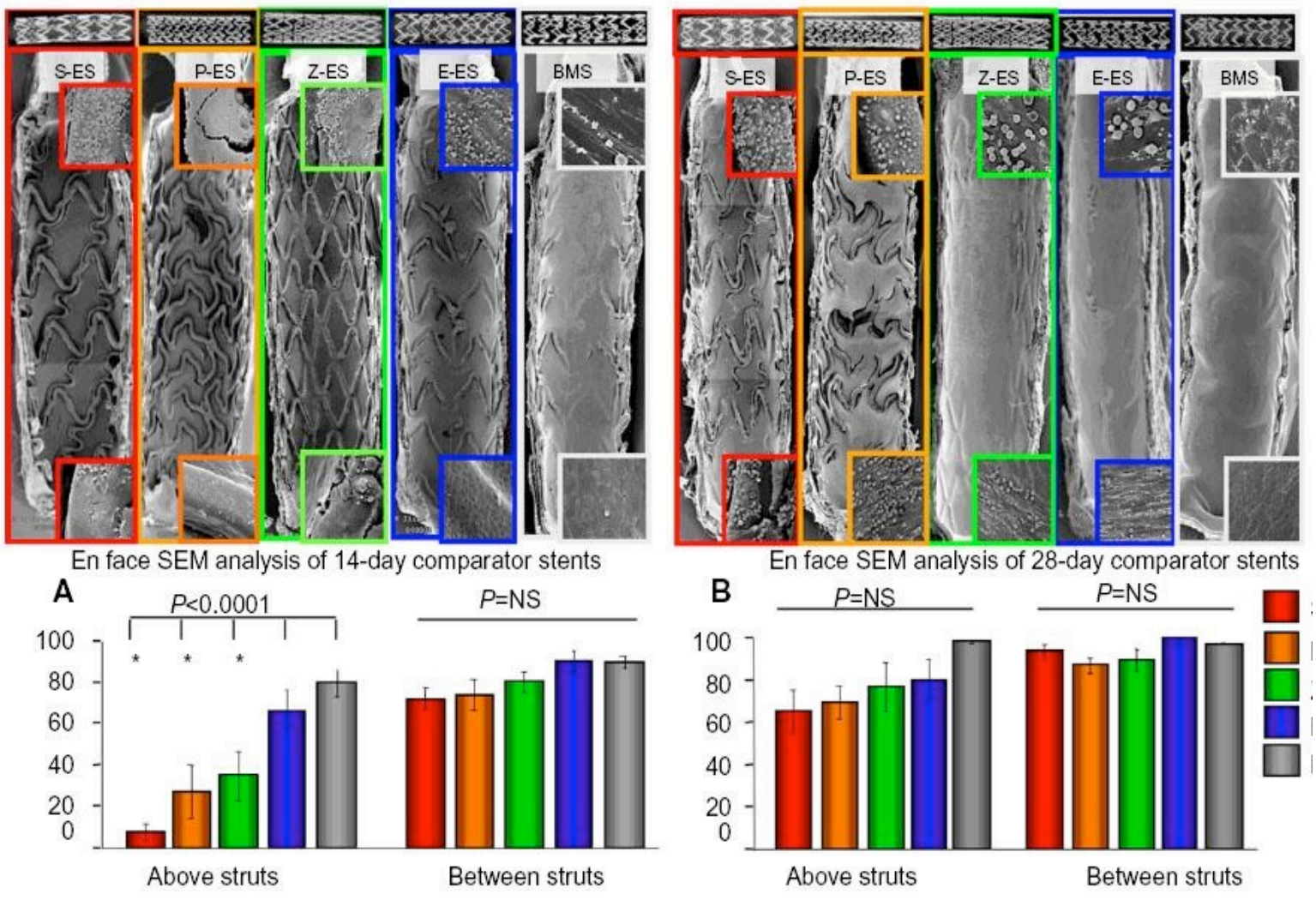


GP = glycoprotein; PAR = protease-activated receptor; TP = thromboxane A_2 / prostaglandin H_2.

