

# EFFECTS OF PROPOFOL ON HEMODYNAMIC PROFILE IN ADULTS RECEIVING TARGETED TEMPERATURE MANAGEMENT

## Background

- The AHA strongly recommends targeted temperature management (TTM) for comatose patients who achieve ROSC after cardiac arrest
- Sedative medications are commonly administered empirically or as adjunctive therapy to control shivering, but there are no established recommendations for specific sedation strategies
- Propofol and midazolam are the primary treatments for shivering in TTM, but both come with concerns
  - Midazolam:** accumulation in renal dysfunction, masking seizures, delirium
  - Propofol:** hypotension, masking seizures, myocardial depression

## Objective

- This study aims to quantify the hemodynamic changes due to propofol in adult survivors of cardiac arrest undergoing TTM

## Methods

- Single-center, retrospective cohort study
- Included patients that received TTM for non-traumatic cardiac arrest and propofol infusion was started after initiation of TTM and continued for at least 30 minutes
- Primary outcome:** change in cardiovascular component of the Sequential Organ Failure Assessment (cvSOFA) score at 30 minutes after propofol initiation
- Secondary outcomes:** change in systolic blood pressure (SBP), mean arterial pressure (MAP), heart rate (HR), and vasopressor requirements (VR) at 30-, 60-, 120-, and 240-minutes after propofol initiation
- A multivariate analysis was performed to assess the influence of propofol, CAHP, vasopressors, and body temperature on MAP at 30 min

## Results

- N=40
- There was no statistically significant change in cvSOFA score at 30 minutes after propofol initiation ( $p=0.96$ )
- The greatest change in SBP and MAP was seen at 60 minutes of propofol infusion, decreasing by 17 mmHg and 8 mmHg ( $p<0.05$  for both), respectively
- The greatest change in HR was at 120 minutes decreasing by 9 bpm ( $p<0.05$ )
- All reductions were sustained through 240 minutes ( $p<0.05$ )
- No change in vasopressor requirements was seen at any time
- Body temperature was the only variable associated with changes in MAP (coefficient 4.95%, 95% CI 1.6-8.3)

## Implications

- Propofol should be considered in TTM patients for sedation or shivering, given the limited hemodynamic effects and benefits over benzodiazepines as sedatives

# Propofol does not significantly alter hemodynamics during TTM following cardiac arrest.



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## TABLES & FIGURES

Table 1. Demographic Characteristics (N=40)

Age, years	60.5 (49.5, 70.0)	OHCA	25 (63)
Male	23 (57.5)	CAHP score	196.5 (164, 279)
BMI, kg/m <sup>2</sup>	29.9 (26.7, 37.9)	<b>CAHP score per risk group</b>	
<b>Comorbidities</b>		<150 (low)	4 (10)
Hypertension	29 (73)	151-199 (medium)	16 (40)
Diabetes mellitus	20 (50)	>200 (high)	20 (50)
CKD	18 (45)	<b>Target temperature 33°C</b>	40 (100)
CHF	17 (43)		
Chronic heart disease	14 (35)		
COPD	13 (33)		
Previous MI	8 (20)		
Atrial fibrillation	6 (15)		
Chronic liver disease	1 (3)		

All values presented as median (IQR) or n(%)

OHCA = out of hospital cardiac arrest  
 CAHP = cardiac arrest hospital prognosis

Figure 1. Average SOFA score over time

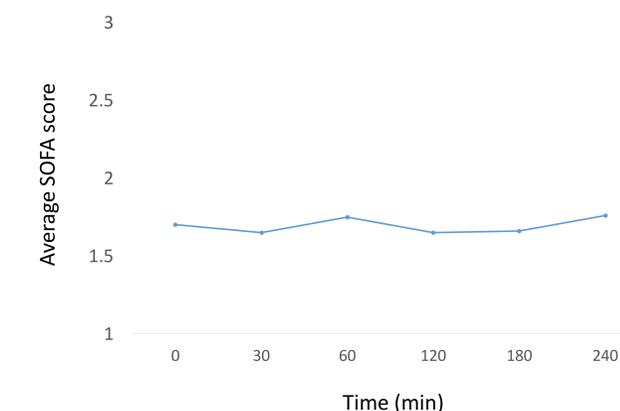


Figure 2. Parameters of interest over time

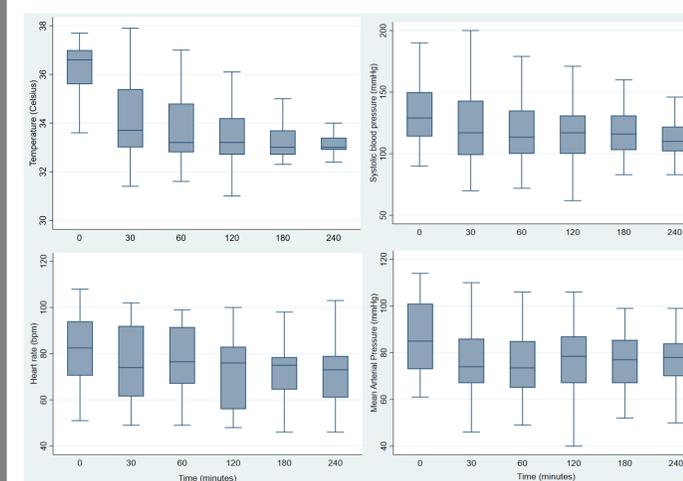


Table 2. Multivariate linear regression of factors associated with change in MAP at 30 minutes of propofol infusion

Characteristic	Coefficient	95% Confidence Interval
Propofol infusion rate (mcg/kg/hr)	0.12	-0.23 – 0.47
CAHP score	0.03	-0.05 – 0.11
Vasopressor requirements (mcg/kg/min)*	-50.83	-104.87 – 3.21
Temperature	4.95	1.62 – 8.29

\*Norepinephrine equivalents