

Cervicale arteriële dissecties

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Nascholing Nederlandse Neurovasculaire Werkgroep

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- Geen belangenverstrengeling

Casus

- Vrouw, 34 jaar, blanco voorgeschiedenis
- Nekpijn na val bij een fotoshoot



DEVELOPING STORY

NEW QUESTIONS ABOUT MODEL'S SUDDEN DEATH
KATIE MAY DIES DAYS AFTER CHIROPRACTOR VISIT

GMA
@GMA

Cervicale arteriële dissecties (CAD)

pathofysiologie

reperfusie-
therapie

beeldvorming

secundaire
preventie



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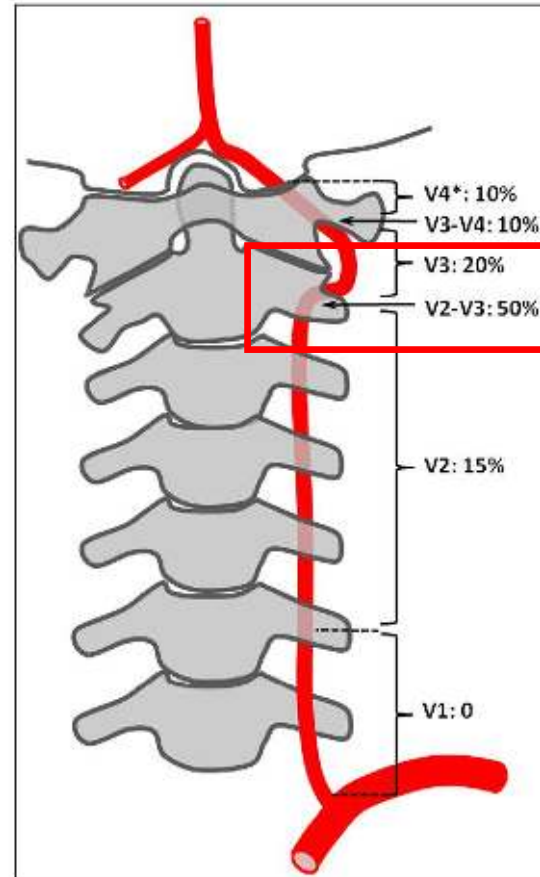


