

Lige adgang til KAG?

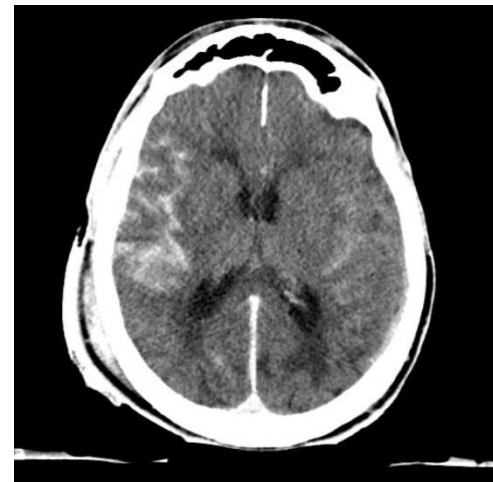
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Rigshospitalet

- KAG (undersøgelse af kranspulsårerne) er en vigtig undersøgelse af årsagen til hjertestop
 - Og giver mulighed for umiddelbar behandling af eventuel blodprop (PCI)
- Nyeste retningslinjer støtter akut KAG til alle med tegn til blodprop (STEMI) i EKG efter genoplivning
 - Alle med betydende rytmeforstyrrelser foreslås undersøgt, men den optimale timing af denne er ikke klarlagt

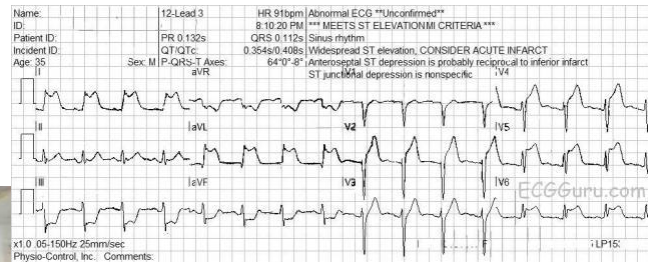
Men...

- Hjertestop kan have andre årsager
 - Nogen af dem kan føre til forværring ved en KAG
 - Fx. blødning i hjernen
- Nytte af akut KAG ved OHCA uden STEMI er ikke klar
 - Undersøges aktuelt i flere store studier



Præhospital triage af hjertestop i DK

- Telemedicin



Centralisering

- Akut KAG
 - Kun hjertecentre
- STEMI uden OHCA:
 - Direkte til PCI
 - OHCA?



Hvad betyder afstand til center for akut KAG efter Hjertestop



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CLINICAL RESEARCH

Acute coronary syndromes

Distance to invasive heart centre, performance of acute coronary angiography, and angioplasty and associated outcome in out-of-hospital cardiac arrest: a nationwide study

