

16-year follow-up of the DANish Acute Myocardial Infarction 2 (DANAMI-2) trial

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Declaration of interest

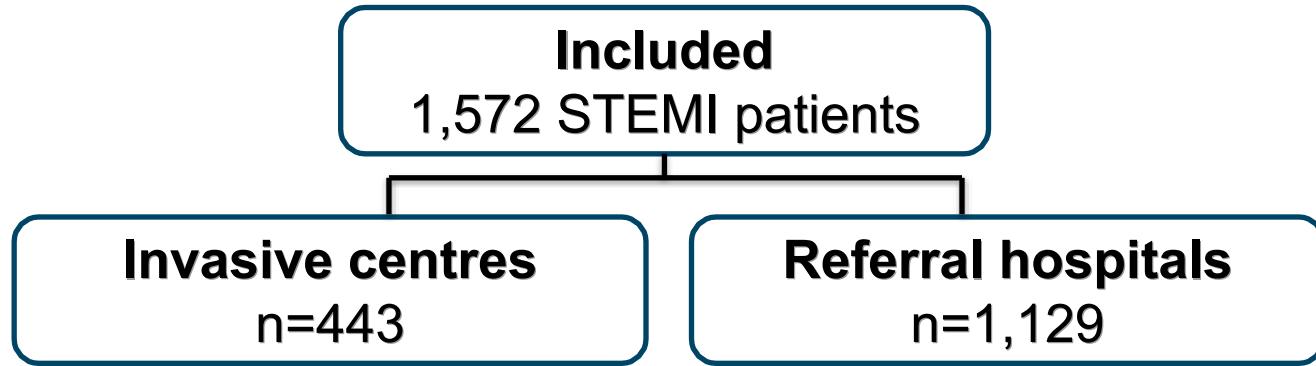
- I have nothing to declare

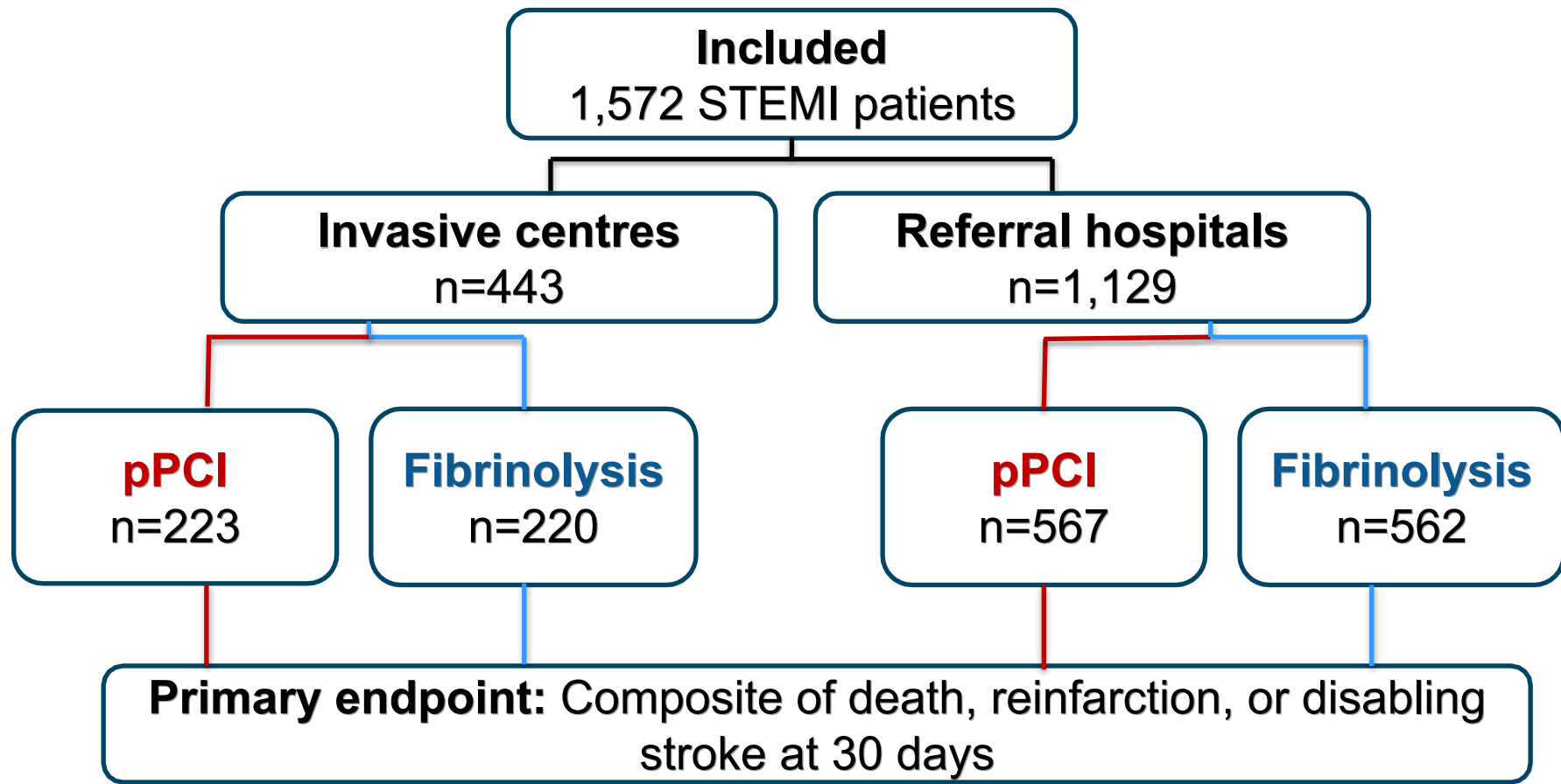
Background

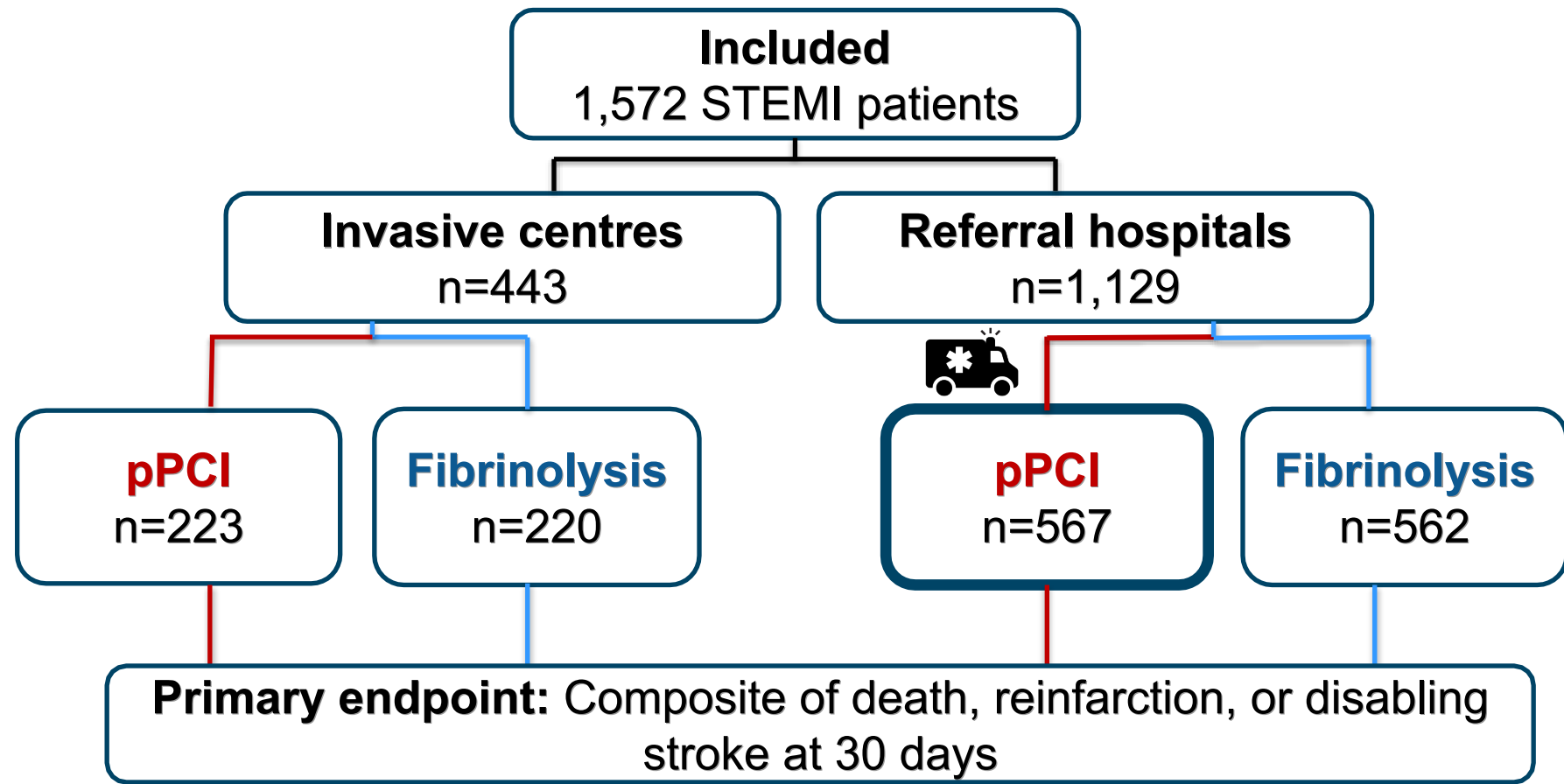
- The 1990's landmark trials (Zwolle, PAMI) showed that pPCI treatment was superior to fibrinolysis in patients admitted to invasive centres
- The DANAMI-2 trial (NEJM 2003) is the largest RCT to show that inter-hospital transport for pPCI is superior to fibrinolysis at 30 days of follow-up
- These results were confirmed in the PRAGUE-2 trial