Pathofysiologie

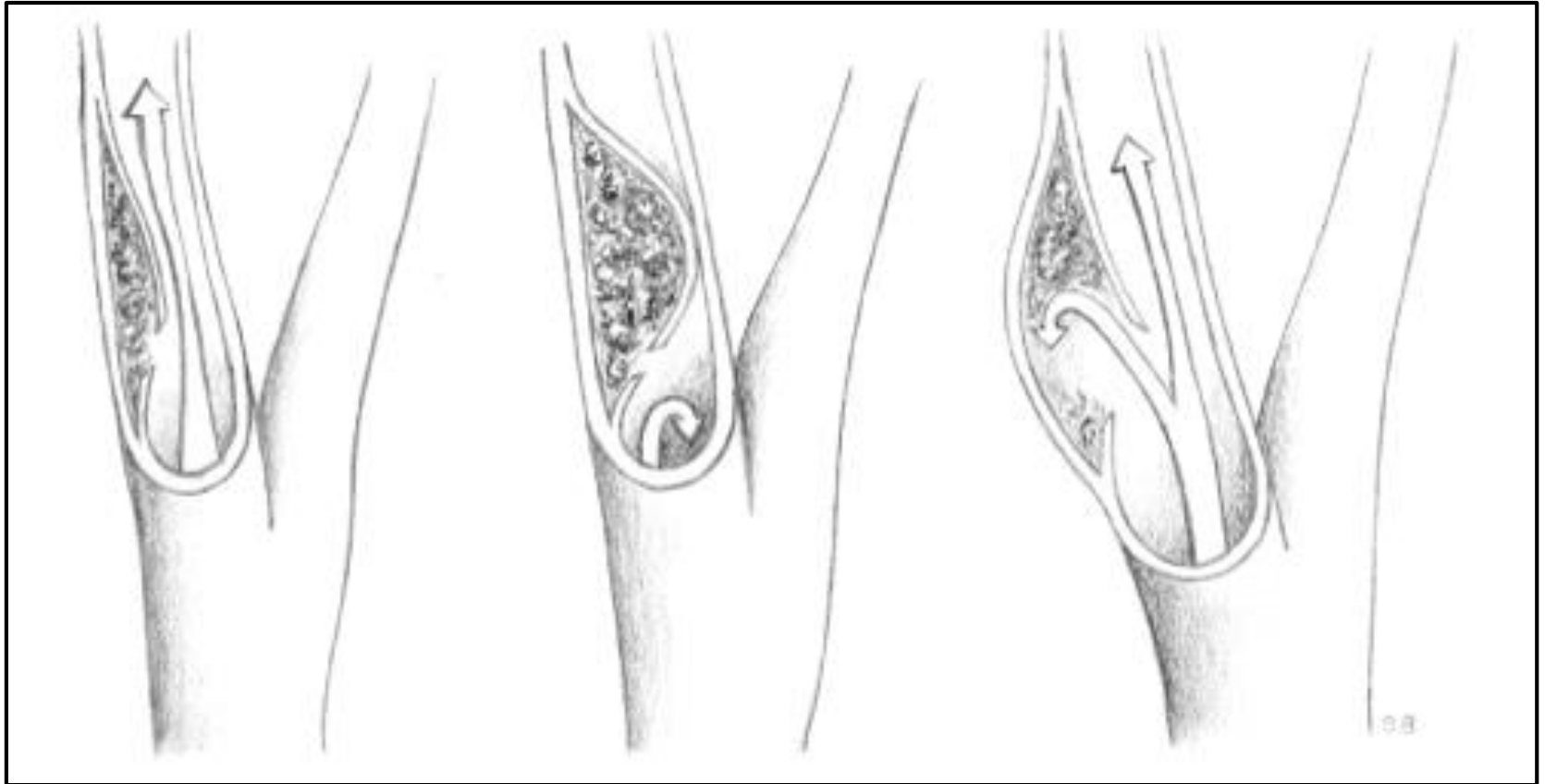
ICA



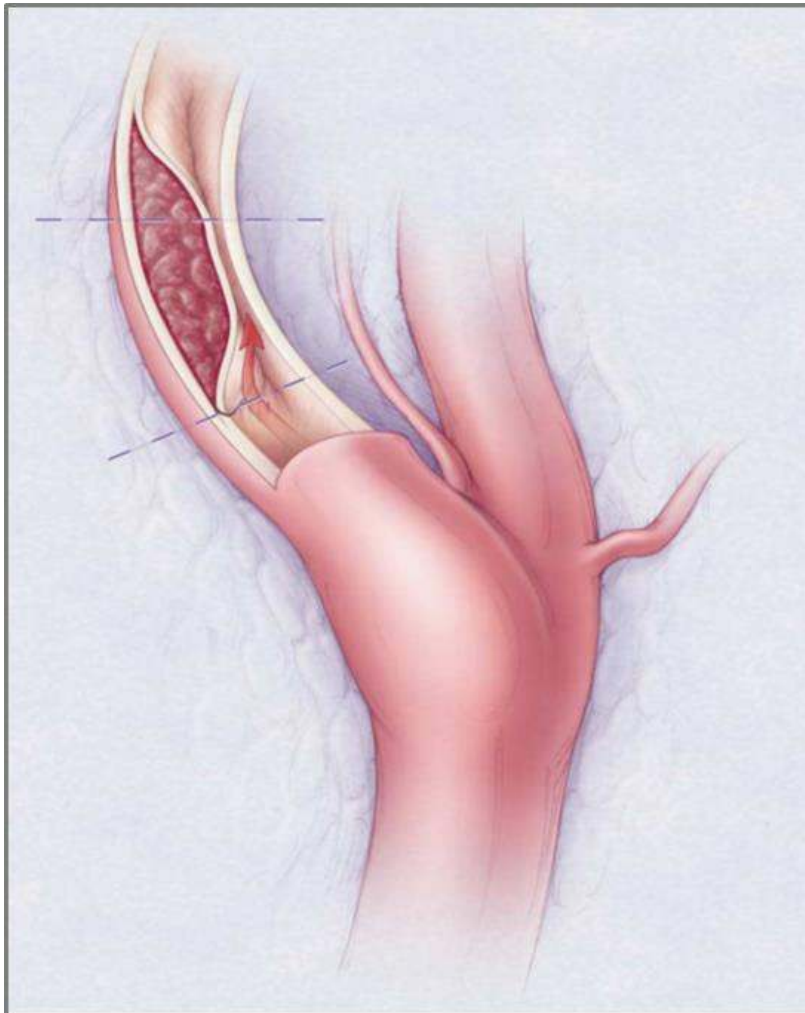
VA



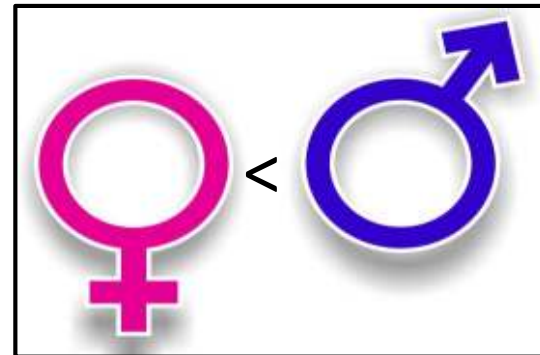
Pathofysiologie



Epidemiologie



2,6/100.0000

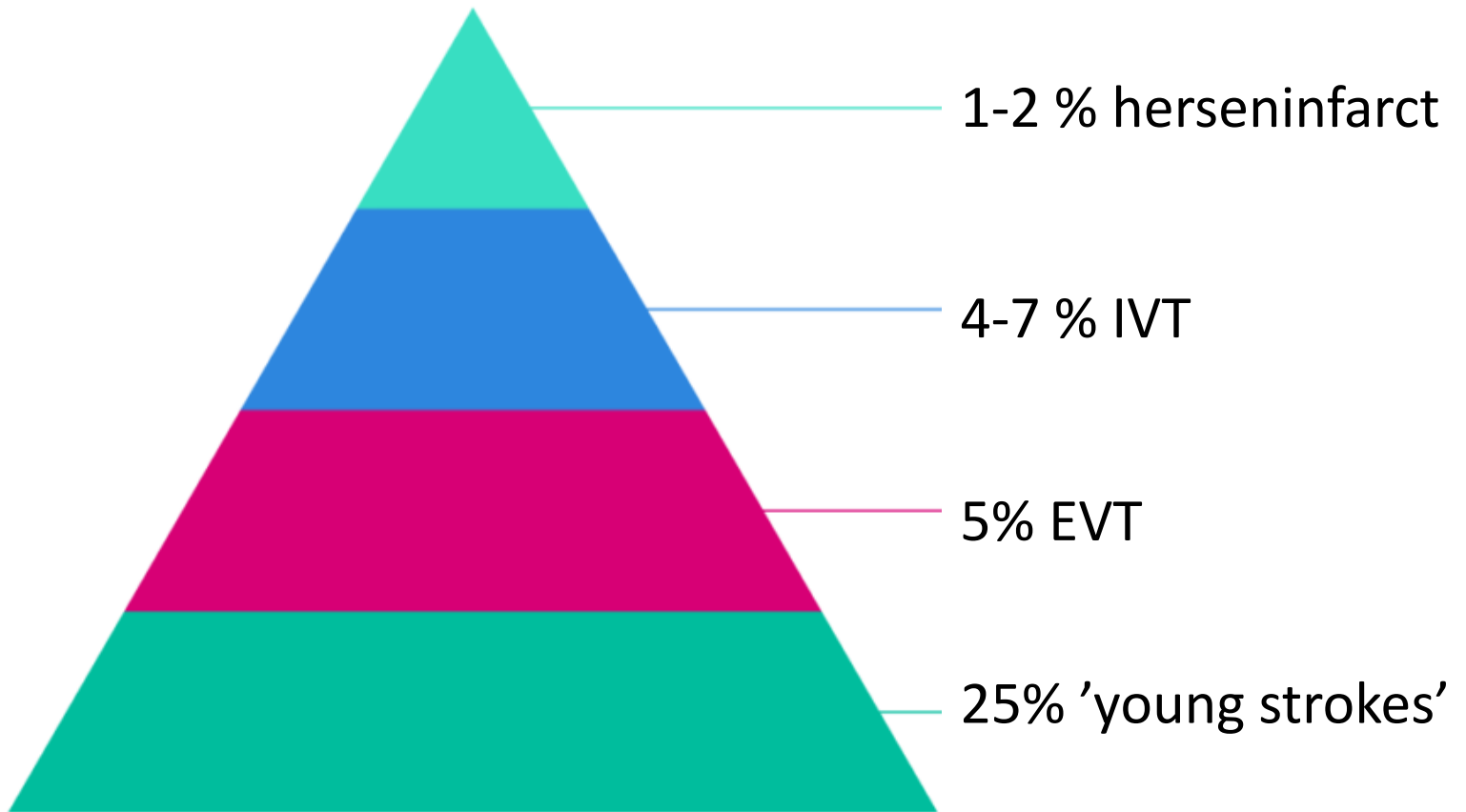


mediaan 45 jaar

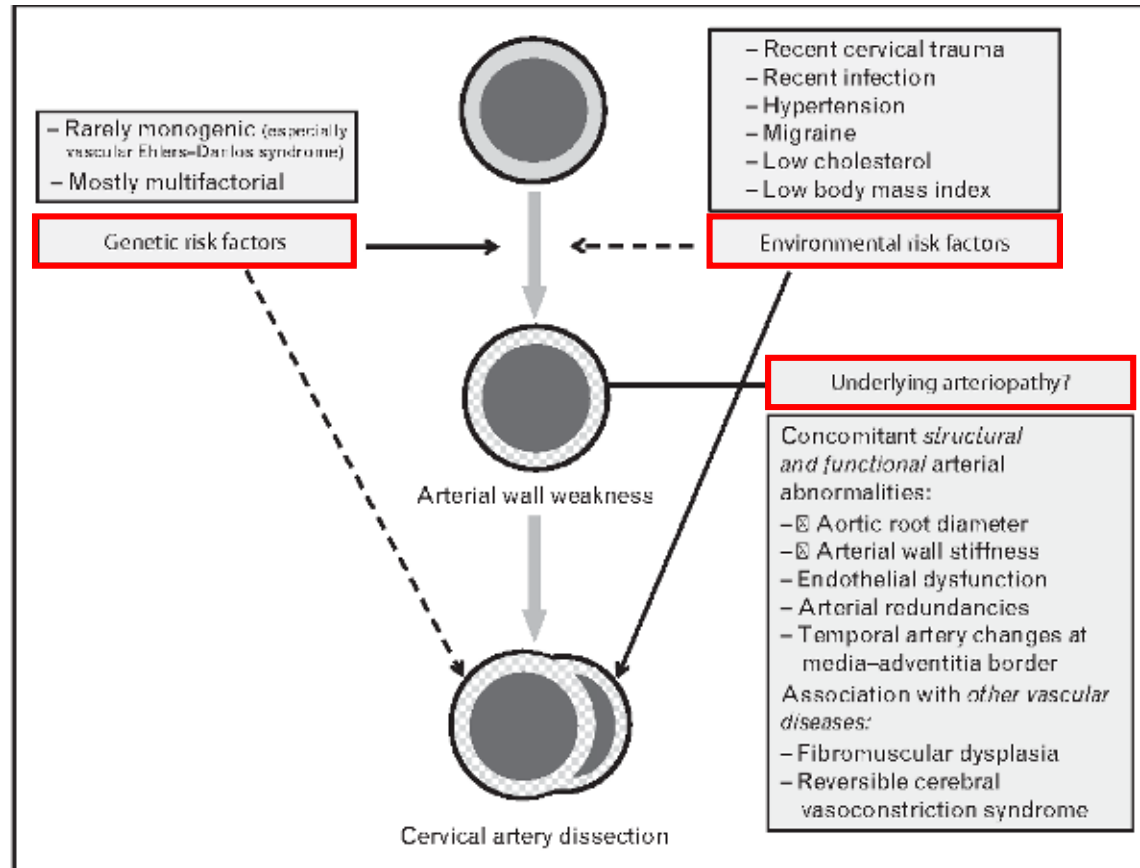
ICA : VA = 3:2

multipel in 15%

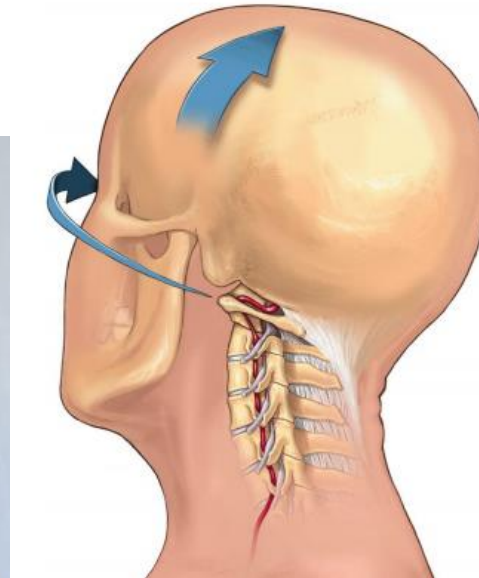
Epidemiologie



Etiologie



Chiropractor



Symptomen

- Asymptotisch (6-10%)
- Lokale klachten (33%)
 - Nek/hoofdpijn 60-90%
 - Horner syndroom
 - Hersenzenuwuitval (7%): XII, IX en X
 - Tinnitus, vertigo
 - Cervicale radiculopathie
- Herseninfarct, TIA of amaurosis fugax (33-70%)
- Subarachnoïdale bloeding (2%)