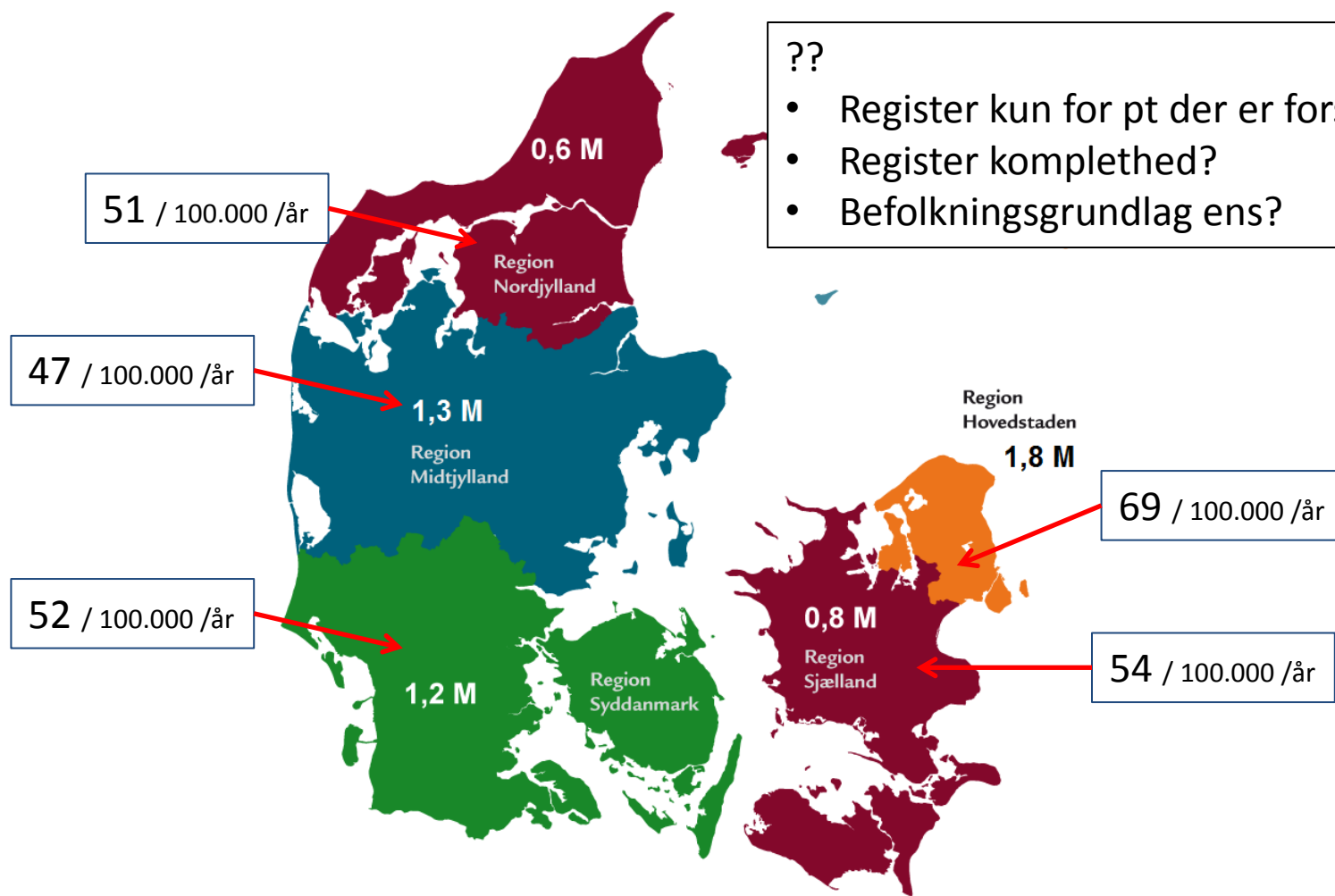
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- Hjertestopregistret
 - Alle hjertestop uden for hospital 2001-2013
- Hvad betyder afstand til center?

Table 1 Geographical characteristics, patient characteristics and outcome for OHCA patients stratified according to region

	A Capital Region of Denmark	B Central Denmark Region	C South Denmark Region	D Zealand Region	E Northern Denmark Region	P-value
Population size	1 749 000	1 271 000	1 202 000	816 270	580 273	—
Area, km ²	2568	13 053	12 191	7273	7933	—
Population density per km ² , official	681	97	99	112	73	<0.001
Population density per km ² observed in the study population (median)	2366	136	237	126	78	<0.001
Population density per km ² observed in the study population among 30-day survivors (median)	3070	136	271	139	81	<0.001
Study population, no.	15 745	7751	8119	5726	3845	—
Age, median (IQR), years	71 (60–81)	70 (58–79)	70 (59–80)	70 (60–79)	70 (58–79)	<0.001
Male gender, % (n/valid cases)	63 (9864/15 745)	66 (5138/7751)	66 (5344/8119)	66 (3770/5726)	68 (2608/3845)	<0.001
Bystander CPR, % (n/valid cases)	35 (4236/12 136)	39 (2885/7426)	34 (2762/8040)	35 (1952/5635)	36 (1366/3802)	<0.001
Distance to invasive centre, median (IQR), km	9 (5–17)	51 (30–82)	71 (34–122)	82 (61–99)	51 (30–68)	<0.001
Initial shockable rhythm, % (n/valid cases)	21 (2851/13 624)	22 (1629/7227)	21 (1634/7691)	21 (1110/5349)	21 (773/3626)	0.07
Witnessed arrest, % (n/valid cases)	55 (6786/12 276)	56 (4242/7570)	54 (4331/8037)	52 (2953/5640)	54 (2056/3799)	<0.001
Charlson comorbidity index score, % (n/valid cases)						
0	49 (7668/15 745)	54 (4200/7751)	53 (4325/8119)	53 (3017/5726)	55 (2101/3845)	
+1	51 (8077/15 745)	46 (3551/7751)	47 (3794/8119)	47 (2709/5726)	45 (1744/3845)	<0.001

Hjertestophyppighed



??

