

Akut kranskärlsröntgen efter hjärtstopp?

Göteborg 23 november

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Kranskärlsröntgen



Revaskularisering





Varför ska man göra kranskärlsröntgen efter hjärtstopp?

- Minskad risk för nytt hjärtstopp med återkommande VT/VF?
- Förbättrad hjärtfunktion på kort och lång sikt?
- Förbättrad neurologisk funktion?
- Förbättrar kranskärlsröntgen överlevnaden?

Risker med kranskärlsröntgen efter hjärtstopp

- Blödningskomplikationer
- Försenar tid till intensivvård
- Transport till sjukhus med tillgång till kranskärlsröntgen
- Andra komplikationer relaterade till kranskärlsröntgen

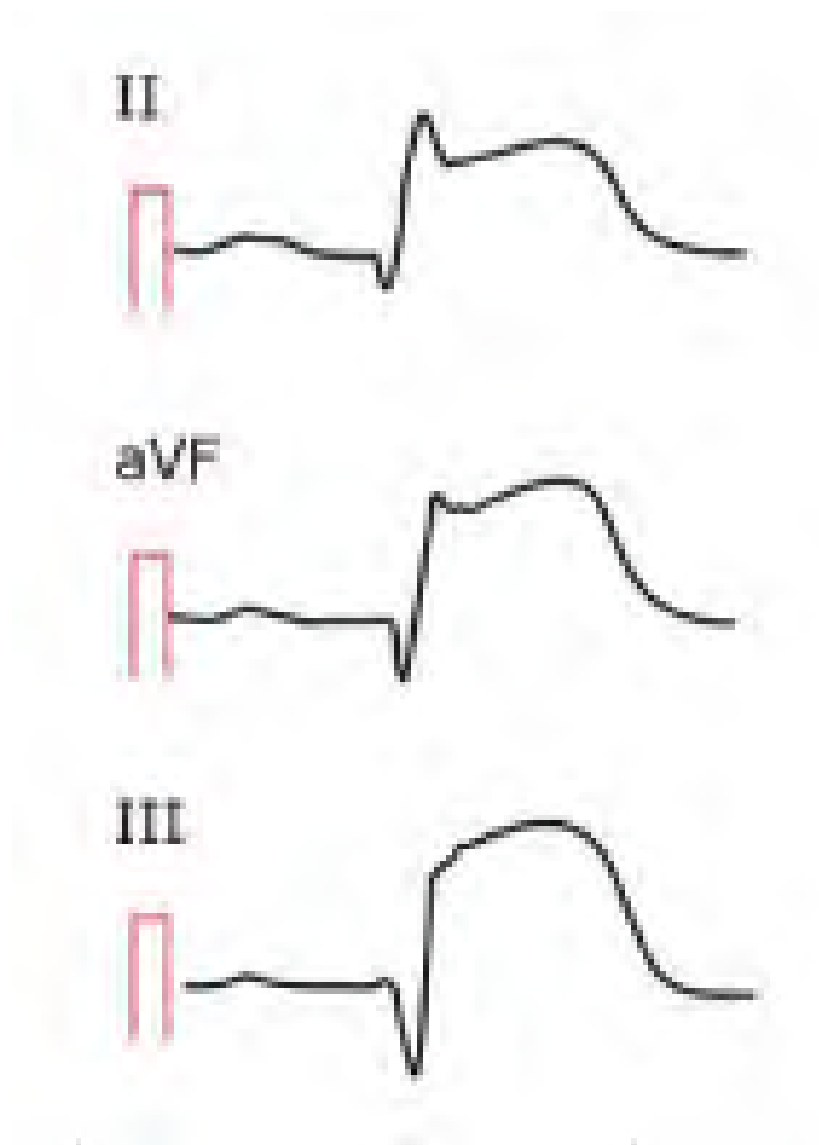
Vilka hjärtstoppspatienter ska man göra kranskärlsröntgen på?

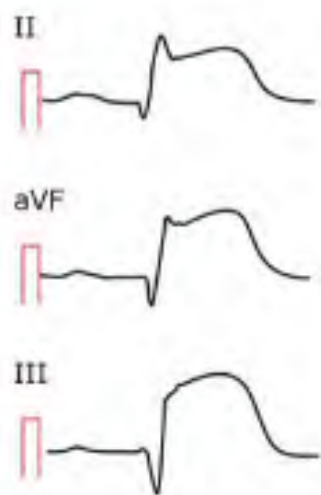
- ST-höjning på EKG?
- Ej ST-höjning på EKG?
- Under pågående HLR för att få igång hjärtat?
- När ska man göra kranskärlsröntgen, akut eller senare?
- Bara på VF? Asystoli/PEA?