Objective

- To examine the 16-year outcomes of the DANAMI-2 trial
- To provide a very long-term perspective on death and cardiovascular events when comparing pPCI with fibrinolysis in STEMI patients







Patient selection

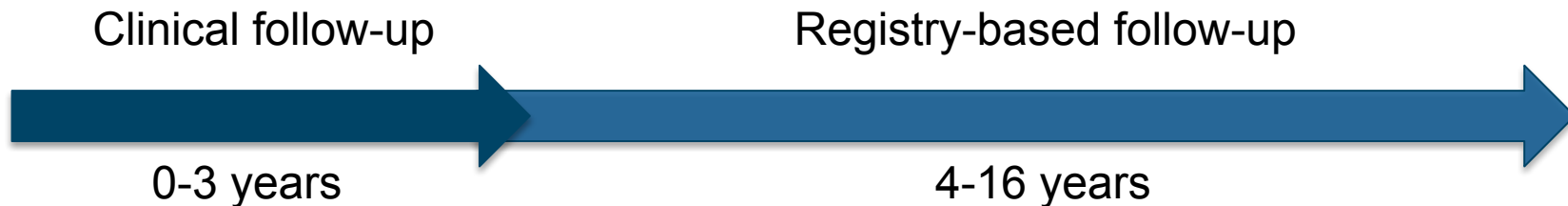
Inclusion criteria

- ST-elevation ≥ 2 mm in ≥ 2 contiguous leads
- Age ≥ 18 years
- Chest discomfort ≥ 30 mins and ≤ 12 hours

Exclusion criteria

- LBBB
- Contraindication to fibrinolysis
- MI or fibrinolysis within the last 30 days
- Metformin-treated diabetes

Endpoints



Main endpoint:

Composite of death or reinfarction

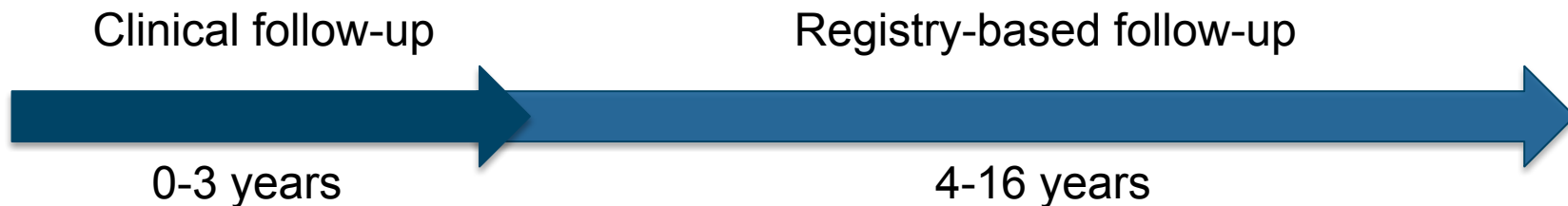
Additional endpoints:

Death

Reinfarction

Cardiac and non-cardiac death

Endpoints



0-3 years: Clinical follow-up

Endpoint committee adjudication

4-16 years: Registry-based follow-up

Danish Civil Registration System

Danish National Patient Registry

Danish Cause of Death Registry

Statistics

Kaplan-Meier curves and Cox proportional hazards model:

- Composite endpoint and all-cause death

Competing Risk Model:

- Reinfarction, cardiac and non-cardiac death

Restricted mean model*:

- Difference in time to first event

*Kim DH et al, JAMA 2017

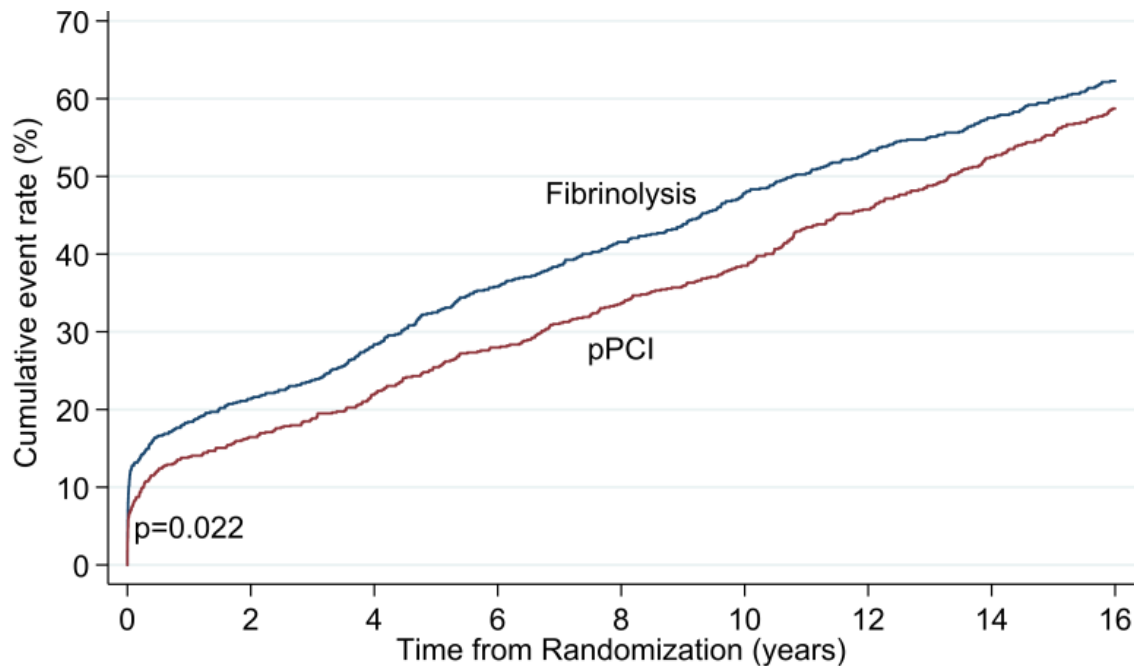
Baseline characteristics

	Fibrinolysis (n=782)	Primary PCI (n=790)	P-value
Age (years), median (IQR)	63 (54-73)	63 (54-72)	0.32
Male sex (%)	73.4	73.5	0.95
Previous MI (%)	11.8	11.0	0.61
Anterior index MI (%)	52.6	53.2	0.81
Diabetes (%)	7.1	7.4	0.80
Smoking (%)	58.6	58.1	0.85
Time from symptom onset to randomization (min), median (IQR)	140 (85-235)	135 (85-225)	0.23

16-year follow-up

- 60% of the patients reached the composite endpoint
- 51% died during follow-up
- High data completeness
 - Vital status known for 99.7% of patients
 - Cause of death known for 97.7% of all deaths

Composite endpoint



62.3%

Absolute difference

58.7%

3.6%

Hazard ratio (95% CI)

0.86 (0.76-0.98)