- Register kun for pt der er forsøgt genoplivet
- Register kompletthed?
- Befolkningsgrundlag ens?

Table I Geographical characteristics, patient characteristics and outcome for OHCA patients stratified according to region

	A Capital Region of Denmark	B Central Denmark Region	C South Denmark Region	D Zealand Region	E Northern Denmark Region	P-value
Acute CAG/PCI in patients with ROSC, % (n/valid cases)	11 (373/3475)	38 (600/1594)	32 (490/1541)	11 (103/982)	26 (219/827)	<0.001
Acute PCI in patients with ROSC, % (n/valid cases)	10 (348/3475)	23 (362/1594)	20 (314/1541)	10 (103/982)	16 (135/827)	<0.001
30-day survival, % (n/valid cases)	10 (1515/15 745)	9 (720/7751)	8 (658/8119)	6 (367/5726)	8 (290/3845)	<0.001

CPR, cardiopulmonary resuscitation; CAG/PCI, coronary angiography/percutaneous intervention; ROSC, return of spontaneous circulation.

30-dages overl.

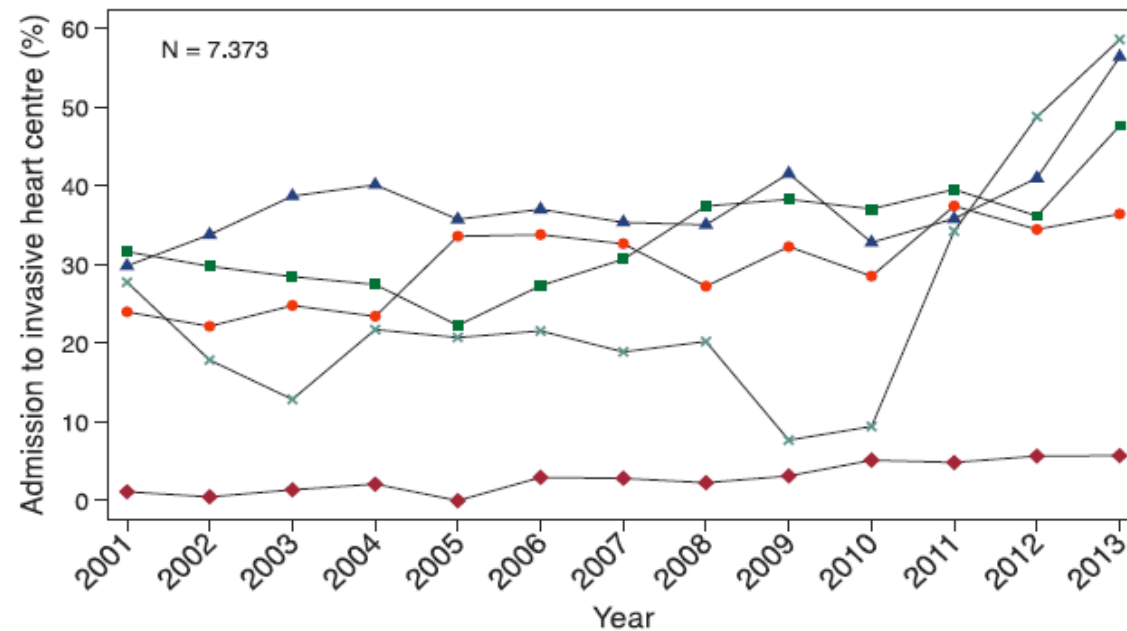
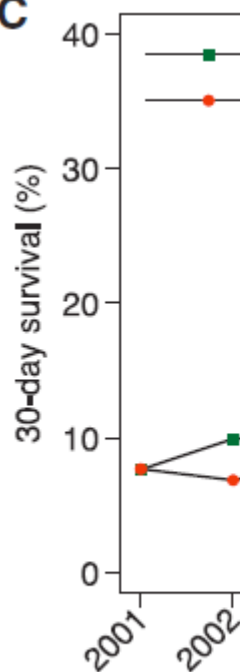
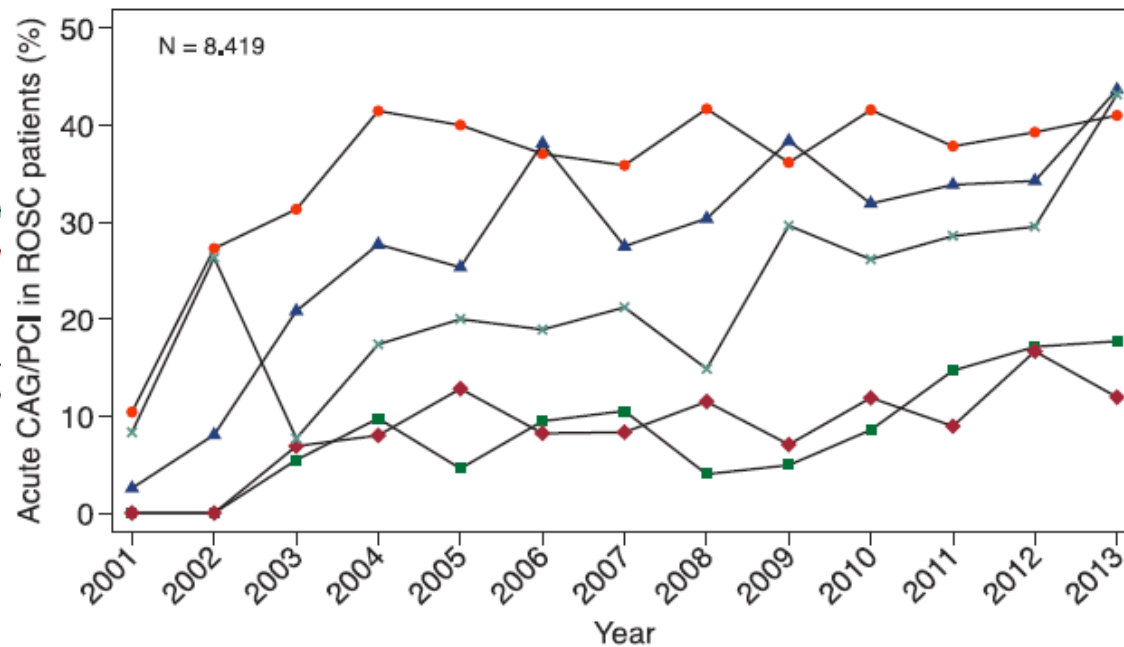
10%