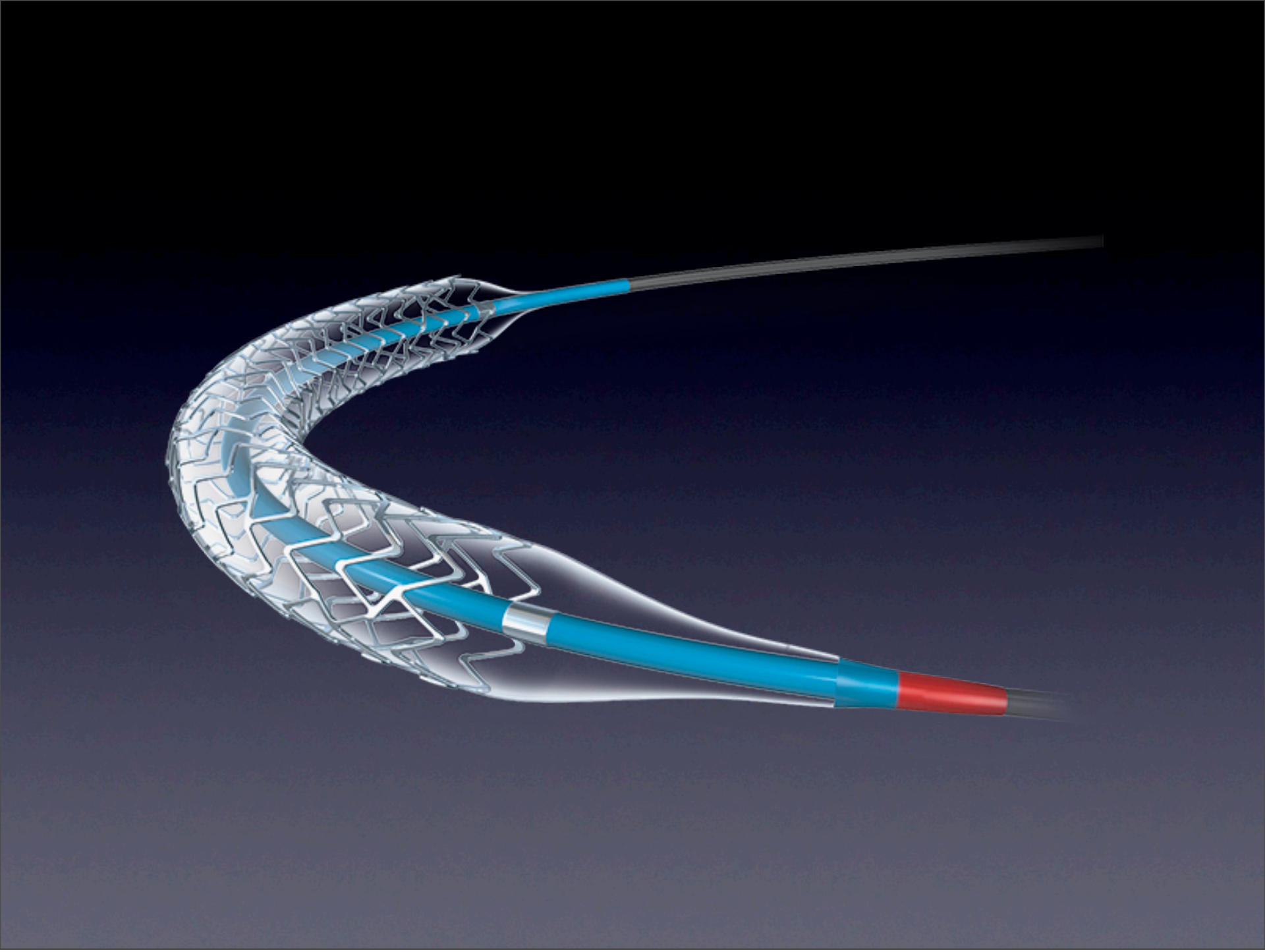
Storey RF. *Curr Pharm Des*. 2006;12:1255-1259.