} ICA
} VA

pathofysiologie

reperfusie-
therapie

beeldvorming

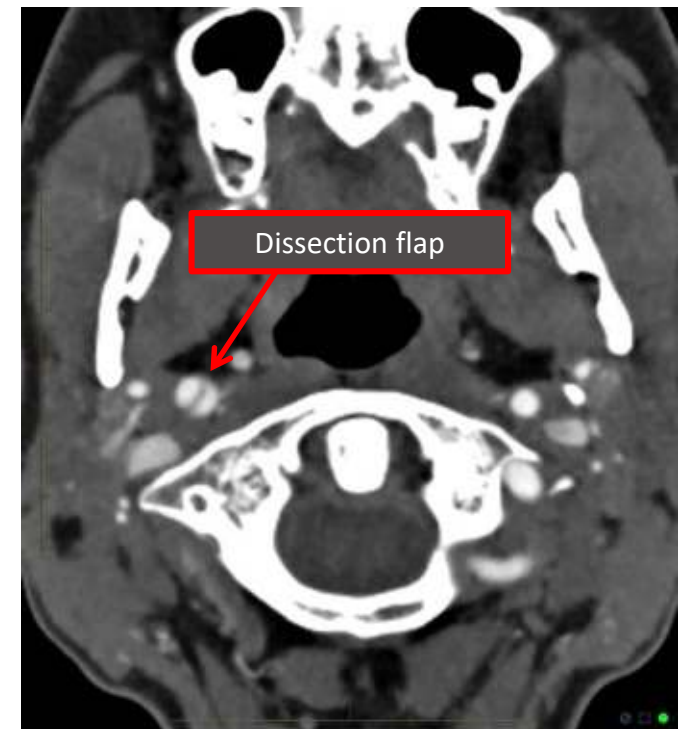
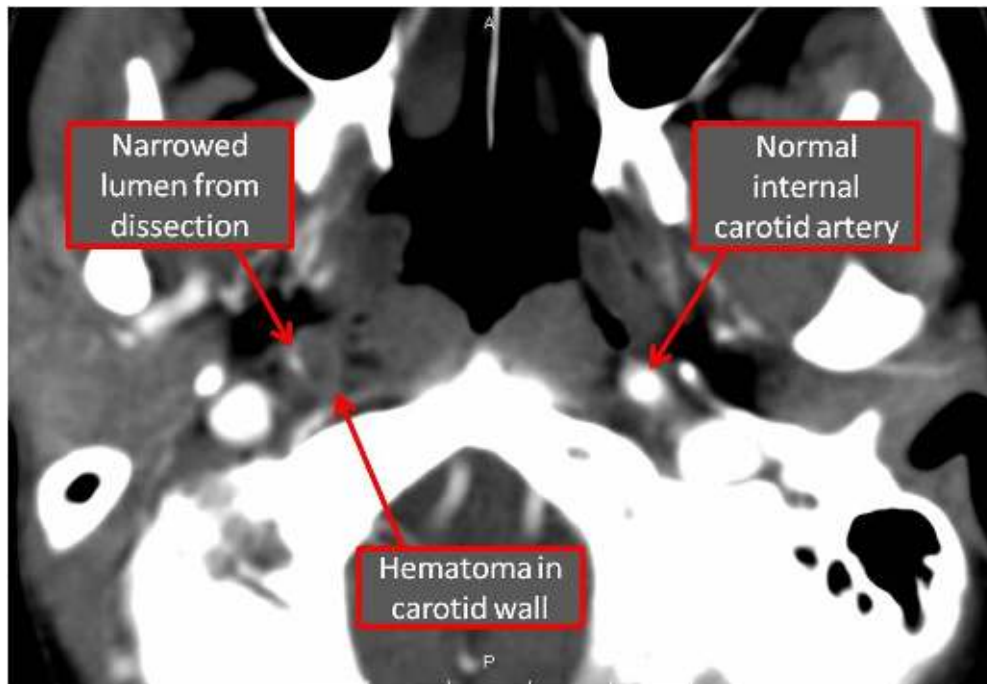
secundaire
preventie



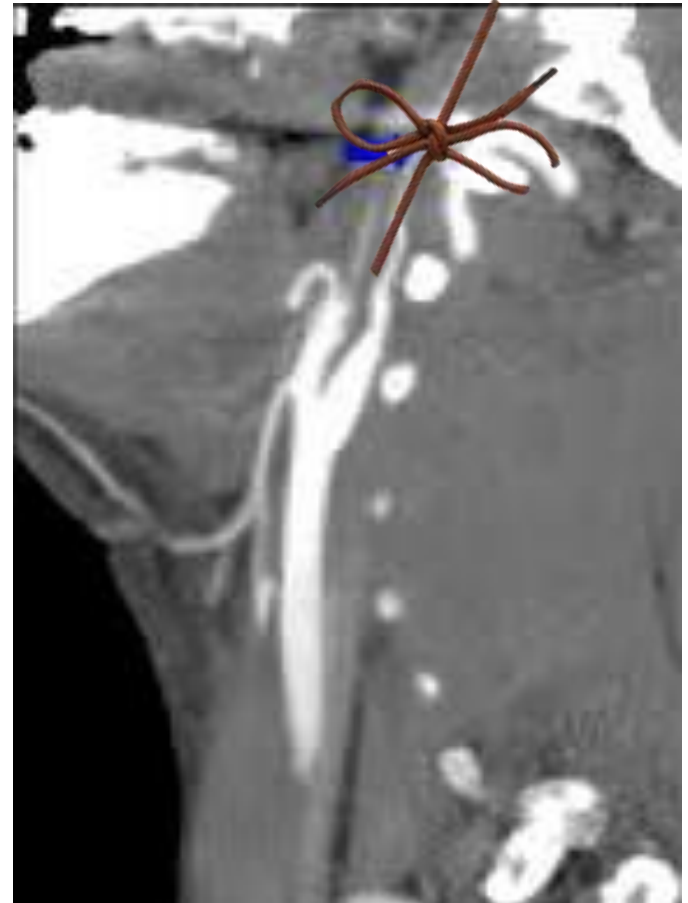
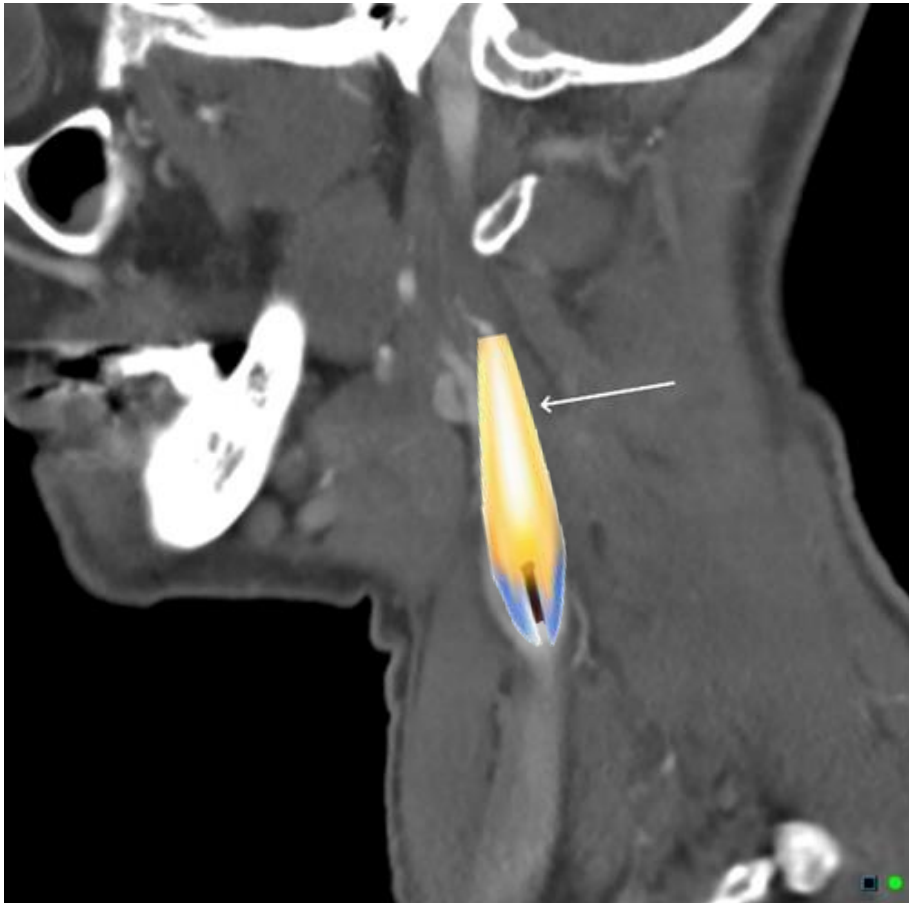
Beeldvorming – blanco CT



