

Stent Thrombosis is Not Increased in Cardiac Arrest Patients Undergoing Therapeutic Hypothermia: An Analysis of 15,079 Procedures

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Stent Thrombosis is Not Increased in Cardiac Arrest Patients Undergoing Therapeutic Hypothermia: An Analysis of 15,079 Procedures

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Background

- After a resuscitated cardiac arrest, patients often undergo cardiac catheterization with possible percutaneous coronary intervention (PCI).
- There is paucity of data regarding stent thrombosis rates in resuscitated cardiac arrest (CA) patients following PCI.
- Cardiac arrest patients, especially those with ventricular tachycardia or fibrillation (VT/VF arrest), often undergo therapeutic hypothermia (TH) to improve neurologic outcomes.
- TH alters pharmacokinetics of antiplatelet medications and may lead to higher rates of acute stent thrombosis.
- There is conflicting data in literature regarding effect of therapeutic hypothermia on stent thrombosis.

Methods

- NIS is nation's largest all payer database, approximating a 20% stratified national sample.
- We searched NIS from 2002 to 2011 for cardiac arrest (CA) using ICD-9 codes 427.5 & V12.53 in any diagnoses fields.
- Amongst CA patients, we included those with ICD-9 diagnoses codes 410.0-410.9 (acute myocardial infarction) and ICD-9 procedure codes 36.06-36.07 (coronary stent placement).
- Stent thrombosis (ST) was identified using ICD-9 code 996.72 in any of the secondary diagnosis fields.
- Therapeutic hypothermia was identified using ICD-9 procedure code 99.81.

Methods

- **Inclusion criteria:** Patients >18 years with resuscitated CA undergoing PCI with or without institution of therapeutic hypothermia.
- **Exclusion criteria:** Stent thrombosis (996.72) as the primary diagnosis.
- Primary outcome: Stent thrombosis after PCI.
- Comorbidities were defined using Deyo's modification of Charlson's co-morbidity index (CCI) (Range 0-33).
- Multivariate hierarchical logistic regression models, with hospital ID incorporated as random effects within the model, were created to determine predictors of stent thrombosis.
- Model was adjusted for therapeutic hypothermia, age, sex, Deyo Charlson comorbidity index, weekend admission, insurance status, teaching hospital status, hospital bed size and hospital region.

Table 1. Predictors of Stent Thrombosis after PCI in Patients Presenting With Cardiac Arrest

Predictor	OR	95% CCI	p value
Therapeutic Hypothermia	0.84	0.44-1.60	0.59
Age	1.00	1.00-1.01	0.48
Female gender	0.93	0.78-1.10	0.38
Deyo-Charlson Score*			
2	1.33	1.10-1.61	0.003
3 or more	1.40	1.14-1.70	0.001
Primary Payer€			
Private insurance	0.78	0.63-0.95	0.016
Self-pay/Other	0.79	0.58-1.06	0.121

(*Deyo-Charlson Score 0-1 considered as referent, €Medicare/Medicaid considered as referent)

Results

- Total of 15,079 subjects from 2002-2011.
- 260 (1.7%) underwent therapeutic hypothermia.
- Overall, 687 (4.6%) stent thrombosis events
- 11 (4.2%) ST in the TH group
- 676 (4.6%) ST in the no TH group.
- TH was not an independent predictor of stent thrombosis (OR 0.84, p=0.59).

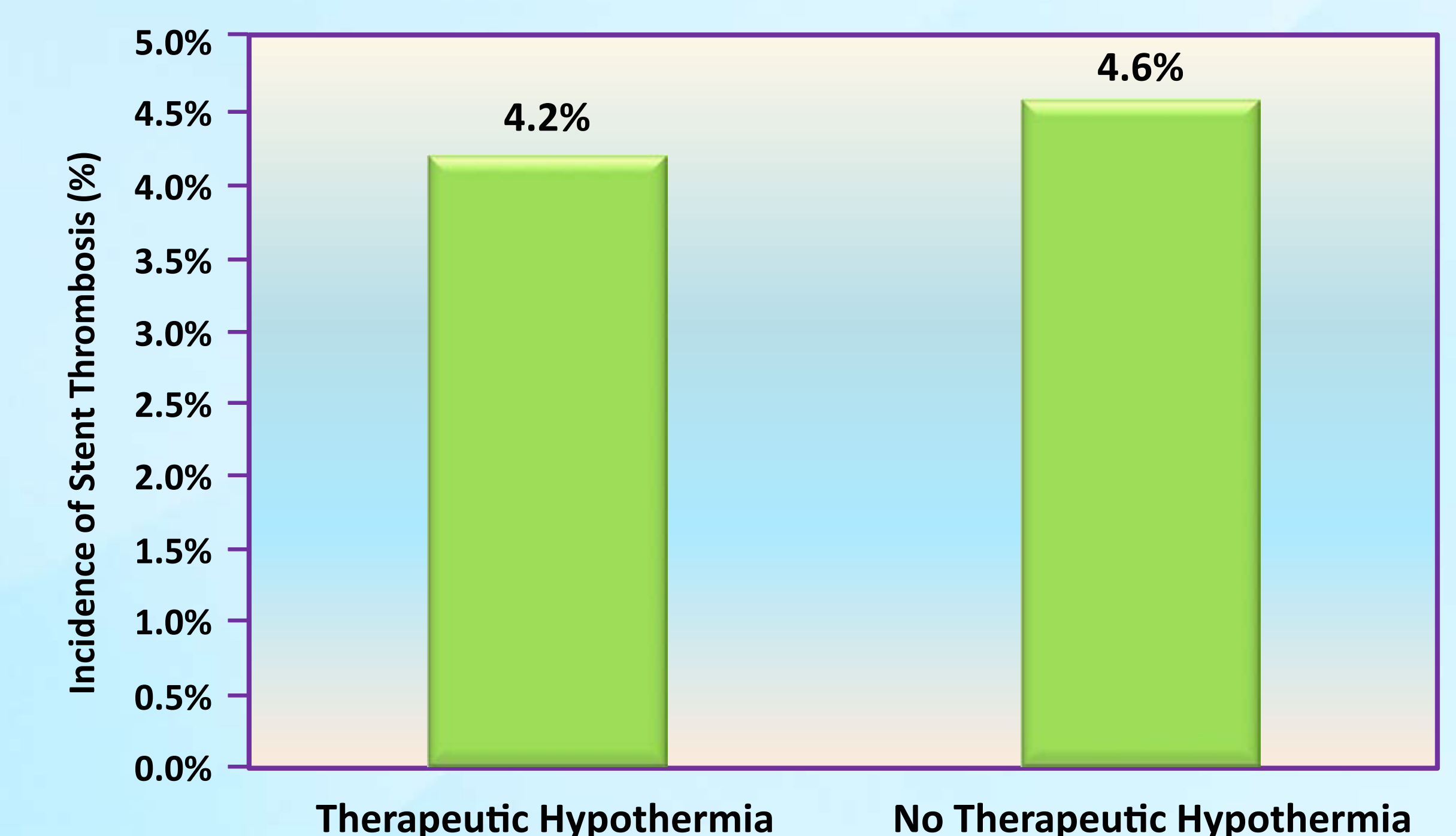


Figure 1: Incidence of stent thrombosis in cardiac arrest patients stratified by hypothermia.

Conclusions

- Primary PCI in acute MI patients presenting with cardiac arrest is associated with high rates of stent thrombosis (4.6%).
- The incidence of stent thrombosis is not increased with therapeutic hypothermia.

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