Number at risk

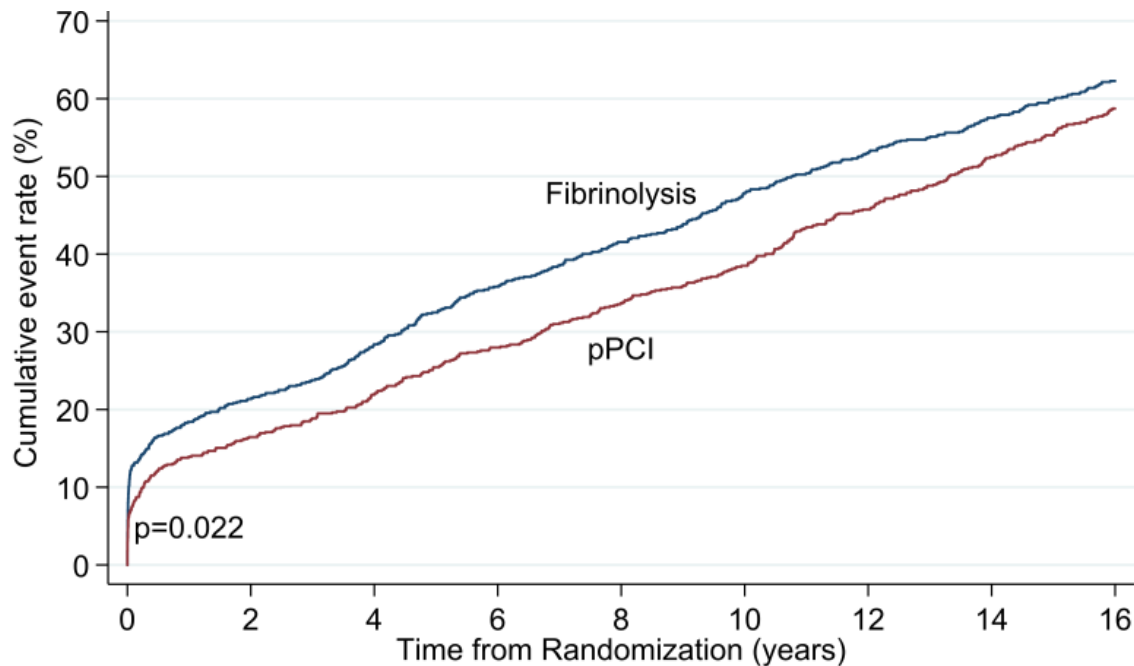
Fib.	782	615	560	502	457	408	367	332	295
pPCI	790	660	617	569	523	484	426	373	324

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Thrane et al, EHJ 2019

Composite endpoint



62.3%

Absolute difference

58.7%

3.6%

Hazard ratio (95% CI)

0.86 (0.76-0.98)

**Mean gain in time
to first event (95% CI)**

12.3 months (5.0-19.5)

Number at risk

Fib.	782	615	560	502	457	408	367	332	295
pPCI	790	660	617	569	523	484	426	373	324

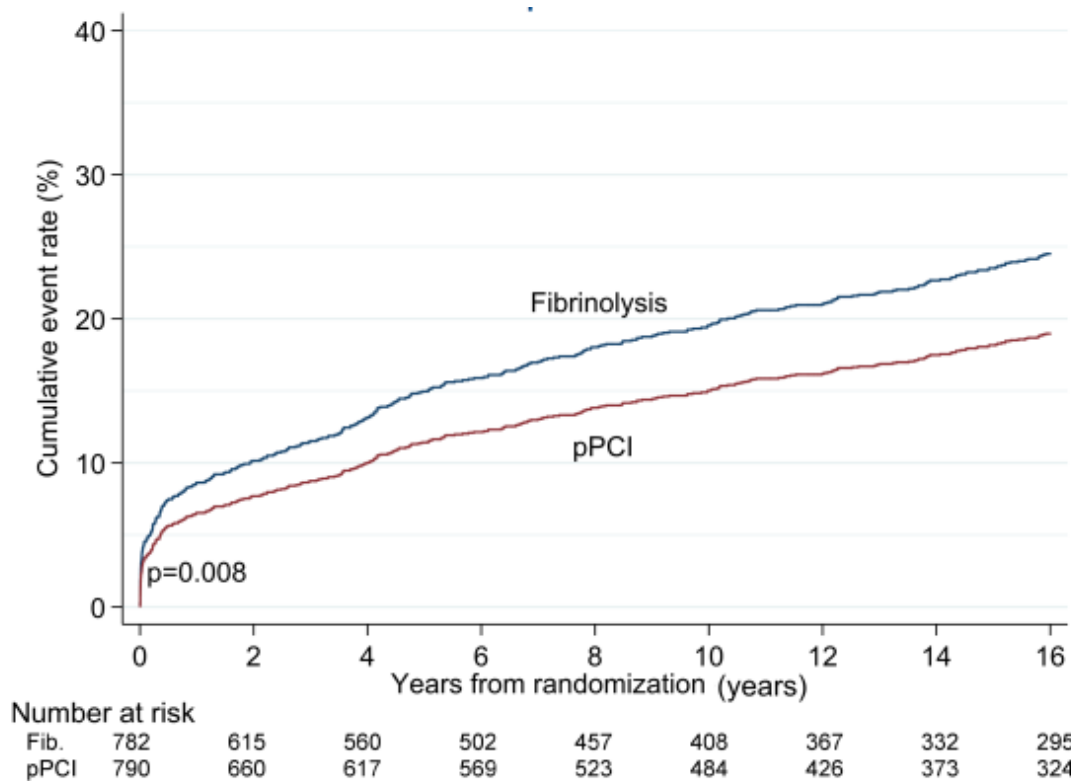
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Reinfarction



