

# Pre-hospital hypothermia

## *Seattle and King County, Washington*

Research

### Original Investigation

## Effect of Prehospital Induction of Mild Hypothermia on Survival and Neurological Status Among Adults With Cardiac Arrest A Randomized Clinical Trial

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**IMPORTANCE** Hospital cooling improves outcome after cardiac arrest, but prehospital cooling immediately after return of spontaneous circulation may result in better outcomes.

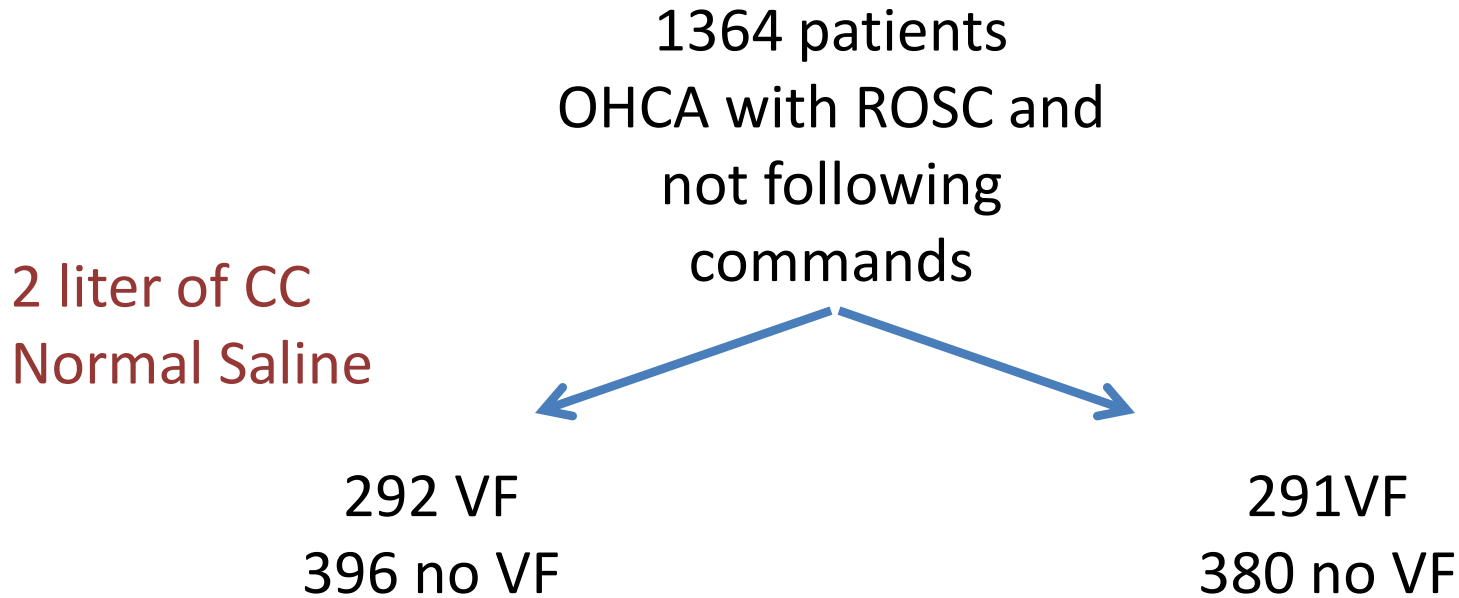
**OBJECTIVE** To determine whether prehospital cooling improves outcomes after resuscitation from cardiac arrest in patients with ventricular fibrillation (VF) and without VF.

**DESIGN, SETTING, AND PARTICIPANTS** A randomized clinical trial that assigned adults with

← Editorial

+ Supplemental content at  
[jama.com](http://jama.com)