2021-08-21, kl 13:45

59-årig man faller ihop i Ringens köpcentrum



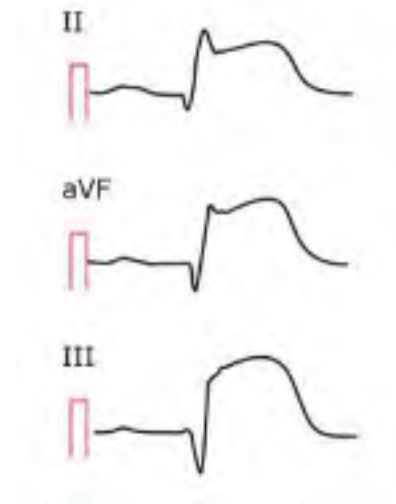




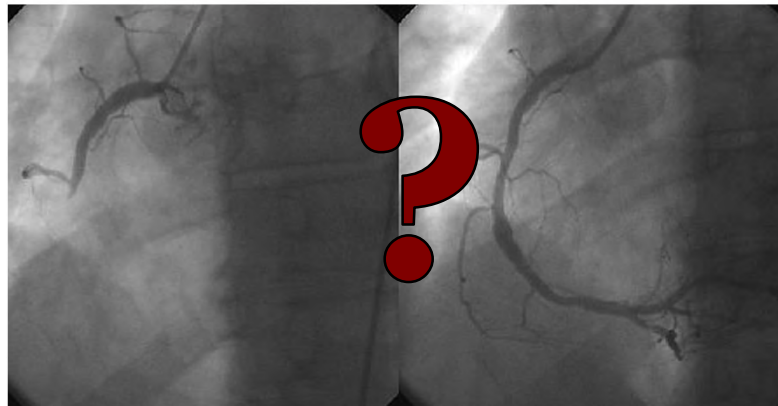
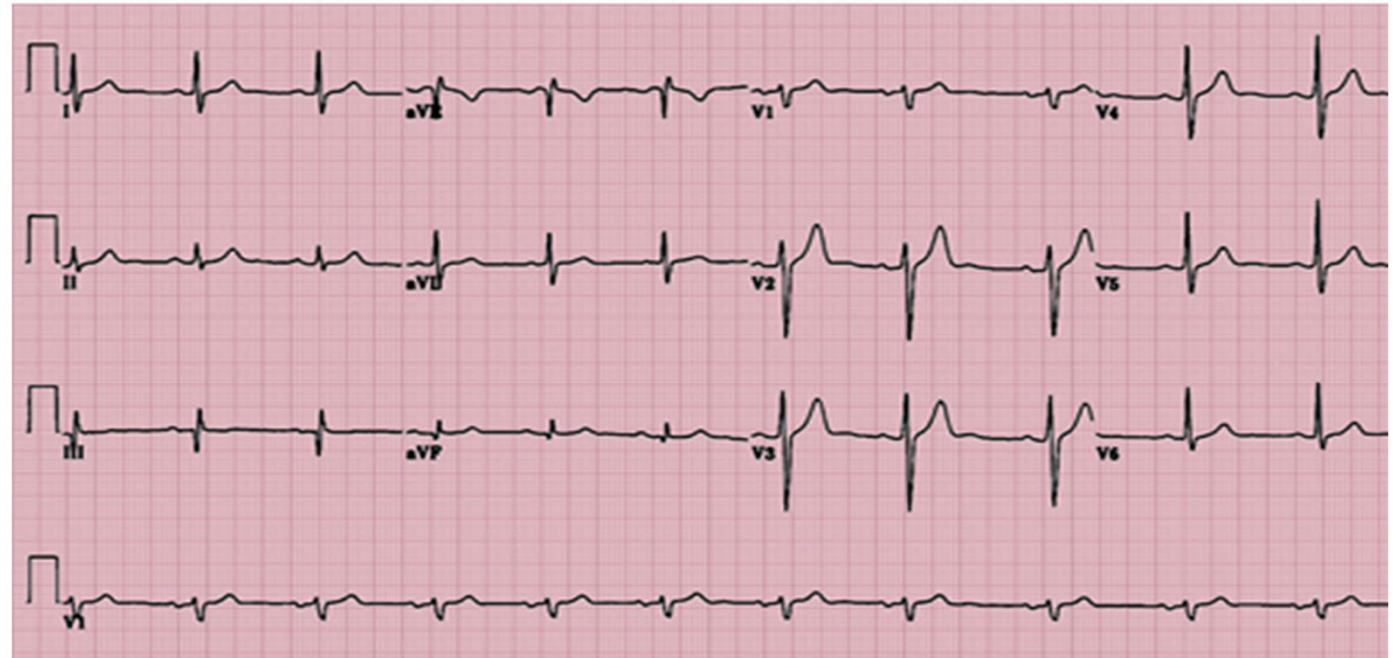
2017 ESC Guidelines for the management of acute myocardial infarction in patients presenting with ST-segment elevation