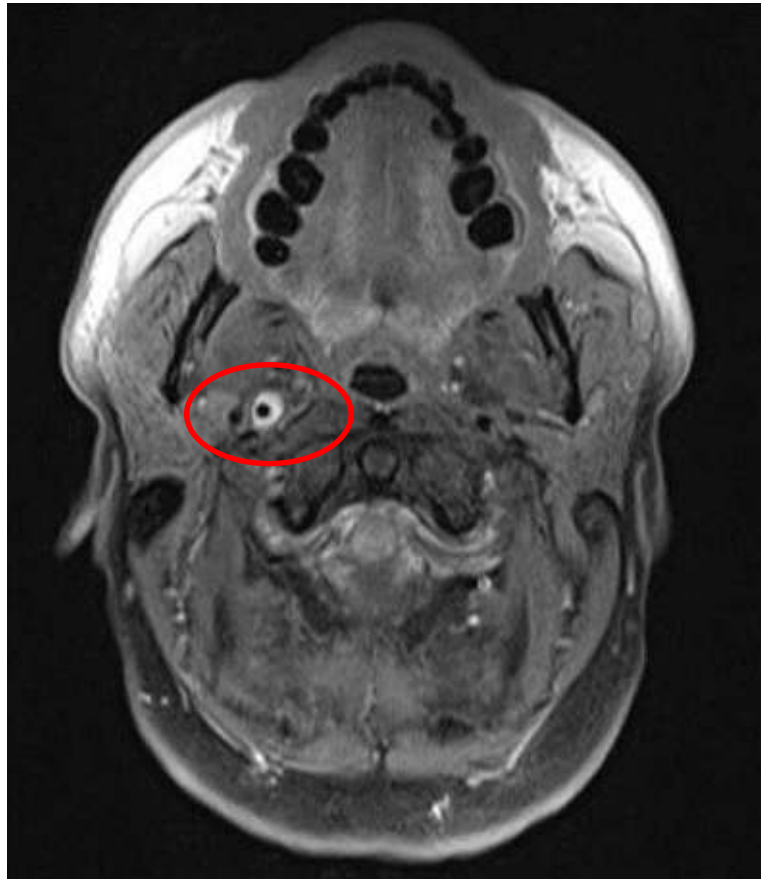
Beeldvorming - CTA



Beeldvorming - CTA



Beeldvorming - MRI



pathofysiologie

**reperfusie-
therapie**

beeldvorming

secundaire
preventie



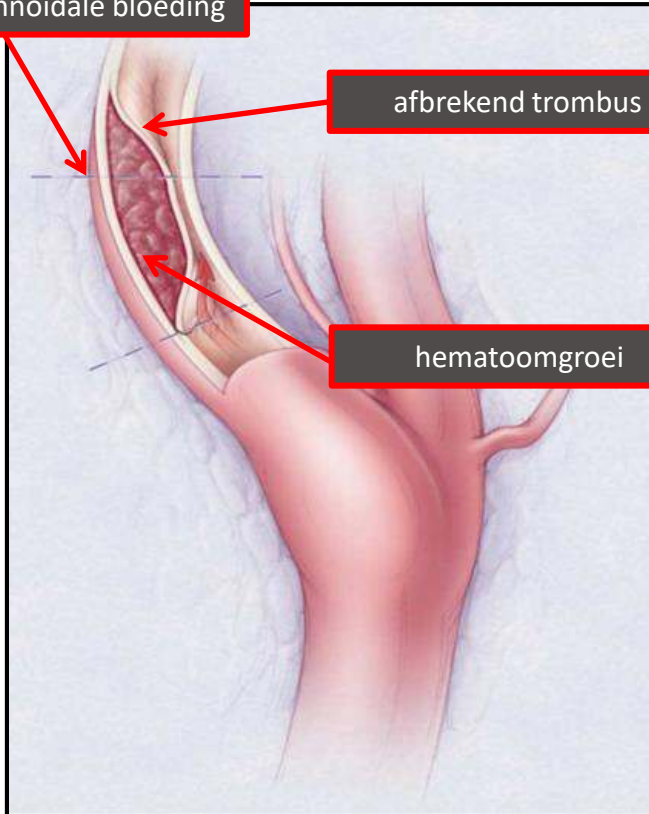
Intraveneuze trombolyse (IVT)

Potentiele risico's

subarachnoïdale bloeding

afbrekend trombus

hematoomgroei



IVT - veiligheid

studie	CAD IVT				
	N	SICH	%	mortaliteit	%
Zinkstok (2011)	121	3/121	3,3 (1,0 - 8,5)	8/120	6,7 (2,2 - 11,1)
Qureshi (2011)	488	-	6,9	-	11,2
Tsivgoulis (2015)	234	-	2,0 (0,0 - 5,0)	-	4,0 (0,0 - 8,0)
Lin (2016)	174	0/152	0,0	5/152	3,3

IVT - effectiviteit

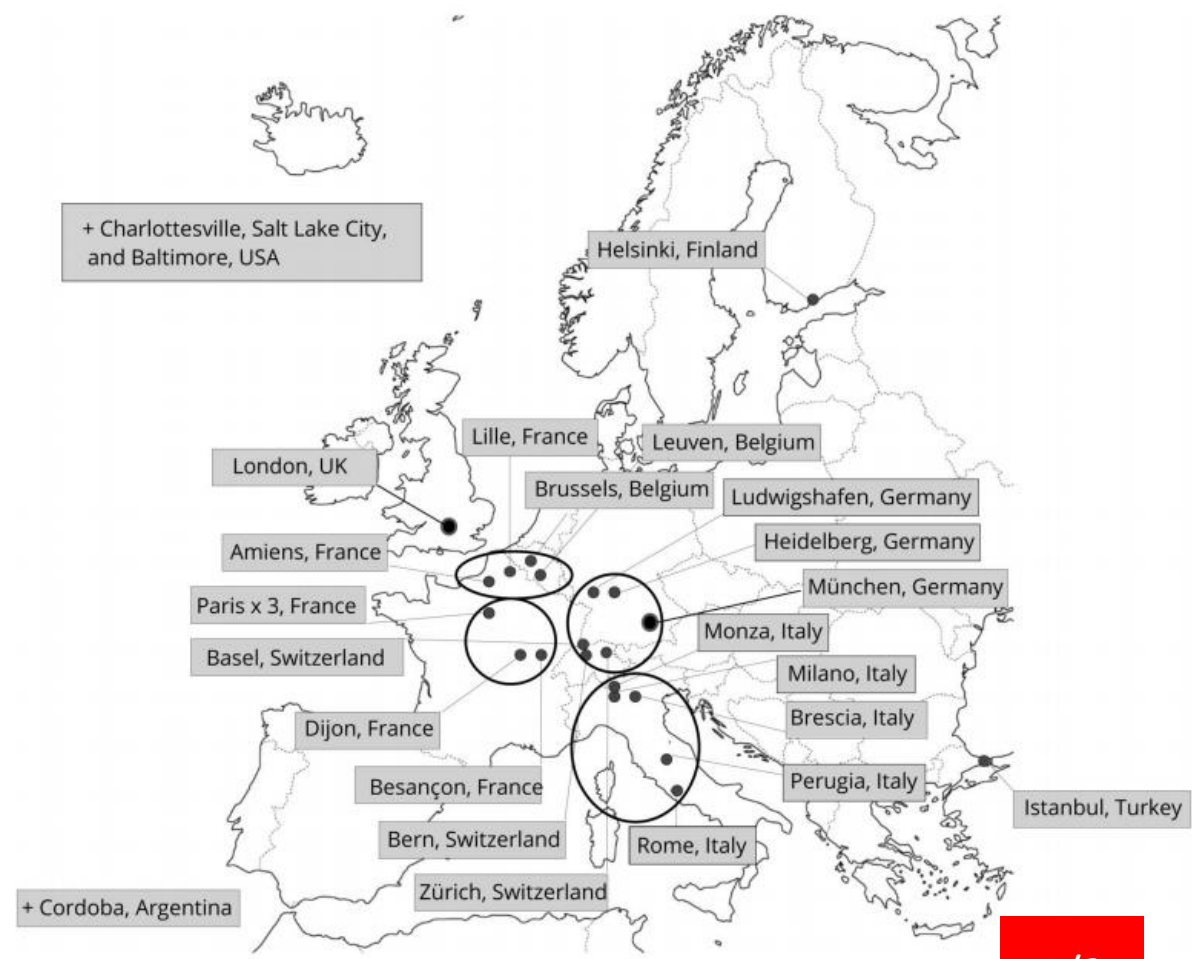
studie	CAD IVT		
	N	mRS 0-1	%
Zinkstok (2011)	121	40/120	41,0 (25,5 - 42,2)
Qureshi (2011)	488	-	30,4
Tsivgoulis (2015)	234	26/83	31,3
Lin (2016)	174	50/150	33,3

