Diagnostic Accuracy of Point of Care Ultrasound in Undifferentiated Hypotension Presenting to the Emergency Department: A SHoC Systematic Review

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Introduction:
- Undifferentiated hypotension presenting to the ED carries with it a high mortality risk
- PoCUS has emerged as a potential aid to improve the early diagnosis, management, and survival of such patient presentations

Methods:
- Systematic review of CINAHL, Medline, EMBASE, Cochrane, clinicaltrials.gov, grey literature, google search, and experts in the field
- Risk of bias assessment completed using the QUADAS-2 tool

Results:
- Search results:
  - 6532 records reviewed
  - 235 full text review
  - 9 studies included in systematic review for analysis
- Risk of bias assessment:
  - 8 of 9 articles with low risk of bias

Table 1: Diagnostic accuracy of PoCUS in undifferentiated hypotension

<table>
<thead>
<tr>
<th>Number of Studies</th>
<th>Accuracy recorded</th>
<th>Reported Accuracy (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Kappa</td>
<td>0.70-0.971</td>
</tr>
<tr>
<td>5</td>
<td>Sensitivity</td>
<td>69 – 88%</td>
</tr>
<tr>
<td>5</td>
<td>Specificity</td>
<td>88-96%</td>
</tr>
</tbody>
</table>

Table 2: Effect of PoCUS on survival in undifferentiated hypotension

<table>
<thead>
<tr>
<th>Study</th>
<th>Definition of survival</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atkinson</td>
<td>30 days or discharge</td>
<td>ARR 0.35% (-10.3% to 11.0%)</td>
</tr>
</tbody>
</table>

Discussion
- The current literature focused on PoCUS in undifferentiated hypotension was limited due to study heterogeneity
- We found fair to good diagnostic accuracy for PoCUS in shock
- Survival was not effected by the use of PoCUS in shock but studies were limited

Diagnostic accuracy of PoCUS in undifferentiated hypotension presenting to the emergency department showed a sensitivity of 69-88% and specificity of 88-96 when compared to final diagnosis.

There was no evidence indicating use of PoCUS improved patient survival.