Recommendations	Class	Level
A primary PCI strategy is recommended in patients with resuscitated cardiac arrest and an ECG consistent with STEMI.	I	B
Targeted temperature management is indicated early after resuscitation of cardiac arrest patients who remain unresponsive.	I	B
It is indicated that healthcare systems implement strategies to facilitate transfer of all patients in whom a myocardial infarction is suspected directly to the hospital offering 24/7 PCI-mediated reperfusion therapy via one specialized EMS.	I	C
It is indicated that all medical and paramedical personnel caring for suspected myocardial infarction have access to defibrillation equipment and are trained in basic cardiac life support.	I	C
Urgent angiography (and PCI if indicated) should be considered in patients with resuscitated cardiac arrest without diagnostic ST-segment elevation but with a high suspicion of ongoing myocardial ischaemia.	IIa	C
Prehospital cooling using a rapid infusion of large volumes of cold i.v. fluid immediately after return of spontaneous circulation is not recommended.	III	B

Ca 30% har ST-höjning efter hjärtstopp



Kranskärlsröntgen efter OHCA utan ST-höjning på EKG?



ERC Guidelines 2021



2015 Guidelines	2021 Guidelines
Coronary angiography It is reasonable to discuss and consider emergent cardiac catheterisation laboratory evaluation after ROSC in patients with the highest risk of a coronary cause for their cardiac arrest	In patients with ROSC after OHCA without ST-elevation on the ECG, <u>emergent cardiac catheterisation laboratory evaluation should be considered</u> if there is an estimated high probability of acute coronary occlusion (e.g. patients with haemodynamic and/or electrical instability).



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ESC NSTEMI guidelines 2020



EUROPEAN
SOCIETY OF
CARDIOLOGY

Delayed as opposed to immediate angiography should be considered among haemodynamically stable patients without ST-segment elevation successfully resuscitated after out-of-hospital cardiac arrest.^{358,364}

IIa

B



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COACT 2019

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Coronary Angiography after Cardiac Arrest without ST-Segment Elevation

J.S. Lemkes, G.N. Janssens, N.W. van der Hoeven, L.S.D. Jewball, E.A. Dubois, M. Meuwissen, T.A. Rijpstra, H.A. Bosker, M.J. Blans, G.B. Bleeker, R. Baak, G.J. Vlachojannis, B.J.W. Eikemans, P. van der Harst, I.C.C. van der Horst, M. Voskuil, J.J. van der Heijden, A. Beishuizen, M. Stoel, C. Camaro, H. van der Hoeven, J.P. Henriques, A.P.J. Vlaar, M.A. Vink, B. van den Bogaard, T.A.C.M. Heestermans, W. de Ruljter, T.S.R. Delnoij, H.J.G.M. Crijns, G.A.J. Jessurun, P.V. Oemrawsingh, M.T.M. Gosselink, K. Plomp, M. Magro, P.W.G. Elbers, P.M. van de Ven, H.M. Oudemans-van Straaten, and N. van Royen

Tomahawk 2021

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Angiography after Out-of-Hospital Cardiac Arrest without ST-Segment Elevation

S. Desch, A. Freund, I. Akin, M. Behnes, M.R. Preusch, T.A. Zelniker, C. Skurk, U. Landmesser, T. Graf, I. Eitel, G. Fuernau, H. Haake, P. Nordbeck, F. Hammer, S.B. Felix, C. Hassager, T. Engström, S. Fichtlscherer, J. Ledwoch, K. Lenk, M. Joner, S. Steiner, C. Liebetrau, I. Voigt, U. Zeymer, M. Brand, R. Schmitz, J. Horstkotte, C. Jacobshagen, J. Pöss, M. Abdel-Wahab, P. Lurz, A. Jobs, S. de Waha-Thiele, D. Olbrich, F. Sandig, I.R. König, S. Brett, M. Vens, K. Klinge, and H. Thiele, for the TOMAHAWK Investigators*