9%

8%

6%

8%

C**C****D**

Afstand til Hjertecenter

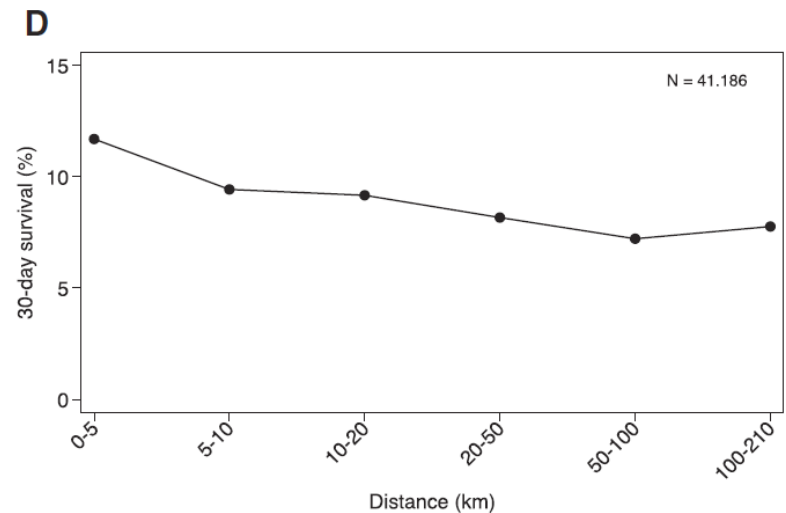
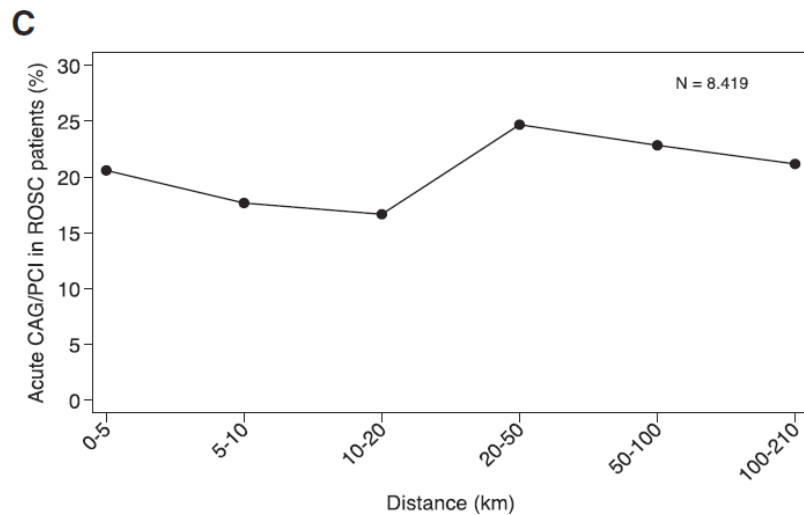
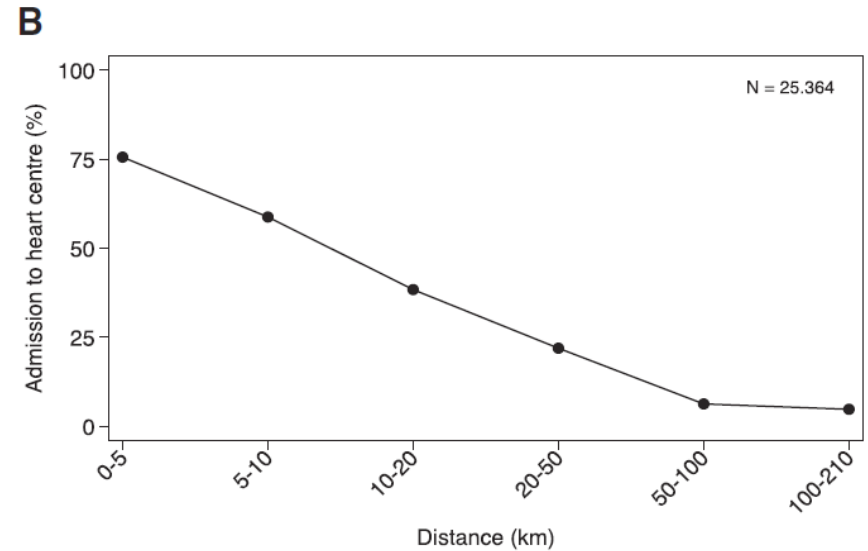
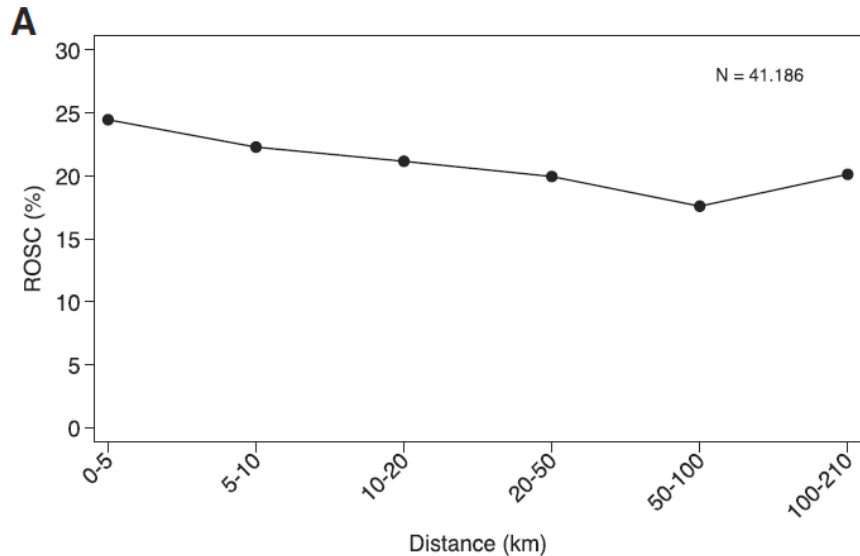