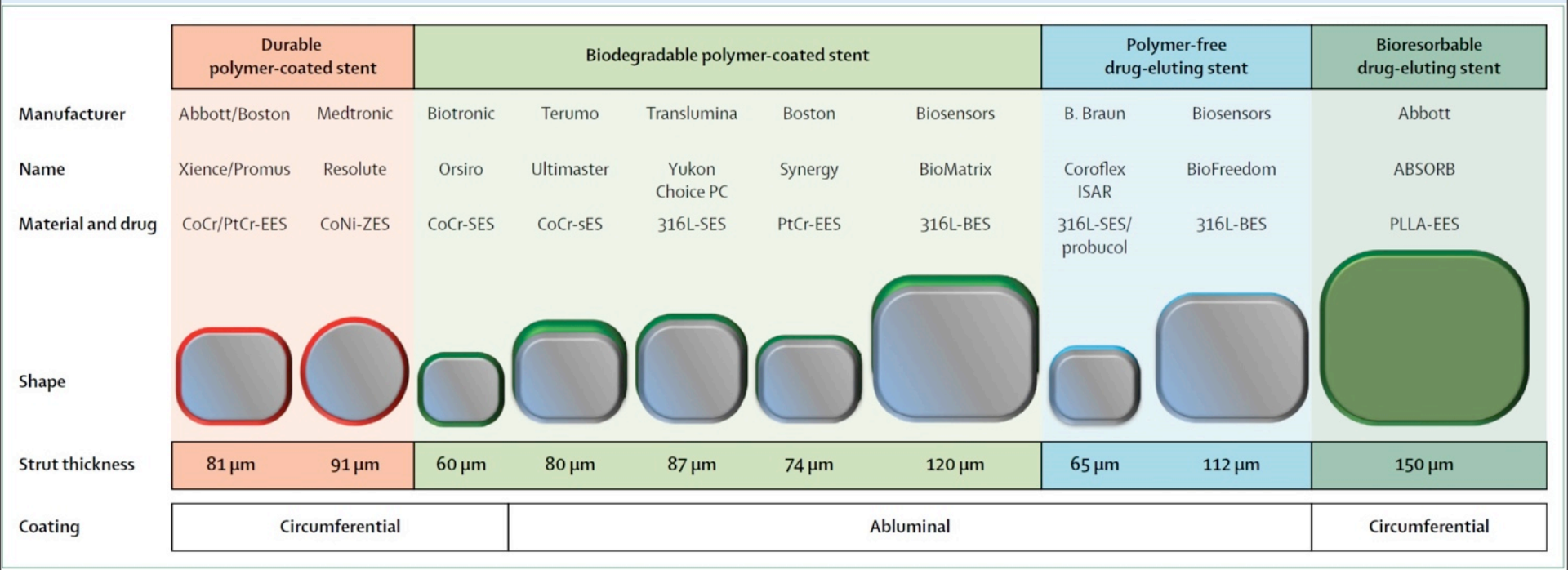

HBR Patients
Stent Choice in HBR Patients
Applicability to Other DES
Evidence on DES in HBR Patients

DES on Endothelialisation - “stent-coverage”



“At pathology, CoCr-EES revealed less inflammation and greater strut coverage when compared to 1st Gen DES, while maintaining similar efficacy in reducing neointimal growth. Specifically, in small vessel disease, CoCr-EES have been shown to be less thrombogenic compared to 1st Gen DES.”