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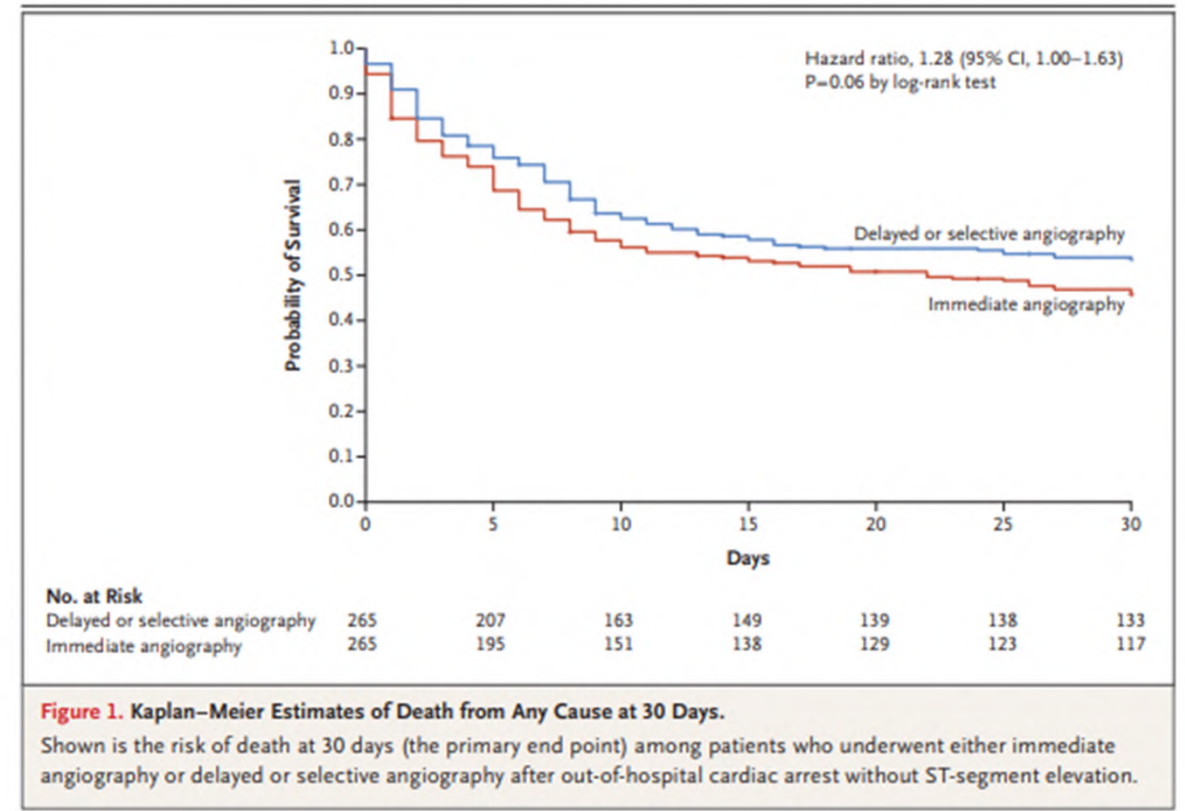
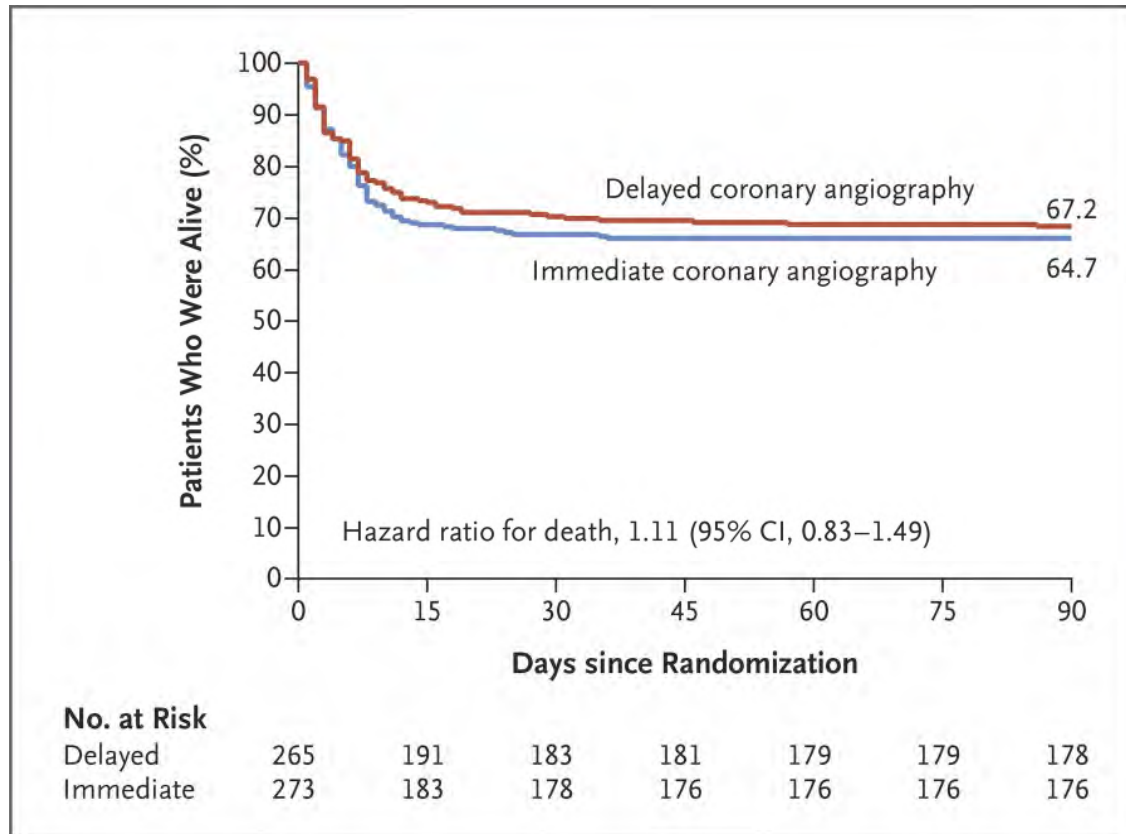
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Table 2. Procedures, Treatments, and Characteristics of Coronary Artery Disease.*

