Lehigh Valley Health Network

Department of Medicine

Risk of Stent Thrombosis in Cardiac Arrest Patients with ST-Elevation Myocardial Infarction Undergoing Percutaneous Coronary Intervention and Therapeutic Hypothermia: International Cardiac Arrest Registry

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Nainesh C. Patel, MD; Sanjeev U. Nair, MD; Michael Mooney, MD; John McPherson, MD; Michael Cash, MD; Michael Young, MD; Barbara Unger, RN; Karl B Kern, MD

Background

- Percutaneous coronary intervention (PCI) in out-of-hospital cardiac arrest (OHCA) patients presenting with ST-elevation myocardial infarction (STEMI) and who undergo therapeutic hypothermia (TH) may improve outcomes.
- However the risk of stent thrombosis in such patients is presently unclear.

Objective

• To evaluate the risk of definite stent thrombosis prior to hospital discharge in OHCA patients with STEMI undergoing combined PCI and TH.

Methods

- We analyzed the International Cardiac Arrest Registry 1.0, a large multicenter database.
- The database consists of 754 consecutive patients who presented after resuscitation from OHCA and underwent TH between 2006 and 2011.

Results

- Of the 198 patients who had cardiac arrest with STEMI, 141 patients (71%) underwent combined PCI and TH.
- Two patients (1.4%) developed definite stent thrombosis prior to discharge from hospital (flow diagram)

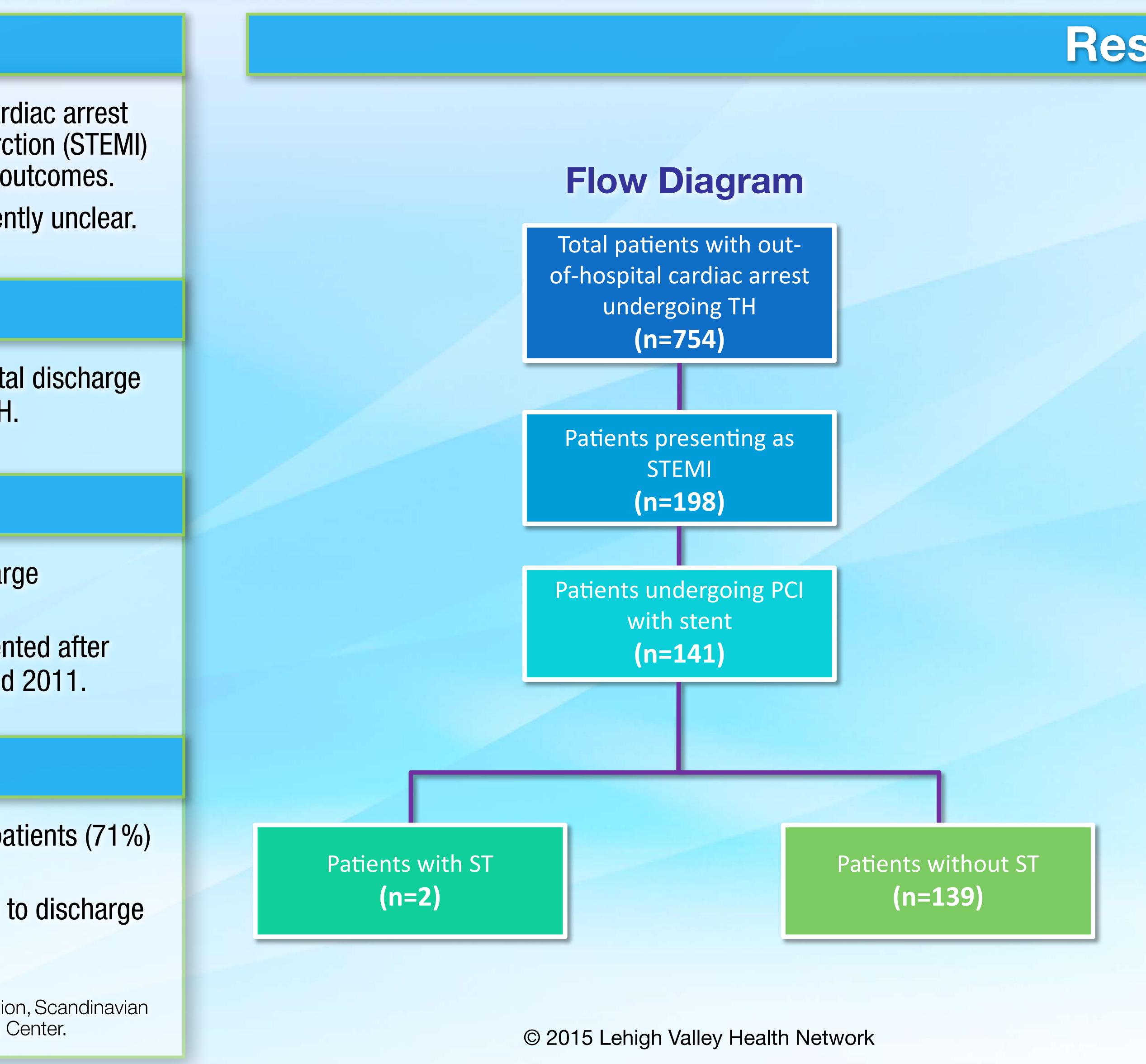
*INTCAR is generously supported by grants from the Stig and Ragna Gorthon Foundation, Scandinavian Society of Anaesthesiology and Intensive Care, Lund University, and Maine Medical Center.