Durable polymer-coated stent
Biodegradable polymer-coated stent
Polymer-free drug-eluting stent
Bioresorbable drug-eluting stent
Manufacturer
Abbott/Boston
Medtronic
Biotronic
Terumo
Translumina
Boston
Biosensors
B. Braun
Biosensors
Abbott
Name
Xience/Promus
Resolute
Orsiro
Ultimaster
Yukon Choice PC
Synergy
BioMatrix
Coroflex ISAR
BioFreedom
ABSORB
Material and drug
CoCr/PtCr-EES
CoNi-ZES
CoCr-SES
CoCr-sES
316L-SES
PtCr-EES
316L-BES
316L-SES/ probucol
316L-BES
PLLA-EES
Shape
Strut thickness
81 µm
91 µm
60 µm
80 µm
87 µm
74 µm
120 µm
65 µm
112 µm
150 µm
Coating
Circumferential
Abluminal
Circumferential

DAPT Positionspapier 2017

ESC European Society of Cardiology

European Heart Journal (2017) **0**, 1–48
doi:10.1093/eurheartj/ehx419

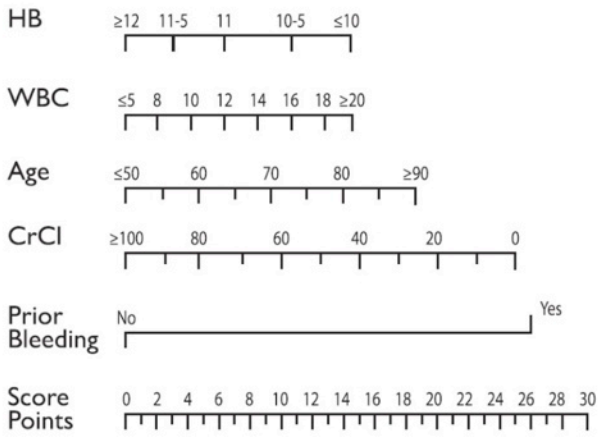
ESC GUIDELINES

2017 ESC focused update on dual antiplatelet therapy in coronary artery disease developed in collaboration with EACTS

The Task Force for dual antiplatelet therapy in coronary artery disease of the European Society of Cardiology (ESC) and of the European Association for Cardio-Thoracic Surgery (EACTS)

Authors/Task Force Members: Marco Valgimigli* (Chairperson) (Switzerland), Héctor Bueno (Spain), Robert A. Byrne (Germany), Jean-Philippe Collet (France), Francesco Costa (Italy), Anders Jeppsson[1] (Sweden), Peter Jüni (Canada), Adnan Kastrati (Germany), Philippe Kolh (Belgium), Laura Mauri (USA), Gilles Montalescot (France), Franz-Josef Neumann (Germany), Mate Petricevic[1] (Croatia), Marco Roffi (Switzerland), Philippe Gabriel Steg (France), Stephan Windecker (Switzerland), and Jose Luis Zamorano (Spain)

DAPT Positionspapier 2017

	PRECISE-DAPT score[18]	DAPT score[15]	
Time of use	At the time of coronary stenting	After 12 months of uneventful DAPT	
DAPT duration strategies assessed	Short DAPT (3–6 months) vs. Standard/long DAPT (12–24 months)	Standard DAPT (12 months) vs. Long DAPT (30 months)	
Score calculation[a]		Age ≥75 65 to <75 <65 Cigarette smoking Diabetes mellitus MI at presentation Prior PCI or prior MI Paclitaxel-eluting stent Stent diameter <3 mm CHF or LVEF <30% Vein graft stent	 –2 pt –1 pt 0 pt +1 pt +1 pt +1 pt +1 pt +1 pt +1 pt +2 pt +2 pt
Score range	0 to 100 points	–2 to 10 points	
Decision making cut-off suggested	Score ≥25 → Short DAPT Score <25 → Standard/long DAPT	Score ≥2 → Long DAPT Score <2 → Standard DAPT	
Calculator	www.precisedaptscore.com	www.daptstudy.org	

