



Brief Report

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## Cranial computed tomography in the resuscitated patient with cardiac arrest

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## Introduction

- The incidence of cardiorespiratory arrest from all causes in the US is:
  - out-of-hospital : 55 cases per 100000 people
  - In-hospital : 54.1 events per hospital per year
- The determination of **significant intracranial abnormality** in these resuscitated patients has **great impact on** their immediate care.

## Introduction

- Retrospectively reviewed the charts to assess:
  1. **how often** head CT was performed
  2. whether **abnormal findings** were present
  3. what **changes in management** were made based on these findings

## Method

- Prehospital, ED, and hospital **records** were reviewed from:
- University hospital ED level 1 trauma center with an annual patient volume of 60,000.
- **Retrospective cohort analysis** was performed
- Patients with a known traumatic mechanism were excluded

CT in the resuscitated patient with cardiac arrest

## Result

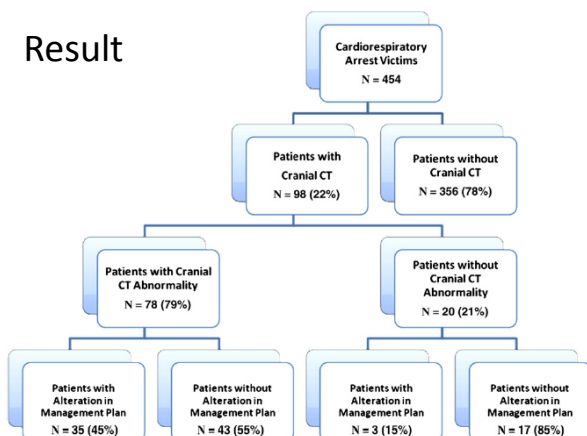
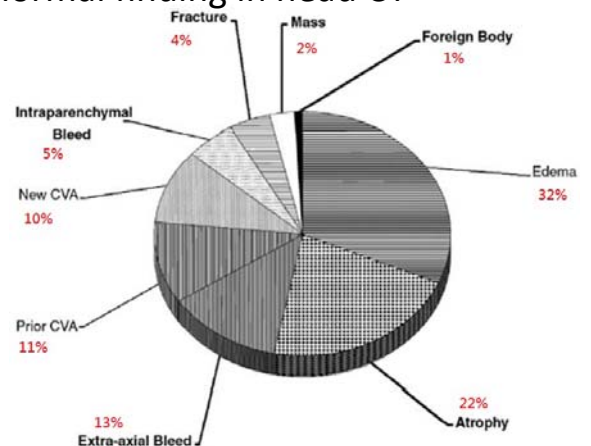
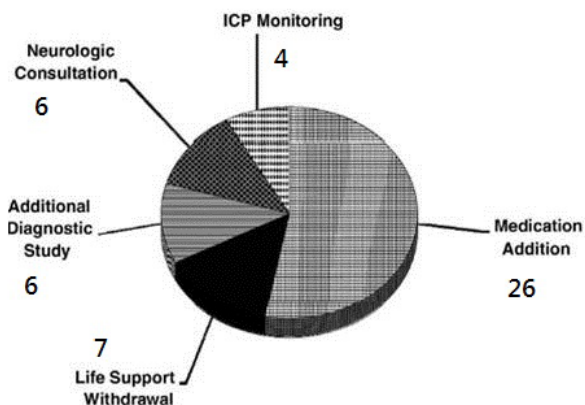


Fig. 1 Study patients.

## Abnormal finding in head CT



## Change In management after CT



## Discussion-

Edema, an indicator of hypoxic injury (33%)

- Hypoperfusion, global ischemia → ATP↓  
→ cytotoxic edema
- Edema + venous distension = significant IICP  
→ need ICP monitor ( in 4 of the patients)
- Cerebral edema and **loss of gray-white matter differentiation** can predicting the severity of hypoperfusion and neurologic outcomes → serving as **prognostic marker for recovery**

## Discussion-

intracranial hemorrhage (18%)

- 4% p't had spontaneous SAH as cause of cardiac arrest
- 39% SAH p't complain of **headache** pre-arrest
- The present of SAH have strong impact on:
  - Administration of FFP
  - Anticonvulsant use
  - Neurointensivist
  - Limit the use of therapeutic hypothermia

## Discussion-

Fracture, mass, foreign body

- **Skull fracture(4%)**:
  - the location : monitoring for extra-axial hemorrhage, esp. epidural hematomas
- **Intracerebral masses(2%) and FBs(1%)** :
  - consultation, medical Tx & possible OP
- **New infarction (10%)**
- Prior infarction (11%) has little impact

## Limitations

1. In-hospital p'ts had known cause to guide the use of CT
2. Unable to ascertain the clinical findings to prompt the performance of CT
3. NO survivors in this cohort, thus, can not say whether change in management had any impact

## Conclusion

- Cranial CT is applied in minority of p'ts.
- However, when CT is performed, abnormalities are found frequently and management are made in certain cases.
- Further investigation is required to determine appropriate population for CT and its true impact

## Systematic Review Snapshot *Clinical Synopsis*

### TAKE-HOME MESSAGE

Bed rest of any duration after a lumbar puncture has not been shown to decrease the incidence of post-lumbar puncture headache.

### METHODS

#### DATA SOURCES

The authors searched the Cochrane Controlled Trials Register as their primary source. MEDLINE from 1994, EMBASE from 1980, and reference lists for identified trials and reviews were also

### Does Bed Rest Prevent Post-Lumbar Puncture Headache?

#### EBEM Commentator

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## Method

- Data source:
  - Cochrane Controlled Trials Register as primary source. MEDLINE from 1994, EMBASE from 1980
- Study selection:
  - Only randomized trials, participants of any age, with dural puncture for any indication

## Result

- Of the 14 studies included:
  - 11 compared early mobilization with bed rest
  - 2 compared head-down tilt with flat position
  - 1 compared fluid supplement with none
- There were **no significant differences** in the incidence of postural headache, severe headache, or any headache

### Results

Bed rest versus early mobilization.

Outcome	Number of Studies	Number of Participants	Odds Ratio (95% CI)	I <sup>2</sup> , %
Any headache	11	1,693	1.1 (0.9–1.4)	25
Postural headache	8	1,254	1.2 (0.9–1.6)	35
Severe postural headache	8	1,342	1.1 (0.8–1.5)	28

CI, Confidence interval.

## Commentary

- The headache mechanism:
  - failure closure of the puncture site → CSF leak, **intracranial hypovolemia** → traction on the pain receptor in meninges and bridging veins → headache
- Incidence in ED was reported 40%
  - Definitive Tx was administration of blood patch
  - Cost and discomfort

## Commentary

- Historically teach p'ts to lie flat for hours, which is unrealistic in ED setting.
- This Cochrane Review examined:
  - the **effect** of time of mobilization
  - patient **positioning** during the procedure
  - administration of **supplemental** fluid

→ No significant difference was found
- **The effectiveness of this intervention remained uncertain**

- Thank you!!