INTCAR
The International Cardiac Arrest Registry

Intensive Characterization of Cardiac and Coronary Arterial Features of Out-of-Hospital Cardiac Arrest

• Investigators:
  - Michael Mooney, MD: Minneapolis Heart Institute
  - David Seder MD: Maine Medical Center (INTCAR-Americas administrator through NCS)
  - Karl Kern MD: University of Arizona
  - Paul McMullan MD: Ochsner Medical Center, New Orleans
  - Nainesh Patel MD: Lehigh Valley Medical Center
  - John McPherson MD: Vanderbilt University
  - Barbara Unger RN: Minneapolis Heart Institute
  - Niklas Nielsen MD: Helsingborgs Hospital (INTCAR Administrator)
Purpose of the Multi Center Research:

To develop and coalesce a research group of US centers and (primarily cardiologist) investigators interested in intensive characterization of the cardiac pathophysiology of patients suffering out-of-hospital cardiac arrest (OHCA).

To create and test a focused “survey” of questions relating to cardiac pathophysiology in up to 500 patients, that could be generalized to the larger INTCAR working group after an initial period of review and consideration.

To more completely define the relationship of “cardiac” features of OHCA such as shock, delay in transfer to cath lab, ECG findings, angiographic findings, echocardiographic findings, cath lab
INTCAR

The International Cardiac Arrest Registry

What is INTCAR?

- Headquartered in Lund, Sweden
- Registry includes 83 participating hospitals & medical centers worldwide
  - 73 Europe/Asia
  - 10 North/South/Central America
- Web-based registry of unconscious cardiac arrest survivors
- Funded by the **Scandanavian Society for Anesthesia and Intensive Care** (SSAI) and the **Stig and Ragna Gorthon Foundation**
- “Expertmaker” software platform (LUND)
What is INTCAR?

- > 1500 cardiac arrest survivors treated with therapeutic hypothermia
- No charge for institutional participation
- No payment for participation, and no funding to support PI time or data entry personnel
- Primarily European enterprise beginning to expand into North, South, and Central America

Administration

- European Steering Committee
  - Elected representatives from each country
    - Denmark: Michael Wanscher wanscher@rh.dk
    - Iceland: Felix Valsson felix@landspitali.is
    - Norway: Jan Hovdenes jan.hovdenes@rikshospitalet.no, Ketil Sunde ketil.sunde@riks.uio.no
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    - France: Nicholas Deye nicholas.deye@lrb.ap-hop-paris.fr
    - Luxembourg: Pascal Stammet stammet.pascal@ch.lu
    - United Kingdom: Andrew Padkin, Royal United Hospital NHS Trust, Combe Park, Bath BA1 3NG
Administration

- Americas Steering Committee
- Neurocritical Care Society (NCS)
  - Cardiac Arrest Clinical Trials group is the current steering committee
  - INTCAR-Americas steering committee will break off at next annual meeting to include representation from active members and the NCS

Hypothermia Network Goals

- Promote the introduction of therapeutic hypothermia after cardiac arrest through a continuous update of clinical protocols
- Document the application of therapeutic hypothermia after cardiac arrest in a common registry
  - Evaluate the new treatment paradigm
- Promote common research projects.
Primary Function of the Registry

• Collect data
  – HOW and on WHOM is hypothermia being performed after Cardiac Arrest
  – Characteristics of the patients
  – Utilization of PCI, EEG, MRI, etc
  – Outcomes

• Return reports to member institutions for internal QI purposes, compare outcomes and practices to norms within the registry

Secondary Functions

• Research within the registry
  – Requires approval and cooperation of the steering committees

• “Networking” function to connect centers
  – Research groups
  – Provide support for new sites

3rd International Hypothermia Symposium
September 2-5, 2009
Lund, Sweden

Therapeutic Hypothermia - Home
It is now possible to download all abstracts from the 3rd International Hypothermia Symposium!
Click here to download (24.5 MB)

Therapeutic hypothermia is presently the most promising neuroprotective treatment of patients with
double brain injuries.

Annual Meeting of
INCTCAR-Americas

8th Annual Neurocritical Care Society Meeting
SAVE THE DATE
September 15-18, 2010
San Francisco Marriott, San Francisco, CA
INTCAR Commitment

• Identify a principle investigator and data coordinator
• Report ALL unconscious patients admitted to your ICU, ICU group, or hospital with a primary diagnosis of cardiac arrest*
  – Even if not treated with hypothermia
• PI should maintain contact with INTCAR administrator, and must take responsibility for high quality data entry

Registration

• Go to the INTCAR or the Neurocritical Care Society website and follow registration instructions
• Seek exemption from local IRB to enter fully de-identified patient data
• Administrator will contact you by email, conduct a brief telephone interview, and provide you with a logon and password
• Review the “test patient” field
• Discuss data questions with administrator
• Begin entering patient data for ALL comatose survivors of cardiac arrest admitted to your institution
Welcome to The INTERNATIONAL CARDIAC ARREST REGISTRY
The International Cardiac Arrest Network is a joint venture of the Hypothermia Network (HN), the Neurointensive Care Society (NCIS), and the European Cardiac Arrest Research Network. The purpose of the Registry is:

- To establish a better understanding of the process of care and outcomes associated with cardiac arrest, which has traditionally been considered the most devastating and least treatable form of brain injury
- To promote the appropriate use of therapeutic hypothermia after cardiac arrest through a continuous update of clinical outcomes and process-of-care variables through a common worldwide registry
- To identify key areas for future research in the treatment of cardiac arrest

Background:
In 2000, two independent studies found that early treatment with induced hypothermia reduces mortality and disability in victims of out-of-hospital cardiac arrest: the National Cardiac Arrest Registry (NCAR) study (Lancet 2002; 359: 955-961) and the Hypothermia After Cardiac Arrest Study Group (JAMA 2002; 288: 1549-1556). The impact of therapeutic hypothermia is supported by the American Heart Association (AHA) and the American College of Cardiology (ACC). The Hypothermia After Cardiac Arrest Study Group (AHC) is a collaboration of eight centers, which includes the University of Bennington, the University of Chicago, the University of California, the University of Michigan, the University of Pennsylvania, and the University of California, Los Angeles.