PRECISEDAPT

Home | WebCalculator | Disclaimer | About | Contact Us

Haemoglobin unit

11.5

g/dl

mmol/L

Age (years)

78

White blood cells unit

7400

u/mcL

10^9/L

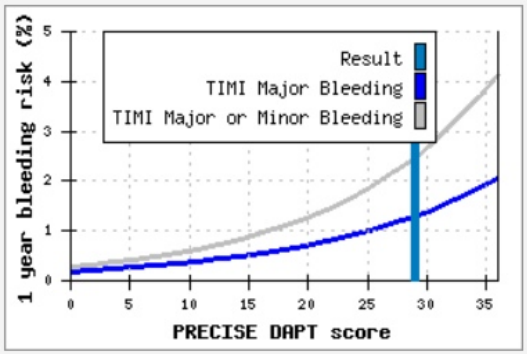
Creatinine Clearance (ml/min)

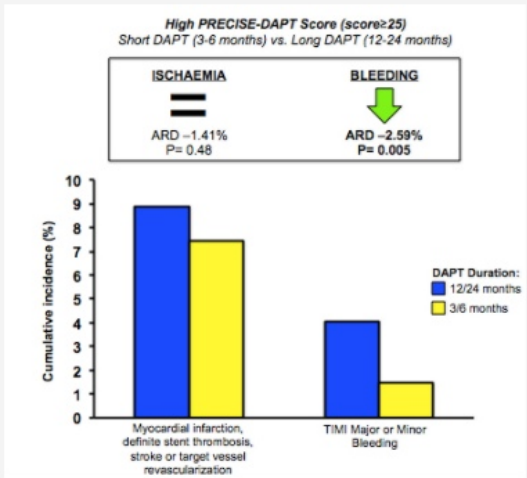
62

Prior Bleeding

CALCULATE

RESET





In patients with high PRECISE-DAPT score (Score>-25) a short DAPT (3-6 months) as compared with a long DAPT (12-24 months) was associated with lower TIMI major and minor bleeding and

RESULT:

Cluster of risk:

High

Score Calculated

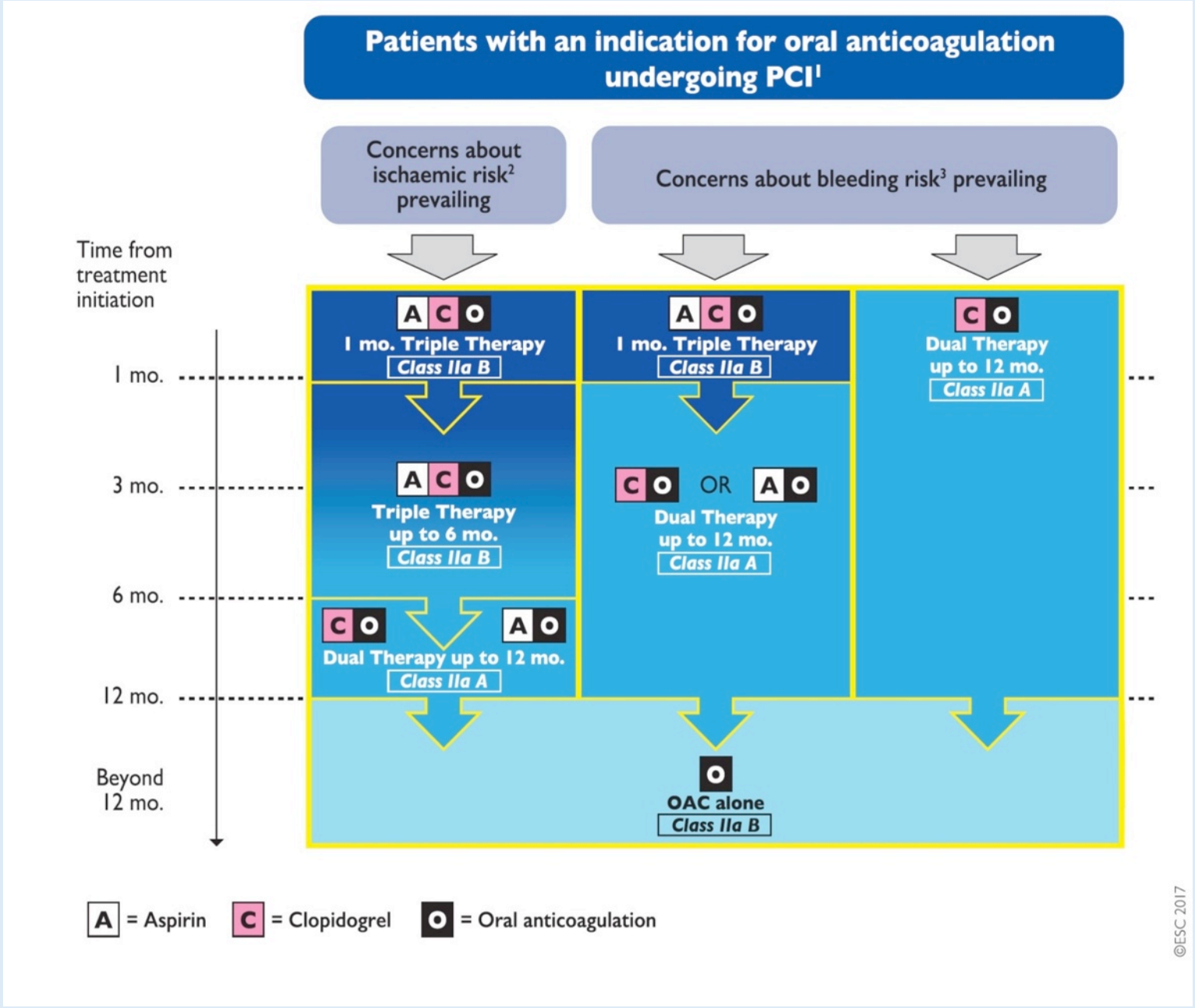
29

12 months risk of TIMI major or minor Bleeding

2.5%

12 months risk of TIMI Major Bleeding

1.3%


Patients with an indication for oral anticoagulation undergoing PCI[1]
Concerns about ischaemic risk[2] prevailing
Concerns about bleeding risk[3] prevailing
Time from treatment initiation
1 mo.
3 mo.
6 mo.
12 mo.
Beyond 12 mo.
A C O
1 mo. Triple Therapy
Class IIa B
A C O
1 mo. Triple Therapy
Class IIa B
C O
Dual Therapy up to 12 mo.
Class IIa A
A C O
Triple Therapy up to 6 mo.
Class IIa B
C O OR A O
Dual Therapy up to 12 mo.
Class IIa A
C O
A O
Dual Therapy up to 12 mo.
Class IIa A
O
OAC alone
Class IIa B
A = Aspirin
C = Clopidogrel
O = Oral anticoagulation
©ESC 2017

VORHOFFLIMMERN & ACS & STENT

- **Patient**
- **78 Jahre**
- **Hypertonie**
- **Z.n. Magenblutung**
- **Hb 11,5 g/dl**
- **Chronisches Vorhofflimmern**
- **NSTEMI ACS**
- **GFR 62 ml/min**

VORHOFFLIMMERN & ACS & STENT

VORHOFFLIMMERN & ACS & STENT

- **Woche 1-4**
  - ASS 100 mg 0/1/0
  - Clopidogrel 75 mg 1/0/0
  - Rivaroxaban 15 mg 0/0/1
- **Monat 2-12**
  - Clopidogrel 75 mg 1/0/0
  - Rivaroxaban 15 mg 0/0/1
- **Nach einem Jahr**
  - Rivaroxaban 20 mg 0/0/1