Variable	Immediate Angiography Group (N=273)	Delayed Angiography Group (N=265)
Coronary angiography performed — no. (%)	265 (97.1)	172 (64.9)†
Median time from arrest to coronary angiography (IQR) — hr	2.3 (1.8–3.0)	121.9 (52.0–197.3)
Median time from randomization to coronary angiography (IQR) — hr	0.8 (0.5–1.2)	119.9 (47.2–203.7)
Severity of coronary artery disease — no./total no. (%)		
No clinically significant disease	94/265 (35.5)	59/172 (34.3)
One-vessel disease	72/265 (27.2)	49/172 (28.5)
Two-vessel disease	54/265 (20.4)	35/172 (20.3)
Three-vessel disease	45/265 (17.0)	29/172 (16.9)
Acute unstable lesion — no./total no. (%)‡	36/265 (13.6)	29/172 (16.9)
Acute thrombotic occlusion — no./total no. (%)	9/265 (3.4)	13/172 (7.6)§
Chronic total occlusion — no./total no. (%)	100/265 (37.7)	58/172 (33.7)
Revascularization treatment — no. (%)		
PCI	90 (33.0)	64 (24.2)
CABG	17 (6.2)	23 (8.7)
Pharmacologic or conservative treatment	168 (61.5)	179 (67.5)

* Percentages may not total 100 because of rounding.

† These 172 patients represent 95% of those patients who survived until hospital discharge. A total of 38 of the 172 patients received urgent intervention because of cardiac deterioration.

‡ Unstable lesions were defined as coronary lesions with at least 70% stenosis and the presence of characteristics of plaque disruption, including irregularity, dissection, haziness, or thrombus, as assessed by results of coronary angiography.

§ Six of the 13 patients in the delayed angiography group who had an acute thrombotic occlusion received urgent intervention because of cardiac deterioration.

Table 2. Prevalence, Characteristics, and Treatment of Coronary Artery Disease.

Variable	Immediate Angiography (N=265)	Delayed or Selective Angiography (N=265)
Coronary angiography performed — no. (%)	253 (95.5)	165 (62.2)
Median time from arrest to coronary angiography (IQR) — hr	2.9 (2.2–3.9)	46.9 (26.1–116.6)
Catheterization access — no./total no. (%)		
Femoral	179/250 (71.6)	96/161 (59.6)
Radial	70/250 (28.0)	65/161 (40.4)
Brachial	1/250 (0.4)	0/161
Severity of coronary artery disease — no./total no. (%)		
No substantial disease	99/252 (39.3)	46/165 (27.9)
1-vessel disease	37/252 (14.7)	21/165 (12.7)
2-vessel disease	32/252 (12.7)	26/165 (15.8)
3-vessel disease	84/252 (33.3)	72/165 (43.6)
Culprit lesion identified — no./total no. (%)	94/247 (38.1)	67/156 (43.0)
PCI performed — no./total no. (%)	93/250 (37.2)	70/162 (43.2)
Median amount of contrast dye (IQR) — ml	107 (70–178)	125 (70–202)