24.5%

19.0%

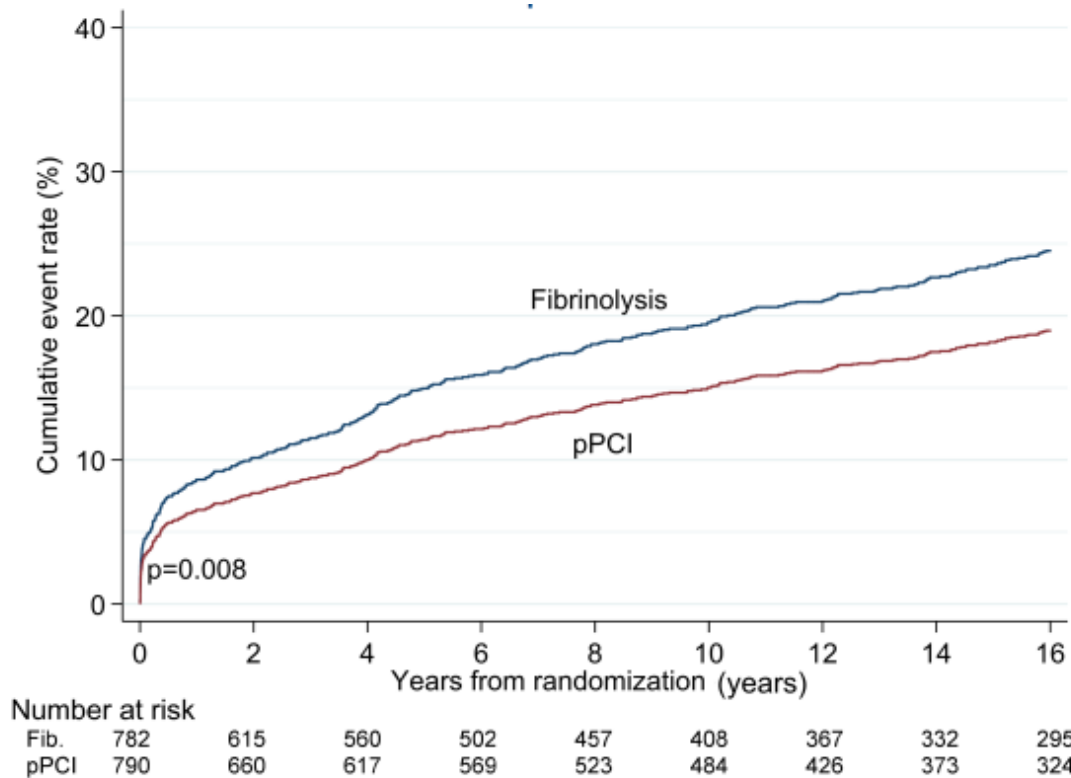
Absolute difference

5.5%

Hazard ratio (95% CI)

0.75 (0.60-0.93)