IVT - effectiviteit

studie	CAD IVT			CAD no IVT	
	N	mRS 0-1	%	mRS 0-1	%
Zinkstok (2011)	121	40/120	41,0 (25,5 - 42,2)	-	-
Qureshi (2011)	488		30,4	-	-
Tsivgoulis (2015)	234	26/83	31,3	-	-
Lin (2016)	174	50/150	33,3	89/176	50,6

CADISP

Cervical Artery Dissection and Ischemic Stroke Patients



N > 2500

tinnitus

Horner

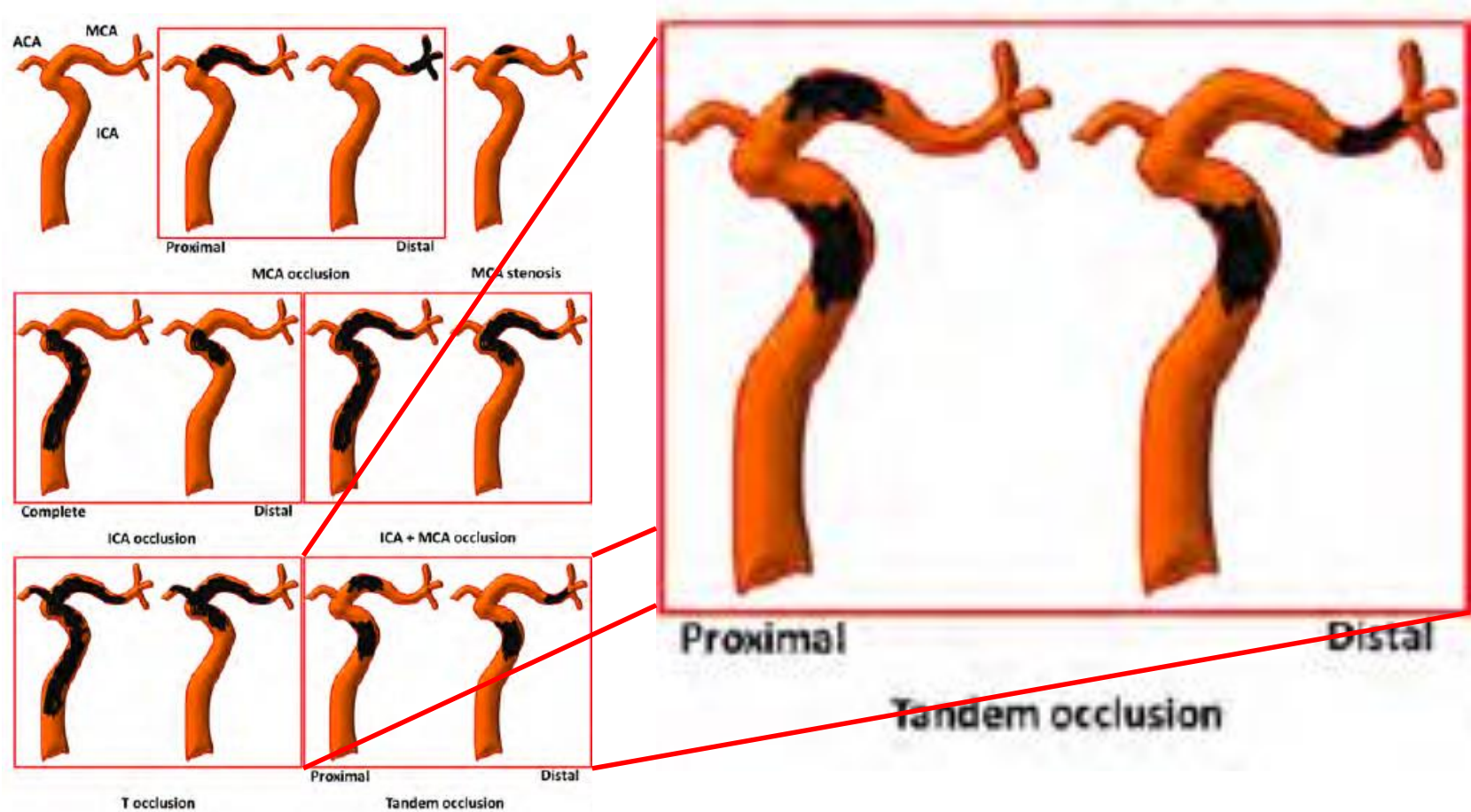
↑ leeftijd

↑ NIHSS

1/3

occlusie

Large vessel occlusion

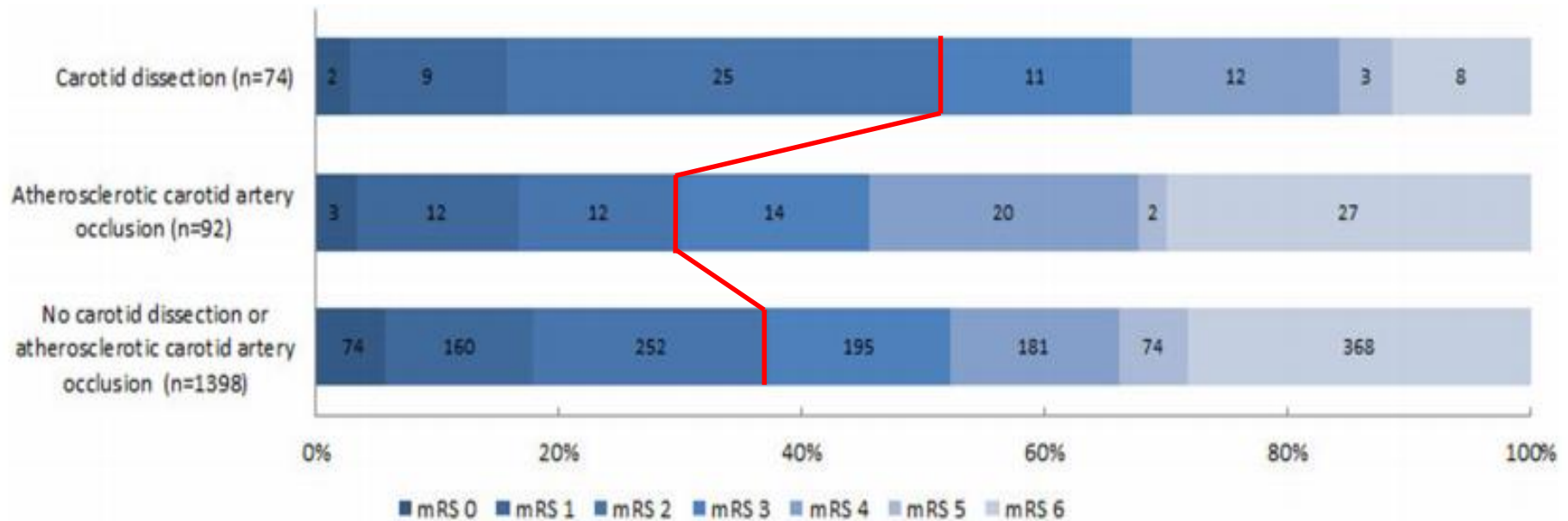


CAD in MR CLEAN

	Patients with CAD (n = 74)	Patients with ACAO (n = 92)	Patients without CAD or ACAO (n = 1398)	P-value CAD vs. ACAO	P-value CAD vs. without CAD or ACAO
TECHNICAL					
Duration procedure (median [IQR])	74 [51–99]	80 [57–115]	65 [40–90]	0.35	0.01
New thrombus different vascular territory – no. (%)	4 (22.2)	9 (39.1)	74 (25.6)	0.41	0.97
Successful recanalization (%) ^b	33 (47.1)	38 (46.9)	792 (58.4)	1.00	0.08
SAFETY					
Progression of ischemic stroke (%)	9 (12.2)	15 (16.3)	163 (11.7)	0.60	1.00
Symptomatic intracranial hemorrhage (%) ^c	4 (5.4)	10 (10.9)	83 (5.9)	0.33	1.00