Table 2 Hazard ratios of covariates associated with mortality in univariable Cox regression analyses and multivariable analysis (based on imputed datasets)

Covariates included in the analyses	No.	Univariable analysis HR (95% CI)	P-value	Multivariable analysis HR (95% CI)	P-value
Male gender	41 186	0.92 (0.91–0.94)	<0.001	0.99 (0.97–1.01)	0.46
Age, per 10 year increase	41 186	1.06 (1.05–1.06)	<0.001	1.04 (1.03–1.05)	<0.001
Bystander CPR	37 039	0.87 (0.85–0.89)	<0.001	0.97 (0.95–0.99)	0.005
Non-shockable heart rhythm	37 517	1.68 (1.63–1.72)	<0.001	1.48 (1.43–1.52)	<0.001
Witnessed OHCA	37 322	0.79 (0.78–0.81)	<0.001	0.87 (0.85–0.89)	<0.001
Comorbidity index ≥ 1 (0 reference)	41 186	1.14 (1.12–1.16)	<0.001	1.08 (1.06–1.11)	<0.001
Admission to invasive centre (reference: local hospital)	25 364	0.78 (0.76–0.81)	<0.001	0.91 (0.89–0.93)	<0.001
Acute CAG/PCI per region and year (index)	41 186	0.33 (0.25–0.42)	<0.001	0.33 (0.25–0.45)	<0.001
Population density per zip code per km ²	41 186				
0–100		Reference		Reference	
100–300		0.98 (0.95–1.01)	0.17	0.97 (0.95–1.01)	0.15
300–2000		0.98 (0.95–1.00)	0.10	0.97 (0.94–1.01)	0.17
2000–20 000		0.95 (0.92–0.97)	<0.001	0.94 (0.89–0.98)	0.007
Distance to invasive centre, kilometres	41 186				
0–5 (<i>n</i> = 5414)		0.93 (0.89–0.96)	<0.001	1.01 (0.96–1.07)	0.70
5–10 (<i>n</i> = 5749)		0.97 (0.94–1.01)	0.14	1.02 (0.97–1.08)	0.37
10–20 (<i>n</i> = 4779)		0.98 (0.94–1.02)	0.23	1.00 (0.96–1.05)	0.90
20–50 (<i>n</i> = 8513)		0.99 (0.96–1.03)	0.86	1.03 (0.99–1.07)	0.14
50–100 (<i>n</i> = 10 315)		1.01 (0.98–1.05)	0.40	1.02 (0.99–1.05)	0.23
100–210 (<i>n</i> = 6416)		Reference		Reference	

CPR, cardiopulmonary resuscitation; OHCA, out-of-hospital cardiac arrest; CAG/PCI, coronary angiography/percutaneous intervention; ROSC, return of spontaneous circulation.