Reinfarction



24.5%

19.0%

Absolute difference

5.5%

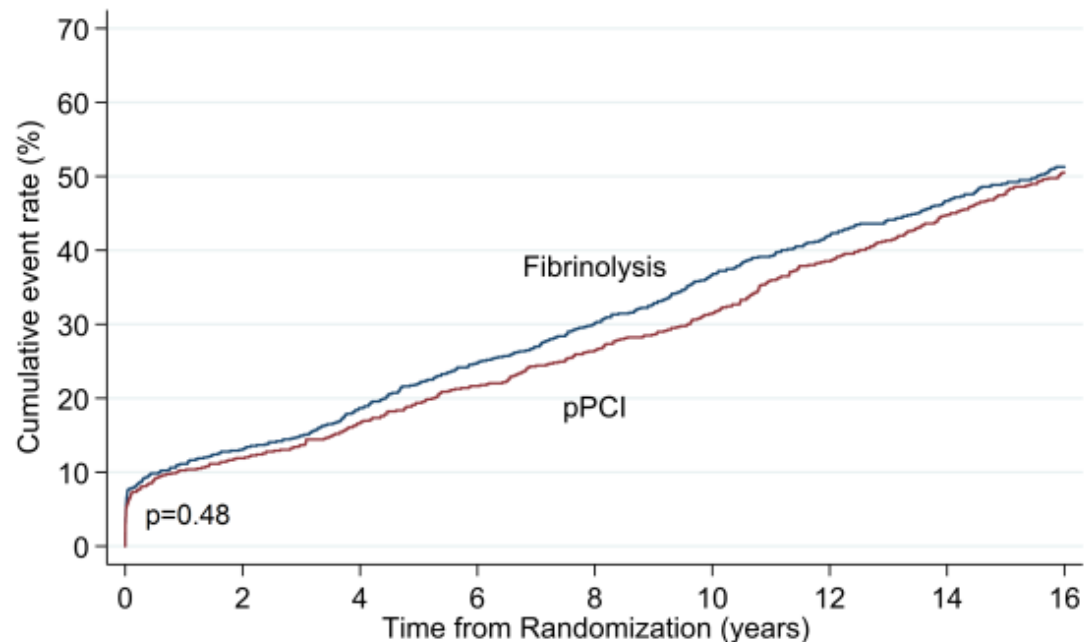
Hazard ratio (95% CI)

0.75 (0.60-0.93)

**Mean gain in time
to first event (95% CI)**

11.5 months
(4.8–18.3)

All-cause death



Number at risk

Fib.	782	680	636	589	547	495	454	417	380
pPCI	790	696	659	619	580	539	483	433	388

51.3%

50.5%

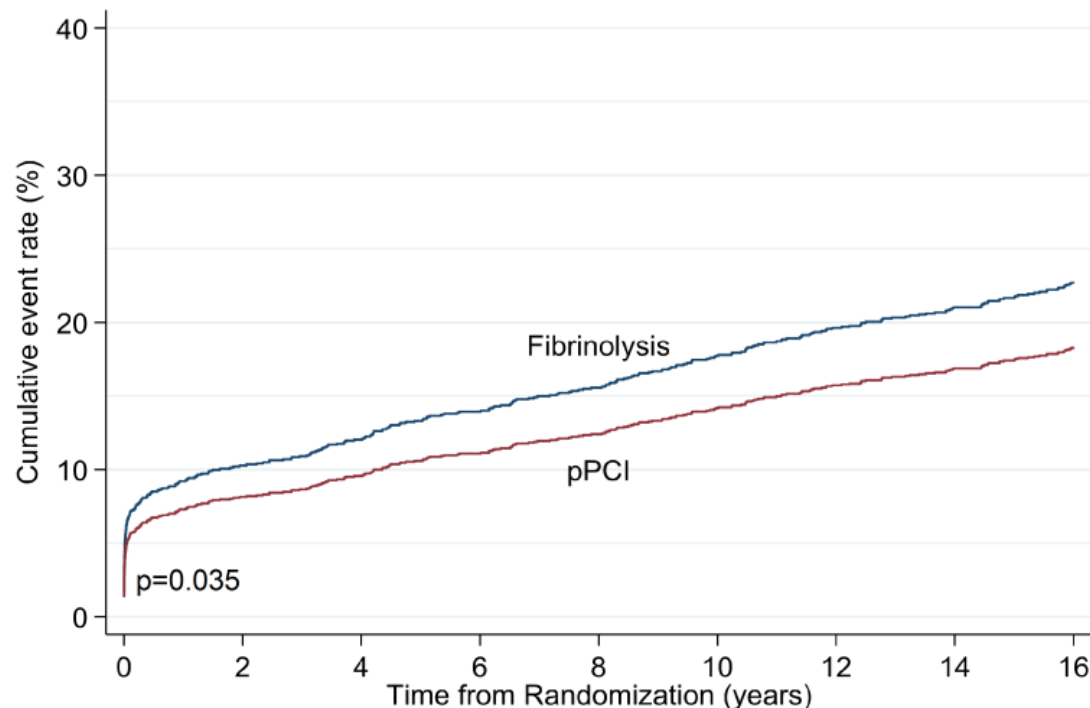
Absolute difference

0.8%

Hazard ratio (95% CI)