CAD in MR CLEAN



Cervicale arteriële dissecties

pathofysiologie

reperfusie-
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beeldvorming

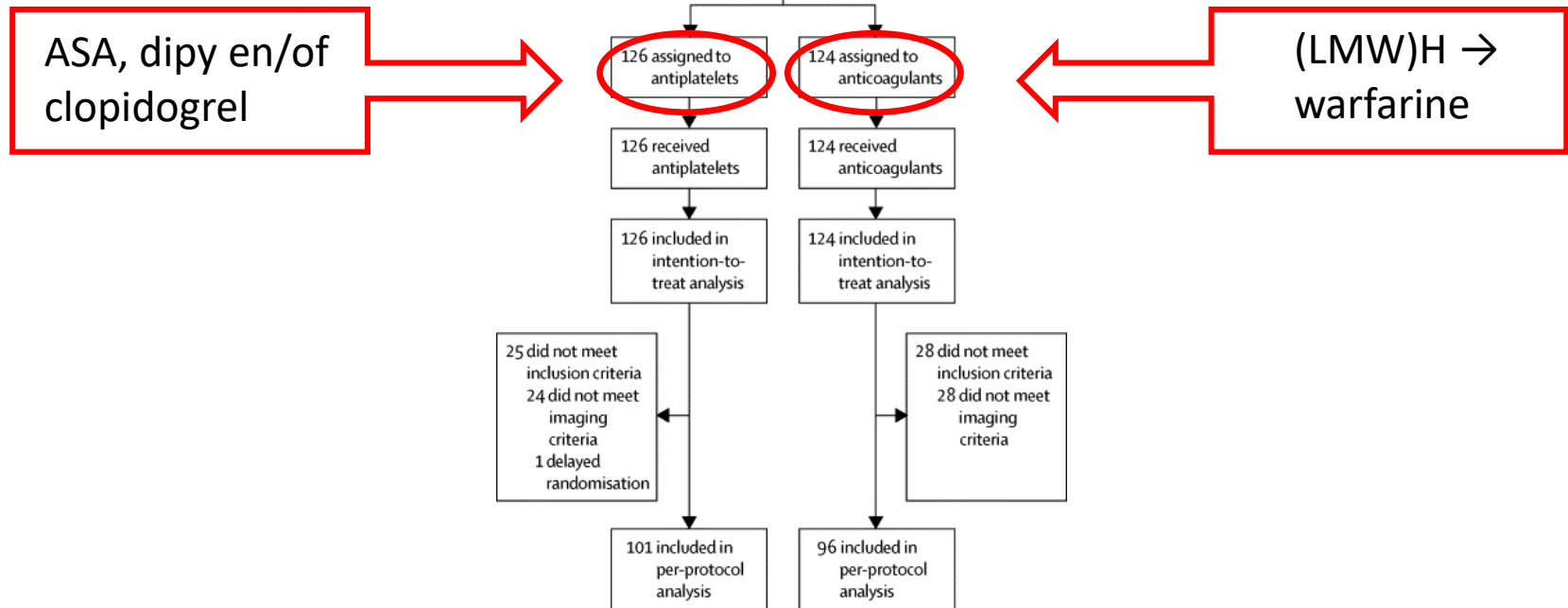
**secundaire
preventie**



Secundaire preventie

Antiplatelet treatment compared with anticoagulation treatment for cervical artery dissection (CADISS): a randomised trial

*The CADISS trial investigators**



Uitkomsten CADISS – 3 maanden

	Intention-to-treat population				Per-protocol population			
	Antiplatelet group (n=126)	Anticoagulant group (n=124)	OR (95% CI)*	p value	Antiplatelet group (n=101)	Anticoagulant group (n=96)	OR (95% CI)*	p value
Ipsilateral stroke or death	3 (2%)	1 (1%)	0.335 (0.006–4.233)	0.63	3 (3%)	1 (1%)	0.346 (0.006–4.390)	0.66
Secondary endpoints								
Any stroke or death	3 (2%)	1 (1%)	0.335 (0.006–4.233)	0.63	3 (3%)	1 (1%)	0.346 (0.006–4.390)	0.66
Any stroke, death, or major bleed	3 (3%)	2 (2%)	0.673 (0.055–5.983)	1.00	3 (3%)	2 (2%)	0.696 (0.057–6.220)	1.00
Any stroke	3 (2%)	1 (1%)	0.335 (0.006–4.233)	0.63	3 (3%)	1 (1%)	0.346 (0.006–4.390)	0.66
Ipsilateral stroke, TIA, or death	4 (3%)	5 (4%)	1.280 (0.268–6.614)	0.98	4 (4%)	4 (4%)	1.054 (0.190–5.835)	1.00
Any stroke or TIA	5 (4%)	5 (4%)	1.017 (0.228–4.540)	1.00	5 (5%)	4 (4%)	0.836 (0.161–4.015)	1.00
Major bleeding	0 (0%)	1 (1%)	..	..	0 (0%)	1 (1%)	..	..
Death	0 (0%)	0 (0%)	..	..	0 (0%)	0 (0%)	..	..

Uitkomsten CADISS – 12 maanden

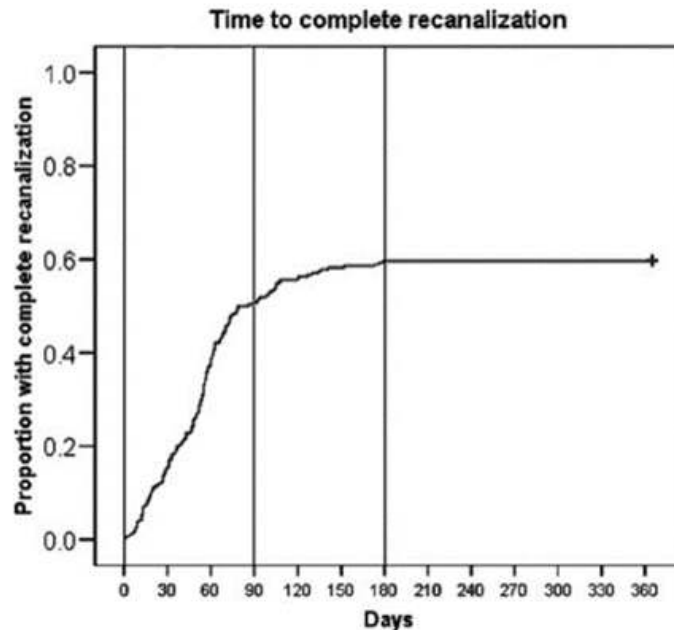
Event	No.							
	Intention-to-Treat Analysis				Per Protocol Analysis			
	Antiplatelets (n = 126)		Anticoagulants (n = 124)		Antiplatelets (n = 101)		Anticoagulants (n = 96)	
	0-3 mo	3-12 mo	0-3 mo	3-12 mo	0-3 mo	3-12 mo	0-3 mo	3-12 mo
Ischemic stroke								
Ipsilateral	3	1	1	1	3	1	1	0
Other	0	0	0	0	0	0	0	0
TIA								
Ipsilateral	1	0	4	0	1	0	3	0
Other	1	0	0	1	1	0	0	1
Major bleeding	0	0	1	0	0	0	1	0
Death	0	1 ^a	0	0	0	1 ^a	0	0

