Lessons from the Dead

Lessons learned from human cadavers about ways to improve clinical outcomes

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Disclosure: Zoll Speakers Bureau
Areas of Inquiry

- ITP and ICP and CerPP changes with ACD+ ITD vs S-CPR

- ICP and CerPP changes with:
  - head up and ACD+ITD
  - incomplete chest wall recoil
  - Cervical collars
  - Mechanical+ITD flat vs head up

- Effect of Airway devices on Carotid flow during CPR
2 CPR Methods

Standard CPR (S-CPR) versus ACD-CPR + ITD (ACD+ITD)
SCPR vs. ACD & ITD

- Airway
- Aortic
- Right Atrial
- ICP
- Coronary Perfusion Pressure
- Cerebral Perfusion Pressure

Standard CPR vs. ACD & ITD comparison.
What is the optimal head position during CPR?

Will elevation of the head with circulatory enhancement technologies (e.g. ITD and/or ACD) to generate good flows

1. Increase brain blood flow?
2. Reduce the concussion with each compression?
3. Lower ICP?
4. Improve neurological outcomes?
Change of Position: Head Down

Supine 0° CPR 30° Head down CPR

Ao
ICP
CerPP

Change of position (CPR + ITD: rate 100/min)

Debaty et al, Resuscitation, 2014
Change of Position: Head Up

Supine 0° CPR

30° Head up CPR

Ao

ICP

CerPP

Change of position
(CPR + ITD: rate 100/min)

Debavry et al, Resuscitation, 2014
Whole body tilt vs head/thorax elevation?

- Lower ICP
- RA pressure
- Higher CerPP
- Higher CorPP
- Preserves central blood volume
- Lower PVR
Human Cadaver Tracing

HUP

ITP
Ao
RA
ICP
CoPP
CePP

3/3/17 MRS, LLC Confidential
Do C-Collars Impact Carotid flow?

Airway

Aortic

Right Atrial

ICP

Coronary Perfusion Pressure

Cerebral Perfusion Pressure

C-collar loosened  C-collar tightened  C-collar loosened  C-collar tightened

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Incomplete Chest Wall Recoil During CPR

- Causes persistent elevation of intrathoracic pressure
- Reduces venous return: physiologically like a tension pneumothorax
- Increases ICP and reduced cerebral perfusion
ACD & ITD: Incomplete Recoil

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Graph showing various medical pressures and measures with Full and Incomplete Recoil conditions.
Let's remember what makes this research possible
Cadaveric model has accurately reproduced physiologic findings from animal and human studies.

Cadaveric models have revealed important new physiologic impacts related to CPR and cardiac arrest management

Thank You!

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