Oxygen Supplementation in AMI is useful: Pro

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Paramedics' compliance with clinical practice guidelines for the management of chest pain

- Retrospective review of patient ambulance reports in Ireland
- 76% were given Oxygen
- Conclusion:
  - Prehospital treatment with O2 remains underused
  - Even though only a small number of patients had documented contraindications to their use.
  - Further training is needed

Supplementary

Oxygen vs Air studies

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Figure 1. Study selection flow diagram

Records identified through database searching 2491

Total potentially eligible records 2529

Total records screened 2228

Total full text articles assessed for eligibility 134

Records excluded through screening: 2094
Not relevant to study (1762)
Animal models (217)
Pathophysiological (115)

Articles excluded: 115
Reviews and editorials (62)
Non RCT (36)
Non-relevant RCTs (17)

Articles excluded 15- wrong intervention
Hyperbaric oxygen (7)
Aqueous oxygen (6)
Other (2)

Total records 4 reporting 3 studies
all 3 included qualitative review and quantitative synthesis

3 clinical trials
## Supplementary Oxygen in AMI: Pro

### Mortality: High risk of bias for the outcomes. O2 vs room air

<table>
<thead>
<tr>
<th>Study</th>
<th>Aim</th>
<th>Design</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rawles 1976</td>
<td>Severity of AMI, Arrhythmia incidence, Analgesic use</td>
<td>Double blind, O2: 24 h F-Up unclear, H discharge</td>
<td>4% excluded from F-up (1 death, 1 stroke)</td>
</tr>
<tr>
<td>Wilson 1995</td>
<td>Incidence of hypoxemia, no primary outcomes</td>
<td>Open, F-Up unknown</td>
<td>1 death, unknown group</td>
</tr>
<tr>
<td>Ukholkina 2005</td>
<td>Mortality, Re-AMI, Angina, HF, Arrhythmia, Pericarditis</td>
<td>Open: O2 30%-40% vs room air, 3h after PCI F-Up 10 days</td>
<td></td>
</tr>
</tbody>
</table>

**Supplementary Oxygen in AMI: Pro**

- **Mortality:** High risk of bias for the outcomes
- No study protocol available
- Randomization method unknown
- Air 4 - 6 l/min (facial mask or nasal cannula)
- Follow-up: unknown in Raules
- Incomplete outcomes data addressed
- Exclusions during follow-up unclear
- Cause of death nor reported
- Mismatch between numbers in text and tables
- Total patients for analysis: 337
- Average death 1.7%!


*Ukholkina et al, Internat J Intervent Cardiol 2005;9:45-51*
Supplementary Oxygen in AML: Pro

Mortality: High risk of bias for the outcomes

- Oxygen vs room air Only 3 clinical trials
  - Wilson et al 1997: 1 Death unknown group!
  - Rawles et al 1976 Double blind (shrouded cylinders; effective?)
  - Ukholkina et al 2005 Open (O2 vs room air)


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Supplementary Oxygen in AMI: Pro

Comparison 1: Oxygen versus air, Outcome 3: Death in hospital for all patients (including those who did not have an AMI).

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Experimental n/N</th>
<th>Control n/N</th>
<th>Risk Ratio M-H,Fixed, 95% CI</th>
<th>Risk Ratio M-H,Fixed, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rawles 1976</td>
<td>9/105</td>
<td>3/95</td>
<td>2.71 [0.76, 9.73]</td>
<td></td>
</tr>
<tr>
<td>Ukholkina 2005</td>
<td>1/58</td>
<td>0/79</td>
<td>4.07 [0.17, 98.10]</td>
<td></td>
</tr>
<tr>
<td><strong>Total (95% CI)</strong></td>
<td><strong>163</strong></td>
<td><strong>174</strong></td>
<td><strong>2.88 [0.88, 9.38]</strong></td>
<td></td>
</tr>
</tbody>
</table>

Total events: 10 (Experimental), 3 (Control)
Heterogeneity: Chi² = 0.05, df = 1 (P = 0.82); I² = 0.0%
Test for overall effect: Z = 1.75 (P = 0.080)
Supplementary Oxygen in AMI: Pro

Mortality during treatment period
Randomized clinical trials

<table>
<thead>
<tr>
<th></th>
<th>Oxygen</th>
<th>Air</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rawles (6 hours)</td>
<td>1 / 105</td>
<td>2 / 95</td>
</tr>
<tr>
<td>Ukholkina (10 days)</td>
<td>1 / 58</td>
<td>0 / 79</td>
</tr>
<tr>
<td>Total</td>
<td>2 / 163</td>
<td>2 / 174</td>
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Ukholkina et al, Internat J Intervent Cardiol 2005;9:45-51
Conclusions

- Oxygen used routinely in majority of AMI patients
- Level of evidence C
- No data supporting worse outcomes
- Clear need for a randomized clinical trial for outcomes