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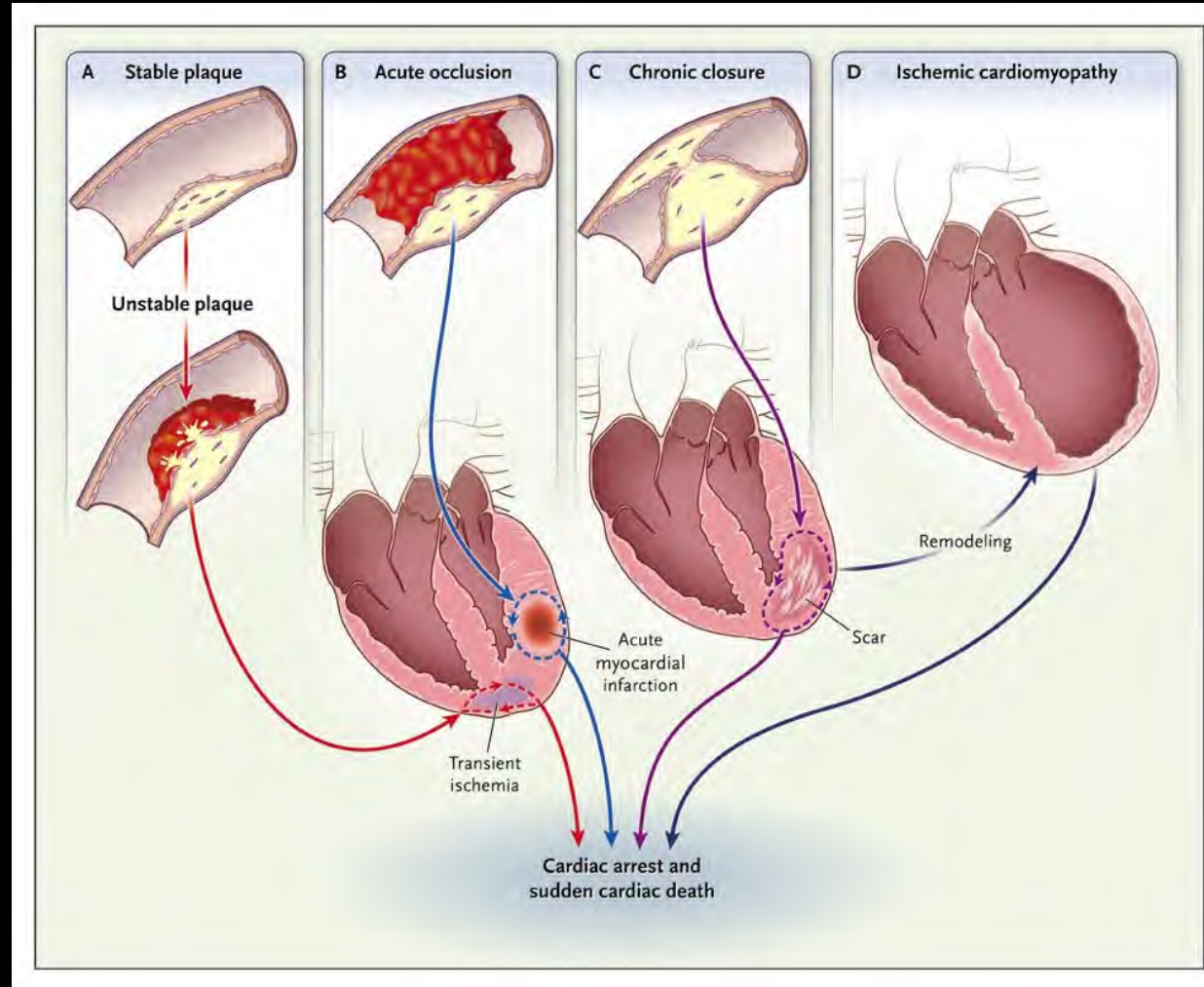
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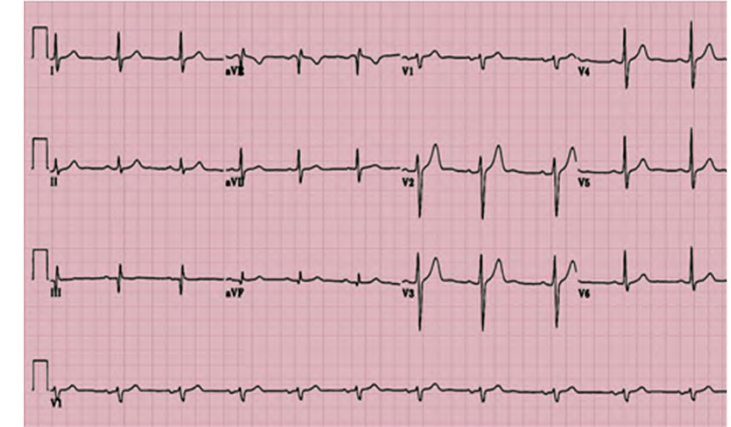