The International Cardiac Arrest Registry (INTCAR) is independent, non-commercial, and devoted to the simple goal of developing the best possible care for patients with cardiac arrest. The Registry is supported by a donation made by the American Heart Association, which includes the American Heart Association, the American College of Cardiology, and the American Stroke Association. The Registry is also supported by a donation made by the international Cardiac Arrest Registry, which includes the American Heart Association, the American College of Cardiology, and the American Stroke Association.

Organization of the International Cardiac Arrest Registry

http://www.hypothermiannetwork.com/INTCAR.htm
International Cardiac Arrest Registry Portal

Please register at the Hypothermia Network (European centers) or Neurocritical Care Society (US centers) to access site.

CLICK HERE

http://www.expertmaker.net/intcar/login.php

CLICK HERE
Welcome to the Neurocritical Care Society Cardiac Arrest Registries page!

The NCS formally endorses two cardiac arrest registries: the International Cardiac Arrest Registry (INTCAR) and the National Registry of Cardiopulmonary Resuscitation (NRCPR). Both registries are resources to institutions involved in postresuscitation care of cardiac arrest survivors, providing standardized data collection resources, individualized institutional feedback and data to participants, access to group data, and the opportunity to help improve survival for patients suffering cardiac arrest by improving the science behind our therapeutic options. The NRCPR is essentially a registry of patients suffering in-hospital cardiopulmonary arrest, while INTCAR currently includes patients suffering both in-hospital and out-of-hospital cardiopulmonary arrest. There is no direct prohibition against participating in both registries.

The NCS strongly suggests that institutions considering participation in these registries contact their institutional review board (IRB) in order to determine the specific regulatory approvals which might be required for their sites to participate.

international Cardiac Arrest Registry (INTCAR)

Please click here to use INTCAR.

For American sites located in North, South, or Central America, please click here to use.

All other locations: If your institution is located outside of the Americas, please click here to use.

For questions, please contact info@neurocriticalcare.org

Cardiac Arrest Site committee:
Dave Sieders M.D., Chair
Salvador Cruz Flores M.D.
INTCAR research opportunities

- **Within the Registry**
  - Projects must be approved by the Steering committees
  - Changes in data points must be approved by the Steering committee
  - Slower process, larger data set

- **Within the Community**
  - Use NCS for networking & development of independent projects
INTCAR: Cardiology-Oriented Data Points

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Assistant Professor of Medicine
Medical Director, CVICU
Vanderbilt Heart and Vascular Institute

Objectives of our Involvement with INTCAR

• Create a group of US centers interested in detailed study of the cardiac pathophysiology of patients suffering OHCA
• Test initial cardiovascular datapoints in 500 US patients, then apply to INTCAR dataset
• Study cardiac aspects of therapeutic hypothermia and post-resuscitation care
Current Plan

• Build a survey of additional datapoints initially accessible to the Cardiology sites
• Enter retrospective data on 350-500 patients
• Continue prospective enrollment
• Present preliminary data at ACC 2011

Cardiology Data Points

• Where is TH performed?
  • Cath Lab, ICU, ED, pre-hospital
• STEMI on presentation?
• ED transport, door-to-balloon times
• STEMI, ACS Systems of care issues
ECG Data Points

- Leads with ST-elevation (location, amount)
- Other ST-deviation

Angiographic Findings

- Culprit artery, severity of stenoses
- Severity of disease (1VD, 2VD, or 3VD)
- Stent thrombosis?
### PCI Data

- Type of intervention
- Medications used
- ROSC to reperfusion time
- D2B time
- PCI complications

### Presence of Shock

- Is shock present?
- Treatment (meds)
- Device support
  - IABP, Impella, Tandem Heart, ECMO, Centrimag
Etiology of Arrest

• Cardiac?
• STEMI?
• Cardiomyopathy?
• Primary arrhythmia?

Cardiac Outcomes

• LV function (early and late)
• EP evaluation/treatment
• Revascularization
Goals

• Identify detailed aspects of cardiovascular physiology and pathophysiology in the etiology and treatment of cardiac arrest

• Lead in generating new hypotheses and research to advance the treatment of patients after cardiac arrest
Database Management

- Submit to INTCAR
- Develop a standing database to pull data back locally
- Develop reports to be generated for Quality Improvement
- Research questions addressed by query
- May add fields locally
List boxes with prespecified numbers in a range will improve the data quality per INTCAR protocol.
Note regarding the determination of “down time” or “time to ROSC” (INTCAR data point B.10)

*When patients suffer repeated episodes of cardiac arrest during the initial resuscitation, “time to ROSC” should be quantified as the total time recorded without a pulse. For example: A patient arrests and has ROSC after 14 minutes of resuscitation. Five minutes later the perfusing rhythm is lost and 5 more minutes of resuscitation ensue. Eight minutes later the patient has 3 more minutes of CPR, and hemodynamic stability is finally achieved. The total “time to ROSC” should be recorded as 14 + 5 + 3 = 22 minutes. If the same patient were to re-arrest 6 hours later, however, the second arrest would be considered a distinct event with a separate “time to ROSC”. 