**Paramedic CAT (Critically Appraised Topic) Worksheet**

**Title:** Precordial Thump in Out-of-Hospital Cardiac Arrest (OOHCA)

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**2nd Party Appraiser:** Andrew Travers

**Clinical Scenario:** A paramedic crew has responded to the home of a 70 y/o female complaining of weakness. Inside the home, they find the patient to be weak, diaphoretic, and complaining of nausea. The patient is hypotensive at 80/64 and her radial pulse is weak and rapid. Suddenly, the patient becomes unresponsive. One paramedic checks a pulse and cannot find one. The other paramedic is rushing to get the defib cables out of the defibrillator, which has not yet been turned on, and is also reaching for the oxygen tank and bag mask. Should the paramedic who is by the patients side perform a precordial thump, striking her in the chest, in the hopes of converting the rhythm to a more stable one?

**PICO (Population – Intervention – Comparison – Outcome) Question:**

- **P** - adult OOHCA patients where the CA is witnessed by EMS
- **I** - precordial thump
- **C** - standard CPR
- **O** - ROSC or rhythm conversion

“In adult OOHCA patients where the CA is witnessed by paramedics, does precordial thump versus standard CPR lead to differences in return of spontaneous circulation or rhythm change?”

**Search Strategy: Pubmed:** ((fist-pacing) OR (fist pacing) OR (precardial thump) AND (“Heart Arrest”[MeSH-Majr]) OR “cardiac arrest”) AND (adult OOHCA patients where the CA is witnessed by paramedics)

**Search Outcome:** 27 hits
### Relevant Papers:

<table>
<thead>
<tr>
<th>AUTHOR, DATE</th>
<th>SAMPLE CHARACTERISTICS</th>
<th>DESIGN (LOE)</th>
<th>OUTCOMES</th>
<th>RESULTS</th>
<th>WEAKNESSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caldwell (1985)</td>
<td>In-hospital &amp; EMS pts All unconscious CA tx with PT</td>
<td>Prospective cohort (no control group) (LOE II)</td>
<td>Success of PT = rhythm conversion Survival to discharge</td>
<td>316 pts enrolled (86 EMS) PT successful in 26 incidents (23 pts), 15 surviving to discharge</td>
<td>Frequency of unsuccessful PT not reported Some pt treated in-hospital</td>
</tr>
<tr>
<td>J. Miller (1984)</td>
<td>OOHCA – PT administered when medics witnessed rhythm deteriorate to VT or VF</td>
<td>Case series (no control group) (LOE II)</td>
<td>Rhythm change</td>
<td>50 pts enrolled 27 pts rec’d PT for VT: 3 converted to SVT (1 was PEA), 12 had no rhythm change, 12 went into worse rhythm. 11 were successfully resus by other measures 23 pts rec’d PT for VF: 0 had rhythm change. 12/23 successfully resus by other measures.</td>
<td>No comparison group.</td>
</tr>
<tr>
<td>Ahmar (2007)</td>
<td>OOHCA witnessed by paramedics</td>
<td>Case Report (LOE III)</td>
<td>Rhythm change</td>
<td>No change in rhythm or clinical condition (subsequent countershock = ROSC). Later dx with fx sternum and osteomyelitis</td>
<td>Case report, no comparison, could be an usual event.</td>
</tr>
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</table>

**Comments:** These three reports do not provide very supportive evidence for the use of precordial thump in witnessed cardiac arrest by paramedics. The incidence of PT converting a fatal rhythm to a better one is low (Caldwell = 26 events/316 pts; Miller = 2/50). Ahmar wrote of a case where the PT lead to a poor outcome for the patient.
Clinical Bottom Line: As there is a lack of supporting evidence for the effectiveness of PT, and some evidence that it does not work, any may cause harm, it should not be used in witnessed cardiac arrest by paramedics. It would be better for paramedics and other health care providers to focus on quick initiation of high quality CPR and defibrillation.

References:
