An RCT of Depression Care for Acute Coronary Syndrome Patients—Mortality and Major Cardiac Event Outcomes

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None of the investigators have conflicts of interest to report
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Depression leads to Increased risk of ACS recurrence/mortality

- Independent of traditional risk factors
- Reduced long-term survival (up to 5-years) post ACS
- Dose-dependent
- Highly prevalent
  - 35-45% of with elevated depressive symptoms
  - 10-20% with Major Depressive disorder
Depression Conceptualizations

Current depression/depressive symptoms

Acute coronary disease event

Assess current depression/depressive symptoms

MACE/ACM risk

COPES

4
Depression Conceptualizations

Persistent depressive symptoms

Acute coronary disease event

Assess current depression/depressive symptoms

MACE/ACM risk
Association of depression and traditional cardiovascular risk factors with 42-month MACE/ACM

<table>
<thead>
<tr>
<th>Risk factor</th>
<th>Hazard ratio and 95% CI</th>
<th>Hazard ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDI ≥ 10 (at ACS)</td>
<td>1.79 (1.23, 2.61)</td>
<td></td>
</tr>
<tr>
<td>BDI ≥ 10 (3 months post ACS)</td>
<td>2.25 (1.28, 3.96)</td>
<td></td>
</tr>
<tr>
<td>LVEF &lt; 40</td>
<td>2.00 (1.30, 3.09)</td>
<td></td>
</tr>
<tr>
<td>GRACE (per 50 points)</td>
<td>1.61 (1.19, 2.18)</td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td>2.03 (1.38, 2.99)</td>
<td></td>
</tr>
<tr>
<td>Previous MI</td>
<td>1.41 (1.15, 1.94)</td>
<td></td>
</tr>
</tbody>
</table>
Would you rather take medication or get counseling

Note: sometimes people check both options, thus total is > 100%
The COPES trial needs to consider:

An observation period to rule out those with remittent depression

Medical patients have strong preferences for, and against, both psychotherapy and medication to treat their depressive symptoms
COPES RCT Aims

To explore in a depression intervention RCT the patient satisfaction and depressive symptom reduction of a patient-preference, stepped-care model (where steps include either problem-solving and/or antidepressant medication), as compared to usual care in patients with ACS and persistent depressive symptoms.

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Design of COPES

Screening Phase

0

1 mo phone call

3 mo: screening

RCT

3 mo: randomization to Stepped Care or Usual Care and pre-RCT assessment

5 mo: interim depression and safety assessment → decision to “step-up”

7 mo: interim depression and safety assessment → decision to “step-up”

9 mo: post-RCT assessment

Step-up?
Assessed for initial eligibility (n=561)

Excluded (n=18)
Refused (n=13)
Deceased/Moved (n=5)

Assessed for eligibility at 3mo (n=543)

Excluded (n=386)
No longer depressed (n=208)
Ineligible (n=143)
No 3mo BDI (n=101)
Refused (n=35)
Other (n=42)

Randomized (n=157)

Allocated to intervention (n=80)
Did not receive allocated Intervention (n=12)

No 9mo Outcome Data Available (n=10)

Analyzed (n=80)

Allocated to Usual Care (n=77)

No 9mo Outcome Data Available (n=3)

Analyzed (n=77)

Not Depressed (n=85)

Not depressed again at 3mo (n=80)

No Outcome Data Available (n=6)