# Pre-hospital hypothermia



decreased mean core temperature by hospital arrival

1.2°C with VF

1.3°C without VF

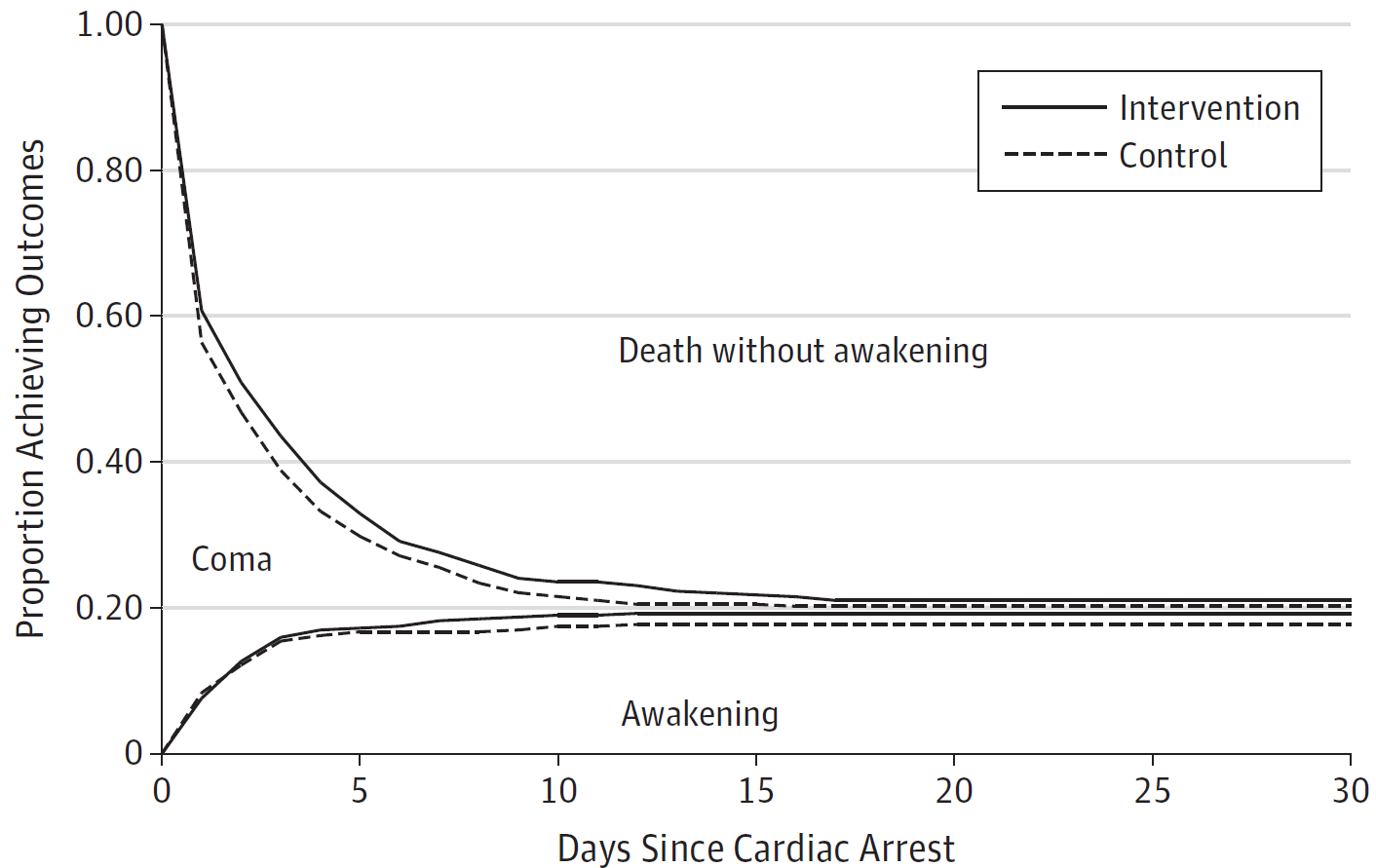
reduced the time to 34°C by 1 hour

# Pre-hospital hypothermia

Pre-hospital 4 <sup>0</sup> C NS	Yes	No	P
Call to first responder (min)	5	5	NS
Call to first shock for VF (min)	9	9	NS
Dispatch to hospital arrival	51	49	0.006
Rearrest	26%	21%	0.008
Pulmonary Edema CXR#1	41%	30%	0.001
pH	7.16	7.20	0.05