19 eerdere
TIA of stroke

Conclusies CADISS

- Diagnose CAD is moeilijk te stellen
- Het risico op een (recidief) herseninfarct na een CAD is laag
- Fase III trial niet haalbaar

Recanalisatie na CAD



Angiografische data CADISS na 3 maanden (n=181)

- 61 (34%) geen afwijkingen
- 64 (35%) onregelmatigheid of vernauwing
- 45 (25%) occlusie
- 29 (16%) pseudo/dissectie-aneurysma (DA)

Pseudo-aneurysmata in CADISS

In 248 patients with follow-up imaging at 3 months						
DA	Baseline			3 months		
	All	ICA	VA	All	ICA	VA
Yes	24 (9.7)	13 (11.3)	11 (8.3)	36 (14.5)	21 (18.3)	15 (11.3)
No	224 (90.3)	102 (88.7)	122 (91.7)	212 (85.5)	94 (81.7)	118 (88.7)

Risico stroke : 1/48 (2,1%) met DA versus 7/216 (3,2%) zonder DA

Langetermijn follow-up

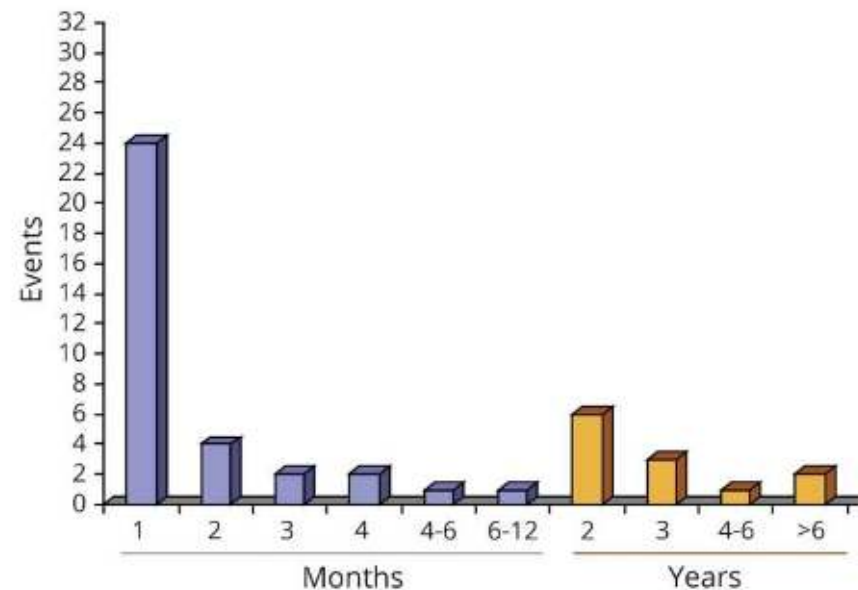
RECURRENT SPONTANEOUS CERVICAL-ARTERY DISSECTION

WOUTER I. SCHIEVINK, M.D., BAHRAM MOKRI, M.D., AND W. MICHAEL O'FALLON, PH.D.

PATIENT No.	AGE*/SEX	SITE OF DISSECTION†		TIME TO RECURRENCE
		INITIAL	RECURRENT	
1	52/F	Left + right VA Left + right ICA	RA	2 days
2	33/F	Left ICA	Right ICA	8 days
3	40/M	Right VA	Left VA	10 days
4	40/F	Right ICA + left VA	Left CCA	30 days

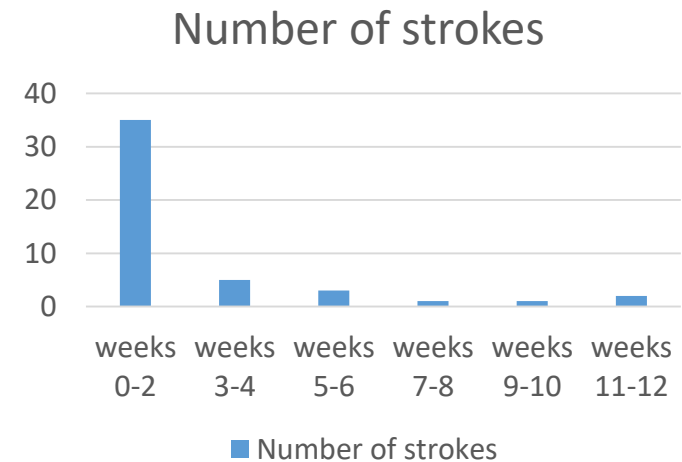
Langetermijn follow-up

	New CeAD events			<i>p</i> Value
	First CeAD events (n = 238)	Initial phase (n = 23)	Recurrence phase (n = 23)	
Ischemic stroke	164 (68.9)	2 (8.7)	2 (8.7)	<0.0001
TIA	25 (10.5)	1 (4.3)	3 (13.0)	0.80
Purely local symptoms	49 (20.6)	6 (26.1)	13 (56.5)	0.004
Asymptomatic	0	14 (60.9)	5 (21.7)	<0.0001



CAD zonder TIA of stroke

Time Interval After Dissection	Case Period (%)	Crossover Period (%)	Absolute Risk Difference (95% CI)
Weeks 0–2	1.25	0	1.25 (0.84 to 1.67)
Weeks 3–4	0.18	0	0.18 (0.02 to 0.34)
Weeks 5–6	0.11	0	0.11 (–0.01 to 0.23)
Weeks 7–8	0.04	0	0.04 (–0.03 to 0.11)
Weeks 9–10	0.04	0	0.04 (–0.03 to 0.11)
Weeks 11–12	0.07	0	0.07 (–0.03 to 0.17)



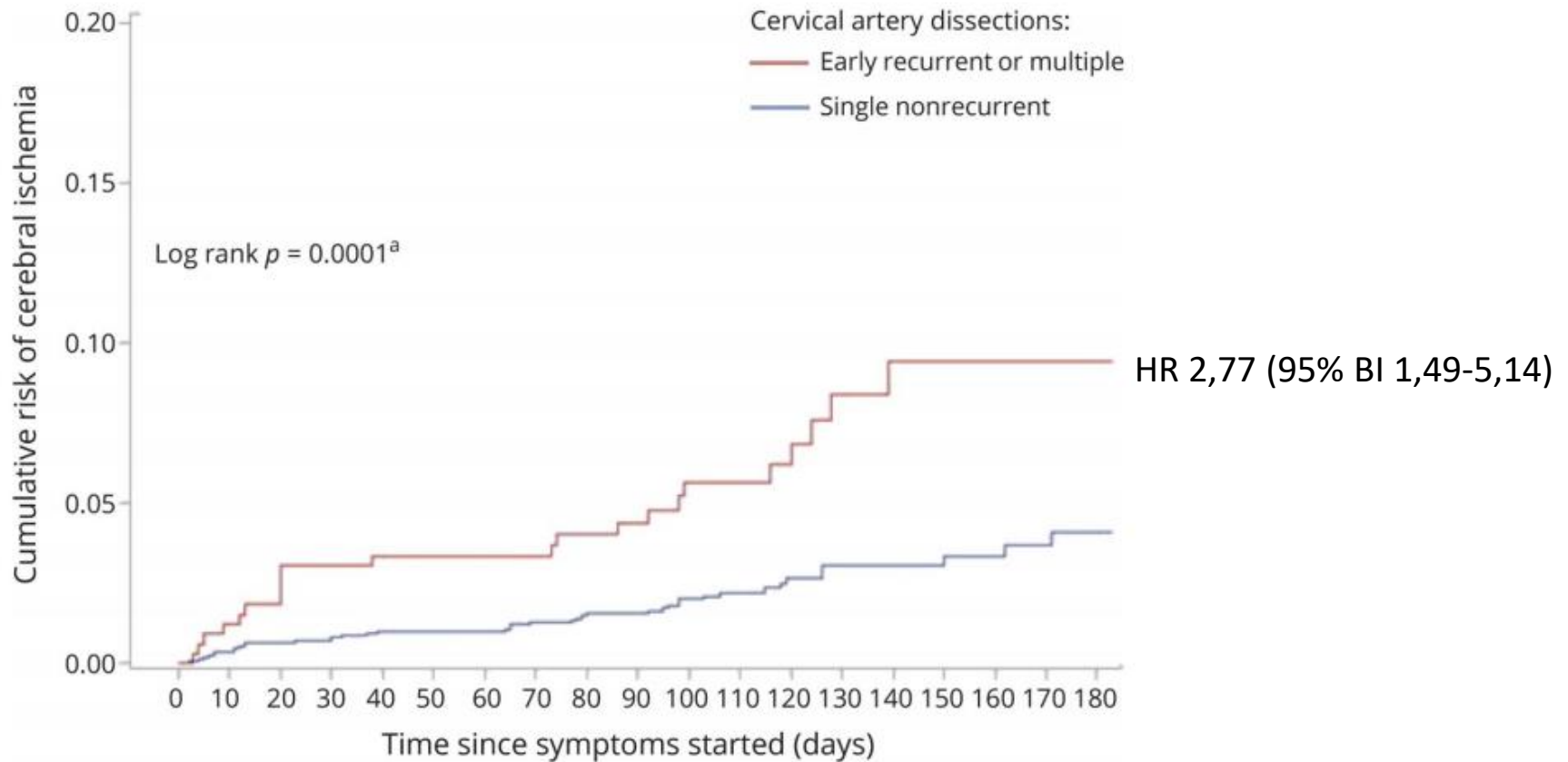
Boodschappen

- Cervicale arteriële dissecties ontstaan door een (tijdelijk) kwetsbare vaatwand
- Pas reperfusietherapie bij een CAD toe bij zoals bij ieder ander herseninfarct
- Plaatjesremmers en vitamine K antagonist zijn ws. even effectief als secundaire preventie
- Late recidieven komen voor maar in andere bloedvaten en zelden ernstig