Analyzed (n=80)
<table>
<thead>
<tr>
<th>Variable</th>
<th>INT</th>
<th>UC</th>
<th>p*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender, N(%) female</td>
<td>41 (54)</td>
<td>44 (54)</td>
<td>0.96</td>
</tr>
<tr>
<td>Age, mean ± sd</td>
<td>59.6 ± 10.6</td>
<td>60.7 ± 10.6</td>
<td>0.50</td>
</tr>
<tr>
<td>Hispanic status, N(%)</td>
<td>33 (44)</td>
<td>36 (44)</td>
<td>0.96</td>
</tr>
<tr>
<td>Afr-Am, N(%)</td>
<td>12 (16)</td>
<td>17 (21)</td>
<td>0.40</td>
</tr>
<tr>
<td>BDI score</td>
<td>19.4 ± 6.1</td>
<td>19.2 ± 6.9</td>
<td>0.87</td>
</tr>
<tr>
<td>BDI ≥16, N(%)</td>
<td>50 (67)</td>
<td>53 (65)</td>
<td>0.87</td>
</tr>
<tr>
<td>DISH diagnosis of MDD, N(%)</td>
<td>20 (34)</td>
<td>21 (34)</td>
<td>0.99</td>
</tr>
<tr>
<td>Type of ACS, N(%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unstable angina</td>
<td>57 (76)</td>
<td>57 (73)</td>
<td>0.92</td>
</tr>
<tr>
<td>Non-ST elevation MI</td>
<td>12 (16)</td>
<td>14 (18)</td>
<td></td>
</tr>
<tr>
<td>ST elevation MI</td>
<td>6 (8)</td>
<td>7 (9)</td>
<td></td>
</tr>
</tbody>
</table>

* p-value based on chi-square test for categorical measures and t-test for continuous measures
# Primary Outcome

<table>
<thead>
<tr>
<th>Depression Care Rated as…</th>
<th>UC (n=77)</th>
<th>INT (n=80)</th>
<th>OR (95% CI)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>excellent or very good at 3 mo</td>
<td>13.2 (6.5-19.6)</td>
<td>21.6 (12.9-29.7)</td>
<td>1.8 (0.8-4.5)</td>
<td>.18</td>
</tr>
<tr>
<td>excellent or very good at 9 mo</td>
<td>18.8 (10.4-26.7)</td>
<td>54.2 (41.9-63.6)</td>
<td>5.4 (2.2-12.9)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>no care at 3 mo, No. (%)</td>
<td>56 (73.7)</td>
<td>53 (71.6)</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>no care at 9 mo, No. (%)</td>
<td>43 (62.3)</td>
<td>19 (27.1)</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>
Beck Depression Treatment Differences during RCT
### BDI Score Differential Group Differences

<table>
<thead>
<tr>
<th>BDI Score</th>
<th>UC (n=77)</th>
<th>INT (n=80)</th>
<th>INT vs UC Between-Group Difference</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Change</td>
<td>−1.9 (−3.8 to −0.1)</td>
<td>−5.7 (−7.6 to −3.8)</td>
<td>−3.8 (−6.5 to −1.2)</td>
<td>.005</td>
</tr>
<tr>
<td>Men (n=73)</td>
<td>−1.2 (−3.9 to −1.5)</td>
<td>−4.8 (−7.6 to −2.0)</td>
<td>−3.6 (−7.5 to 0.3)</td>
<td>.07</td>
</tr>
<tr>
<td>Women (n=84)</td>
<td>−2.6 (−5.1 to 0.0)</td>
<td>−6.5 (−9.1 to −4.0)</td>
<td>−4.0 (−7.6 to −0.3)</td>
<td>.03</td>
</tr>
<tr>
<td>Hispanic (n=68)</td>
<td>−1.6 (−4.4 to 1.3)</td>
<td>−5.1 (−7.9 to −2.2)</td>
<td>−3.5 (−7.6 to 0.5)</td>
<td>.09</td>
</tr>
<tr>
<td>African American (n=29)</td>
<td>−1.5 (−5.3 to −2.4)</td>
<td>−7.9 (−12.7 to −3.1)</td>
<td>−6.4 (−12.6 to −0.2)</td>
<td>.04</td>
</tr>
</tbody>
</table>
Estimate of Depression Effect Size from different RCTs

- ENRICHED 6 mo: 0.31
- COPES 6 mo: 0.59
- COPES 18 mo: 0.57
- CODIACS I 6 mo: 0.62
Days to Major Adverse Coronary Event/Death by Group Status

4% Intervention and 13% Usual care; log-rank test, $\chi^2(1) = 3.78; P = .048$; 5 nondepressed patients had MACE (6%).
- We have a small trial, with some promising results.
- We need expert opinion and collaboration to think through the economic inputs and results that could be found in a next, larger RCT.
Thank you!