Mechanical Behaviors: The LINC Trial vs the Memphis Experience

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LINC Trial
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2589 patients from six European sites
<table>
<thead>
<tr>
<th>Outcome</th>
<th>Mechanical compressions (%)</th>
<th>Manual compressions (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-h survival (primary end point)</td>
<td>23.6</td>
<td>23.7</td>
</tr>
<tr>
<td>ICU discharge</td>
<td>7.5</td>
<td>6.4</td>
</tr>
<tr>
<td>Hospital discharge</td>
<td>8.3</td>
<td>7.8</td>
</tr>
<tr>
<td>Good neurological outcome (CPC 1-2) at 1 mo</td>
<td>8.1</td>
<td>7.3</td>
</tr>
<tr>
<td>Good neurological outcome (CPC 1-2) at 6 mo</td>
<td>8.5</td>
<td>7.6</td>
</tr>
</tbody>
</table>

LINC Results
CPC=clinical performance category
And so...

- Confirmed Mechanical is as good as high quality CPR

- No difference in outcomes
But...

- EMS retrained on CPR every 6 months
- Didn’t evaluate for specific areas of benefit
Memphis Fire Department

- Approximately 1,900 personnel
  - 350+ Medics
  - 1500+ EMTs
- 59 Stations
- 60 Engines
- 27 Truck Companies
- 36 ALS Ambulances
- 3 Heavy Squads
- Sponsoring Agency for USAR Tennessee Task Force 1
Demographics

- Annual Call Volume  123,000 runs
- Cardiac Arrests  1100-1200/year
Lucas Deployment

Began field trials in 2011 as a pilot project
2011

* Cardiac Arrest Calls: 1,132
  * WITH LUCAS DEVICE
    * ROSC: 1
    * No ROSC: 4
  * WITHOUT LUCAS DEVICE
    * ROSC: 174
    * No ROSC: 754

**192 Responses for ROSC were noted as “Not Available”**
2012

- Lucas device deployed on 18/36 ambulances
- No other changes in training, tools, meds, number units, or response times
- Units selected were randomly chosen
- Frequent changes in assigned medics
2012 results

- Cardiac Arrest Calls: 1,204
  - WITH LUCAS DEVICE
    - ROSC: 37  48%
    - No ROSC: 77
  - WITHOUT LUCAS DEVICE:
    - ROSC: 213  26%
    - No ROSC: 825
2013

* Full deployment on all units thanks to charitable grant
2103 results

**Cardiac Arrest Calls: 1,134**

**WITH LUCAS DEVICE**

- ROSC: 128
- No ROSC: 258

**WITHOUT LUCAS DEVICE:**

- ROSC: 220
- No ROSC: 775

**194 Responses “Not Available”**
2014 to date...

- Cardiac Arrest Calls: 172
  - WITH LUCAS DEVICE
    - ROSC: 13  (26%)
    - No ROSC: 50
  - WITHOUT LUCAS DEVICE:
    - ROSC: 23  (18%)
    - No ROSC: 127
Why the differences? (IMHO)

- We transport a significant number of cardiac arrests
- Fewer Pauses?
- More consistency?
- Lots of time moving patients in situations where CPR quality is poor
Data is VERY rough

Will be pursuing details and patient followup
Questions?

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