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CADISP: recidief risico



Cervical Arterial Dissections and Association With Cervical Manipulative Therapy

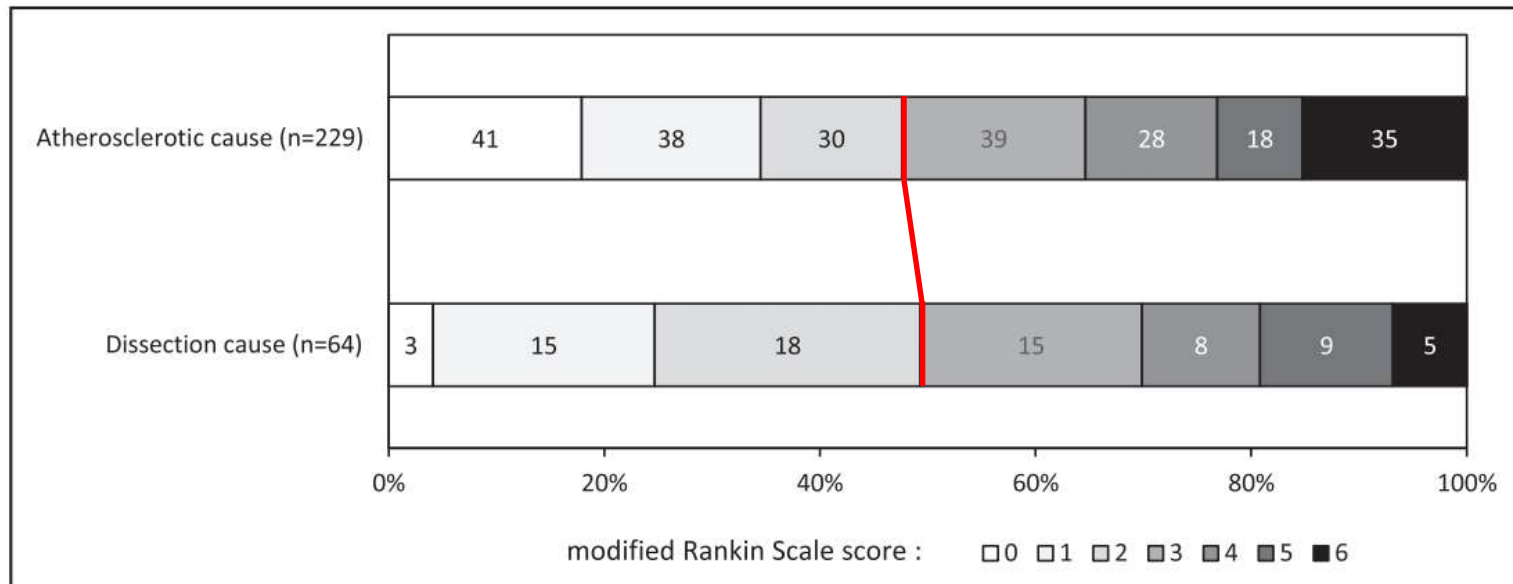
A Statement for Healthcare Professionals From the American Heart Association/American Stroke Association

Conclusions—CD is an important cause of ischemic stroke in young and middle-aged patients. CD is most prevalent in the upper cervical spine and can involve the internal carotid artery or vertebral artery. Although current biomechanical evidence is insufficient to establish the claim that CMT causes CD, clinical reports suggest that mechanical forces play a role in a considerable number of CDs and most population controlled studies have found an association between CMT and VAD stroke in young patients. Although the incidence of CMT-associated CD in patients who have previously received CMT is not well established, and probably low, practitioners should strongly consider the possibility of CD as a presenting symptom, and patients should be informed of the statistical association between CD and CMT prior to undergoing manipulation of the cervical spine. (*Stroke*. 2014;45:3155-3174.)

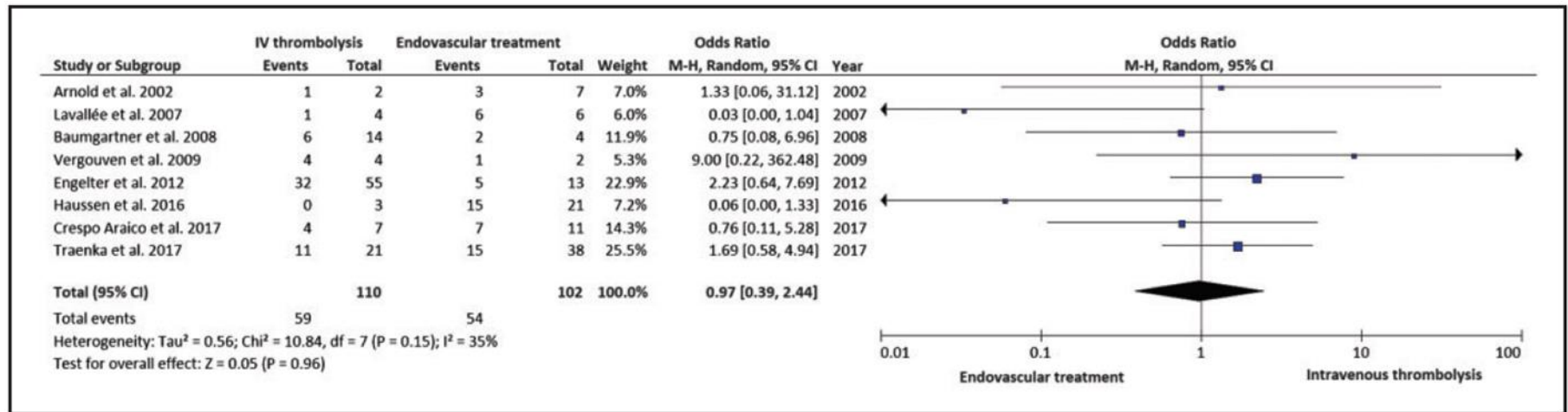
IVT versus EVT in CAD

	Total n = 62 (100%)	IVT n = 24 (39%)	EVT n = 38 (61%)	OR [95% CI] (crude)	P-value (crude)	OR [95% CI] (adjusted) ^a	P-value (adjusted) ^a
Primary outcomes							
Excellent three-month outcome (mRS 0–1), n (%)	14 (22.6)	5 (20.8)	9 (23.7)	1.18 (0.34–4.06)	0.794	2.23 (0.52–9.59)	0.278
siCH _{ECASS II} , n (%)	5 (8.1)	0 (0)	5 (13.2)	1.15 (1.02–1.30)	0.078	N/A	N/A
Secondary outcomes							
Favourable three-month outcome (mRS 0–2), n (%)	28 (45.2)	13 (54.2)	15 (39.5)	0.55 (0.19–1.55)	0.257	0.82 (0.23–2.96)	0.756
Death, n (%)	6 (9.7)	0 (0)	6 (15.8)	1.18 (1.04–1.36)	0.045	N/A	N/A
Partial or complete recanalisation of the occluded intracranial artery, n (%)	48/61 (78.7)	16 (66.7)	32/37 (84.2)	3.20 (0.90–11.38)	0.065	N/A	N/A

EVT in tandem occlusions



IVT versus EVT in CAD



MR CLEAN^{IV}

MR CLEAN^{LATE}

MR CLEAN

MR CLEAN^{MED}