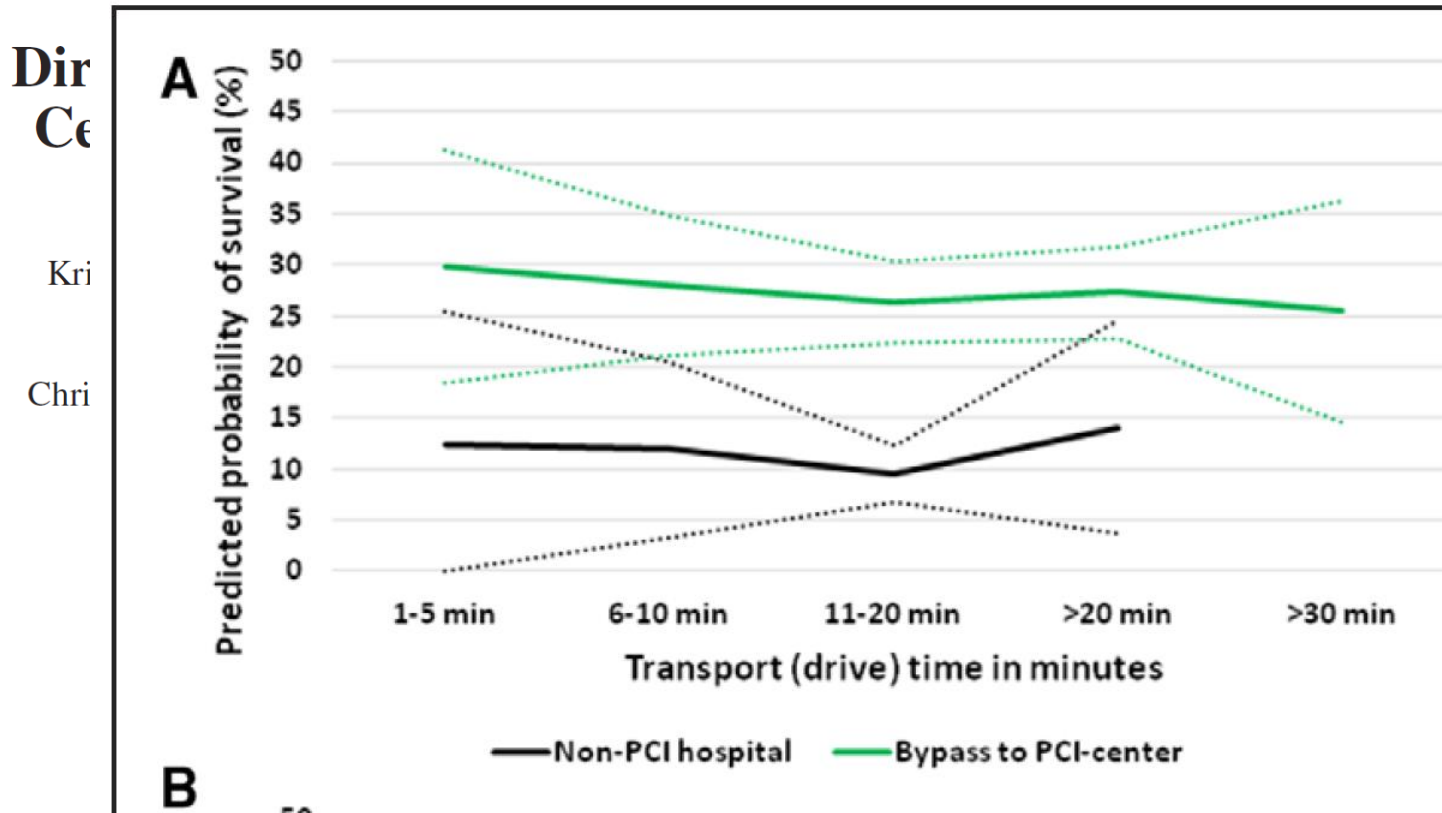
Conclusion

Immediate admission to an invasive heart centre and acute CAG/PCI are associated with improved survival in patients with OHCA, whereas distance from site of the event to the invasive heart centre was not. Our results support the establishment of few high-volume invasive heart centres and suggest that OHCA patients should field-triage directly to these centres for optimal post-resuscitation care, regardless of the distance. Clinical randomized studies are needed to clarify the causality between acute CAG/PCI and survival.

- Centralisering er praktisk i forhold til komplekse patienter
 - Afstand virker ikke til at have betydning
 - Men andelen der får foretaget KAG/PCI er lavere med stigende afstand til center
 - Vil helikopteren ændre dette ?
- Effekten af KAG/PCI isoleret er svært at belyse i registre
 - Endelige organisatoriske ændringer bør afvente igangværende randomiserede studier

Er der ikke risiko ved at køre forbi et hospital på vej mod akut KAG/PCI mulighed?

Original Article



Er der andre forskelle?