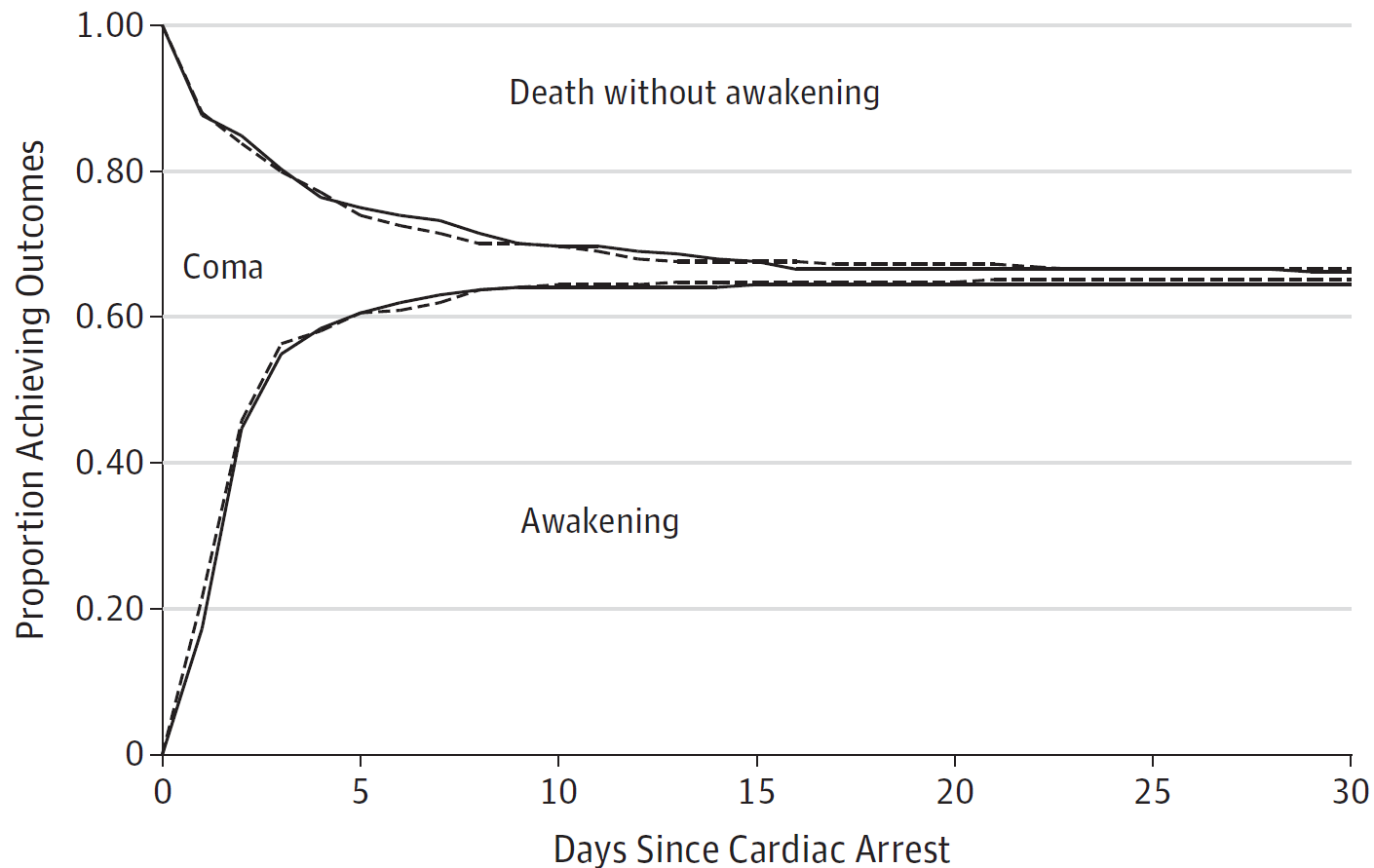
# Pre-hospital hypothermia

**B** Without ventricular fibrillation



# Pre-hospital hypothermia

**A** With ventricular fibrillation



# Pre-hospital hypothermia

In a highly developed cardiac arrest system with 50 minute median time from dispatch to hospital arrival

- Faster time to 34<sup>0</sup> C
- Increased rates of rearrest and pulmonary edema
- Not associated with improved mental status nor survival

# Targeted Temperature 33°C versus 36°C

*36 intensive care units in Europe and Australia*

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

## Targeted Temperature Management at 33°C versus 36°C after Cardiac Arrest

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# Targeted Temperature 33°C versus 36°C