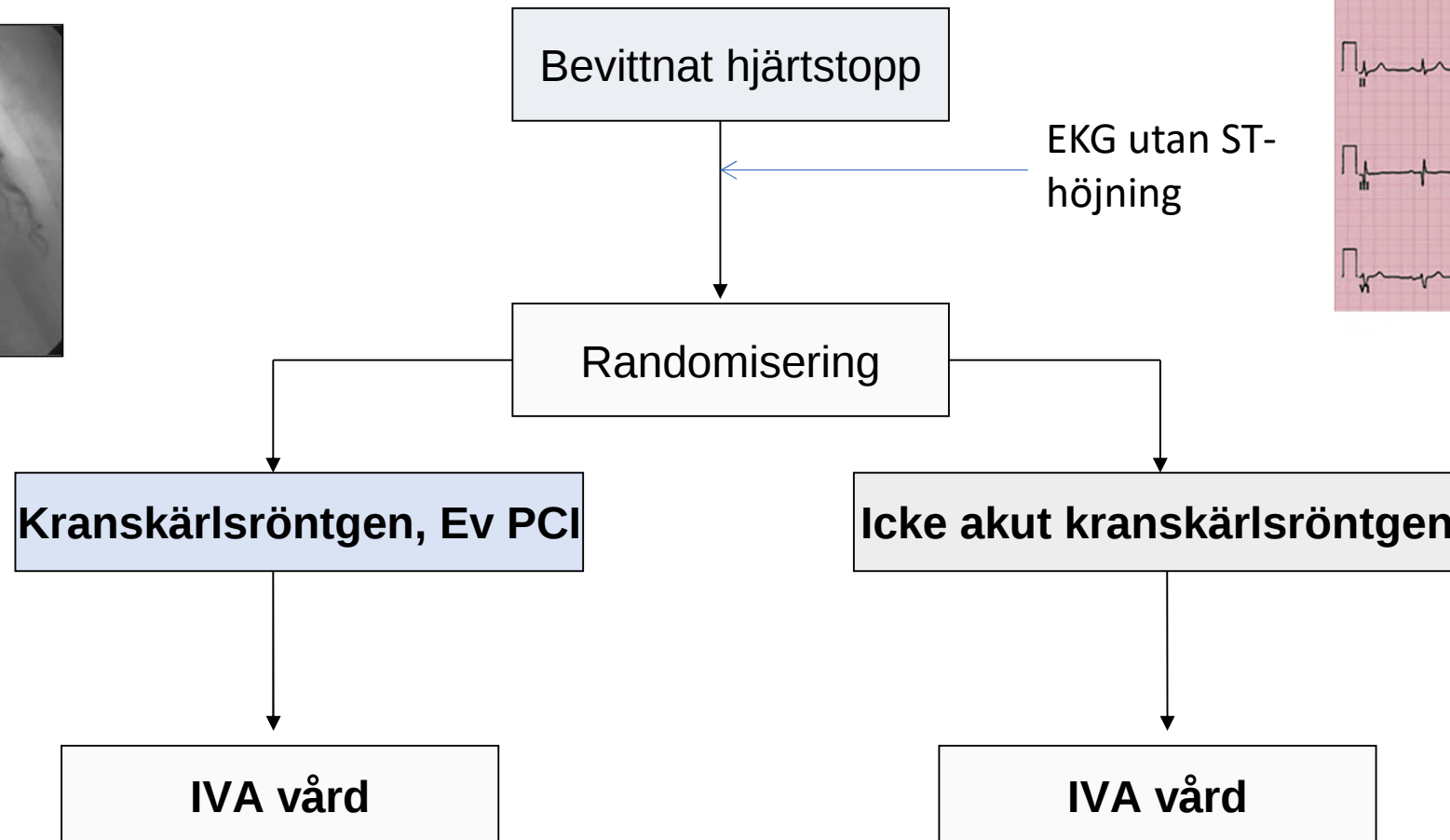
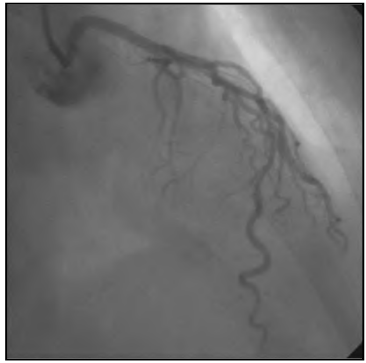
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Pathophysiology of Life-Threatening Tachyarrhythmias in Coronary Heart Disease.