Young ACCA Best Paper Prize

**Women have
and undergo
angiographies
cardiac arrest**

**Matilde Winther-Jer
John Bro-Jeppesen¹,
Lars Køber¹, Michael**

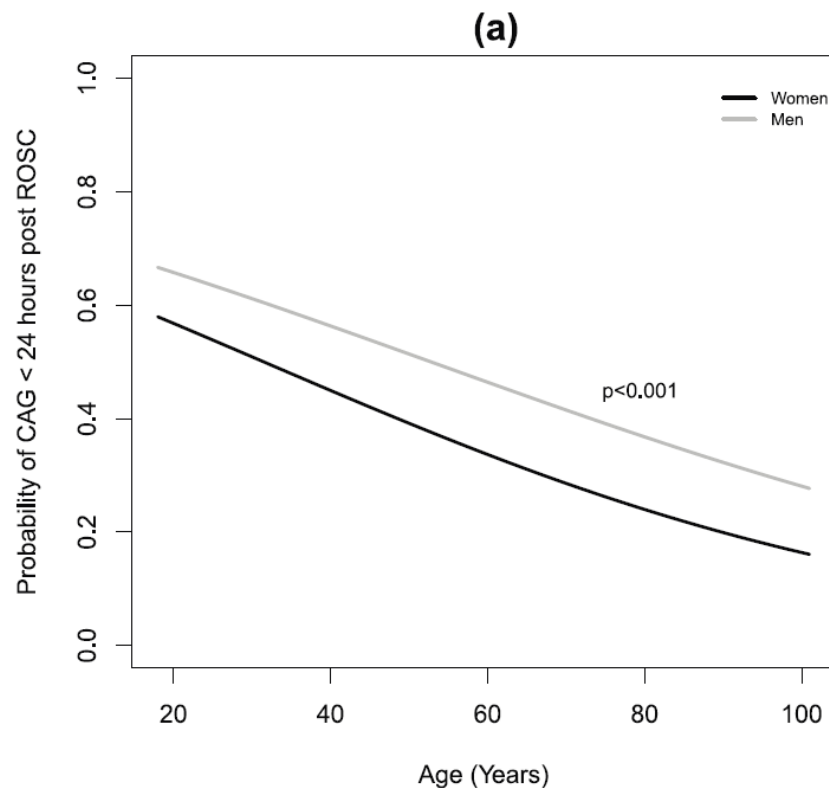
European Heart Journal
**Acute
Cardiovascular
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Og de gamle ?

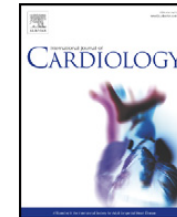
International Journal of Cardiology 201 (2015) 616–623



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Resuscitation and post resuscitation care of the very old after out-of-hospital cardiac arrest is worthwhile☆



Table 2

In-hospital treatment of successfully resuscitated octogenarians and patients < 80 years.

	Successfully resuscitated octogenarians (n = 166)	Successfully resuscitated <80 years (n = 830)	p-Value
Emergency department			
Active therapy terminated in ED	31 (19%)	82 (10%)	<0.01
Therapeutic hypothermia	43 (32%)	391 (52%)	<0.001
Revascularization			
Acute coronary angiography (<24 h)	19 (14%)	276 (37%)	<0.001
Coronary angiography	22 (16%)	364 (49%)	<0.001
Percutaneous coronary intervention	14 (10%)	201 (27%)	<0.001
Coronary artery bypass grafting	0	40 (5%)	0.01
Neurological prognostication			
Computed tomography of the head	33 (24%)	308 (42%)	<0.001
Electroencephalography	8 (6%)	159 (21%)	<0.001
Somatosensory evoked potentials	3 (2%)	81 (11%)	<0.01

Data are presented as number (percentage). Patients who died in ED were excluded from analyses of differences in performance of procedures.

Abbreviations: ED: emergency department.

Conclusion

Immediate admission to an invasive heart centre and acute CAG/PCI are associated with improved survival in patients with OHCA, whereas distance from site of the event to the invasive heart centre was not. Our results support the establishment of few high-volume invasive heart centres and suggest that OHCA patients should field-triage directly to these centres for optimal post-resuscitation care, regardless of the distance. Clinical randomized studies are needed to clarify the causality between acute CAG/PCI and survival.

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- Effekten af KAG/PCI isoleret er svært at belyse i registre
 - Endelige organisatoriske ændringer bør afvente igangværende randomiserede studier
- Centralisering af hjertestoptilfælde er tilsyneladende uden negativ effekt på overlevelse. Måske endda gavnlig effekt ?