Target temp. ASAP  
Rewarm after 28  
hours

1364 patients  
OHCA with ROSC  
Glasgow Coma Scale <8

33°C

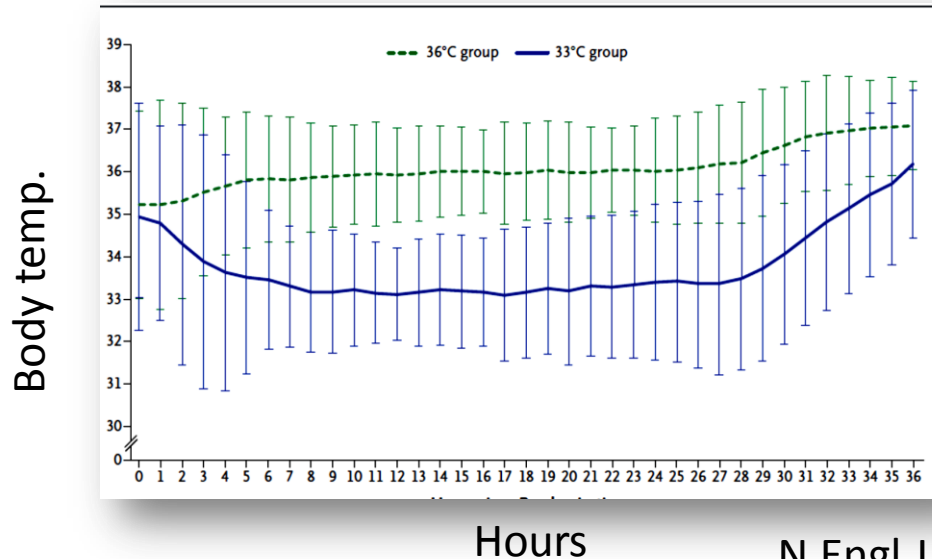
36°C

473

466

Shockable 79%

Shockable 81%

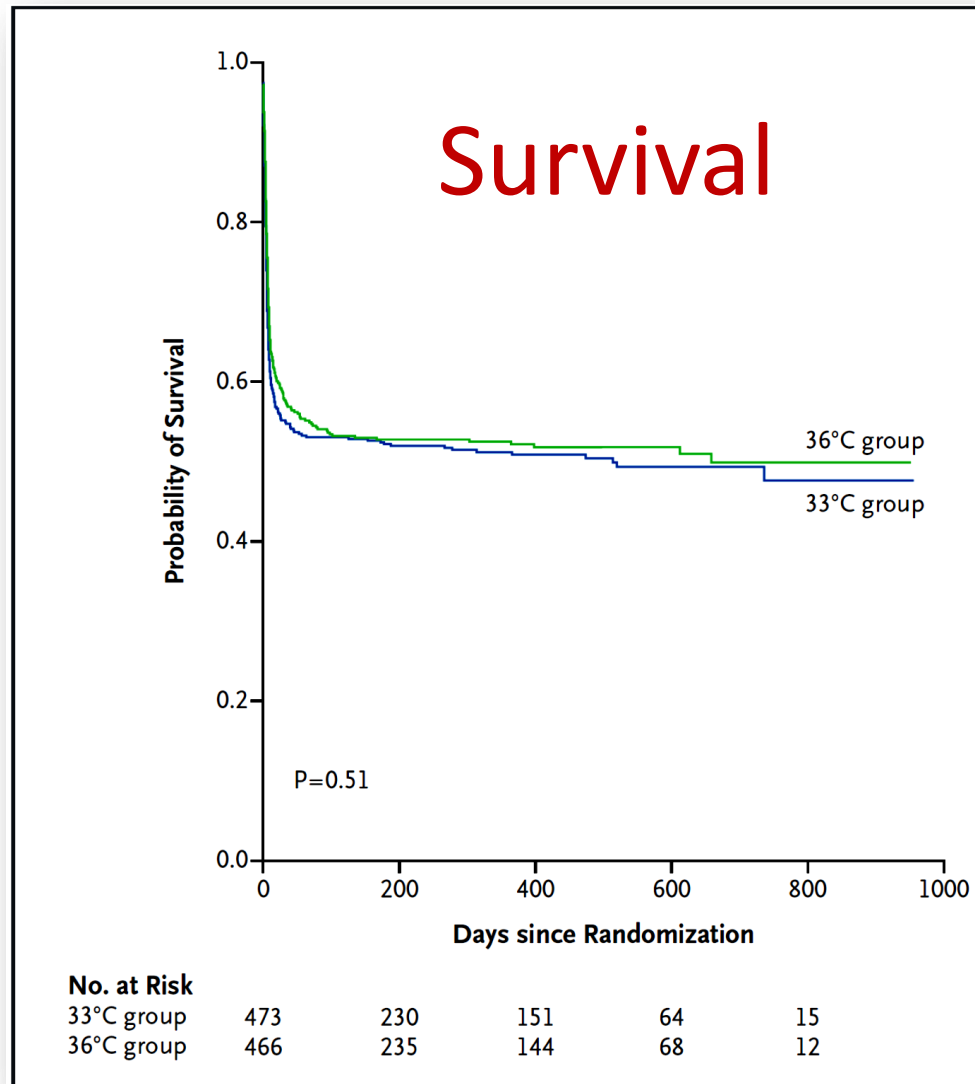




# Targeted Temperature 33°C versus 36°C

Goal temperatur	33°C	36°C	P
Bystander witnessed	89	90	NS
Asystole	12	12	NS
PEA	8	6	NS
STEMI	40%	42%	NS
Time from arrest to ACLS (min)	10	9	NS
Death at 180 days	48%	47%	0.92
CPC 1	42%	39%	0.85

# Targeted Temperature 33°C versus 36°C



# Targeted Temperature 33°C versus 36°C

For survivors of OOHCA with Glasgow Coma Scale <8 admitted to ICUs in Europe and Australia treated with targeted temperature control of 33<sup>0</sup> versus 36<sup>0</sup> Celsius

- No difference in survival nor neurologic recovery