DISCO

Direct or Subacute Coronary angiography for
Out-of-hospital cardiac arrest

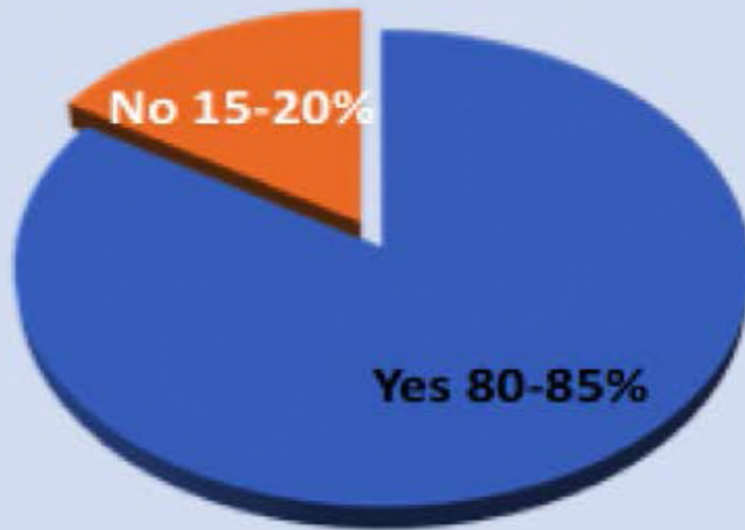


Akut kranskärlsröntgen under pågående HLR?

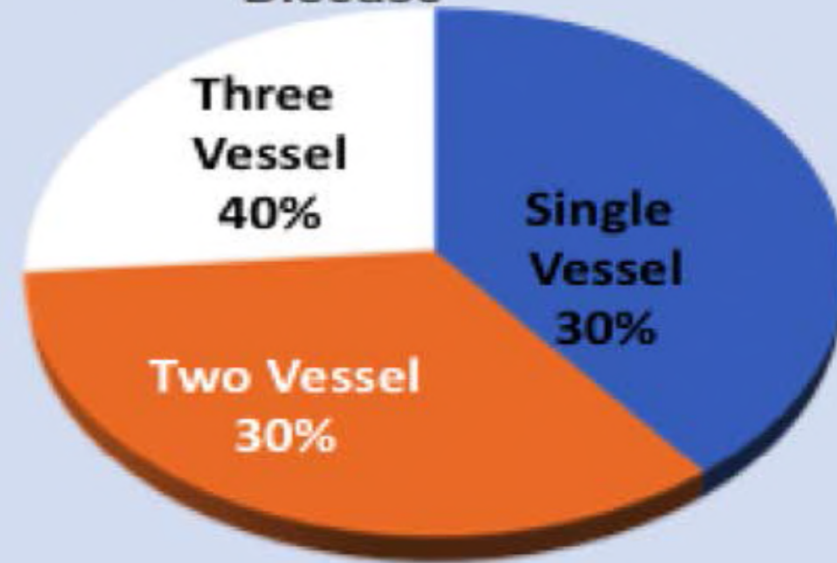


Coronary Artery Disease Burden for refractory VF OHCA

Significant Coronary Disease ($\geq 70\%$)

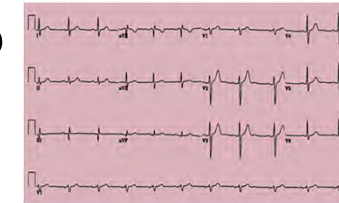


Extent of Coronary Artery Disease



Sammanfattning

- Akut kranskärlsröntgen på *ST-höjningar* efter hjärtstopp?
- JA
- Akut kranskärlsröntgen på *icke ST-höjning* efter hjärtstopp
- NJA
- Akut kranskärlsröntgen under *pågående HLR*?
- I utvalda fall



Akut kranskärlsröntgen efter hjärtstopp?

Göteborg 23 november

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