The International Cardiac Arrest Registry (INTCAR) – CARDIOLOGY Research Group* *Lehigh Valley Health Network, Minneapolis Heart Institute, Vanderbilt University, Maine Medical Center, Ochsner Medical Center, and the University of Arizona









Results (continued)

Table 1. Demographics/Clinical Characteristics of Study Cohort		Table 2. Patients Who I	Had Stent Thrombos	sis After PCI With
			Patient 1	Patient 2
Variables	Mean +/- SD/ N(%)	Age (years)	45	79
Age (years)	60.60+/-11.70	Sex	Male	Female
Male	112 (79.43)	Smoker	No	No
Congestive heart failure	11 (7.80)	Congestive heart failure	No	Yes
Chronic renal failure	4 (2.84)	Chronic renal failure	No	No
Diabetes mellitus	19 (13.48)	Diabetes mellitus	No	No
Ejection fraction in % (N=117)		Ejection fraction	Moderately depressed	Moderately depresse
1: normal	27 (23.08)	Cardiac arrest site	Out-of-hospital	Out-of-hospital
2: moderate	49 (41.88)	Witnessed arrest	No	Yes
3: Severe	41 (35.04)	Initial rhythm	VF	VF
Witnessed arrest (yes) (N=140) Initial rhythm	123 (87.86)	Estimated time of arrest until first defibrillation (minutes)	11	1
Pulseless electrical activity	14 (9.93)	Estimated time to ROSC (minutes)	15	1
Ventricular tachycardia/VF	121 (85.82)	Estimated time of arrest to CPR	11 minutes	1 minute
Asystole	6 (4.26)		No	
Estimated time from ROSC (N=134)	24.19+/-15.22 minutes	Use of active compression device		No
Shock at admission (yes) (N=140)	61 (43.57)	Shock at admission	No	Yes
Intra-aortic balloon pump use	49 (34.75)	Time to cardiac catheterization	>120 minutes	60 minutes
Anti-platelet drug used	141 (100.00)	Percutaneous coronary intervention	Yes	Yes
Life support withdraw (yes)	51 (36.17)	Infarct related artery	LAD	Right coronary arter
Hospital D/C CPC		Thrombectomy	Yes	Yes
CPC1	52 (36.88)	Number of stents	2	2
CPC2	20 (14.18)	Type of stent	Drug eluting stent	Drug eluting stent
CPC3	9 (6.38)	Antiplatelet drugs used	clopidogrel	clopidogrel
CPC4	2 (1.42)	Intra aortic balloon pump use	No	Yes
CPC5	58 (41.13)	Was life support withdrawn	No	Not applicable
'F = ventricular fibrillation; RO		CPC at hospital discharge	5	1

- with STEMI undergoing combined PCI and TH is very small.
- thrombosis before hospital discharge.

ROSC = return of spontaneous circulation; CPC = cerebral performance category

Conclusions

• The risk of definite stent thrombosis prior to discharge from hospital in cardiac arrest patients

• Therapeutic Hypothermia in OHCA undergoing PCI does not increase the risk of definite stent

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