0.95 (0.83-1.09)

Cardiac death



Absolute difference

4.4%

22.7% Hazard ratio (95% CI)

18.3% 0.78 (0.63-0.98)

Number at risk

Fib.	782	680	636	589	547	495	454	417	380
pPCI	790	696	659	619	580	539	483	433	388

together with

Referral hospitals

n = 1129

Hazard ratio (95% C

Composite endpoint

0.82 (0.71-0.96)

Reinfarction

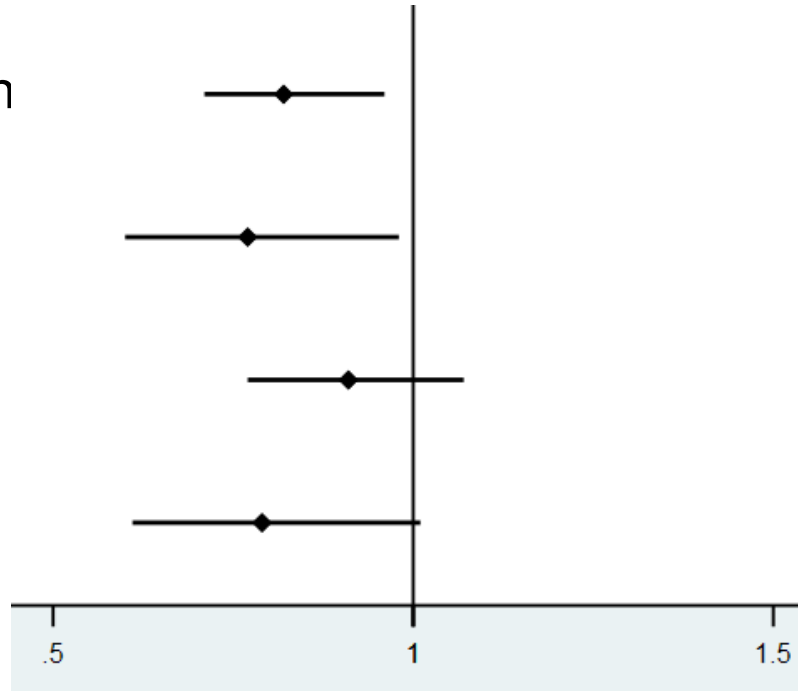
0.77 (0.60-0.98)

Death

0.91 (0.77-1.07)

Cardiac death

0.79 (0.61-1.01)



Favours pPCI Favours fibrinolysis

Limitations

- Changes in management and treatment
 - Prehospital triage
 - Anti-thrombotic treatment
 - Optimization of PCI devices and techniques
- Conservative use of rescue PCI after fibrinolysis

Conclusions: 16-year follow-up

Composite endpoint

- Absolute reduction of 3.6% favouring pPCI
- >1 year gain in time to first main event with pPCI

Reinfarction

- Absolute reduction of 5.5% favouring pPCI

Cardiac death

- Absolute reduction of 4.4% favouring pPCI

Thank you for your attention



ESC

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FASTTRACK CLINICAL RESEARCH

Acute coronary syndromes

16-year follow-up of the Danish Acute Myocardial Infarction 2 (DANAMI-2) trial: primary percutaneous coronary intervention vs. fibrinolysis in ST-segment elevation myocardial infarction

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Aims

The DANish Acute Myocardial Infarction 2 (DANAMI-2) trial found that interhospital transport to primary percutaneous coronary intervention (pPCI) was superior to fibrinolysis at the local hospital in patients with ST-segment elevation myocardial infarction (STEMI) at 30 days. The present study investigates the 16-year cardiovascular outcomes.

Methods and results

We randomized 1572 STEMI patients to pPCI or fibrinolysis at 24 referral hospitals and 5 invasive centres in Denmark. Patients randomized to pPCI at referral hospitals were immediately transported to the nearest invasive centre. The main endpoint of the current study was a composite of death or rehospitalization for myocardial infarction (MI). Outcome information beyond 3 years was obtained through Danish health registries. After 16 years

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