Oxygen Targets in Post-Cardiac Arrest Survivors

BOX trial

A randomized, two center intervention trial on two oxygen targets in comatose adult out of hospital cardiac arrest patients

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August 27th 2022
Declaration of interest

- Research contracts: Research grant from Abiomed outside this work
Why is this important?

In Europe 100,000 individuals resuscitated after cardiac arrest will survive to hospital admission each year. More than 50% that reach hospital alive will die in hospital.
How did we investigate this?

- **Population**
  - Adult cardiac arrest
  - Presumed cardiac cause

- **Two Academic Centers in Denmark**
  - Catchment area 3.9 Mio Inhabitants

- **2-by-2 design**

- **Primary endpoint**
  - All cause mortality or coma/severe disability at discharge

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**789 OHCA presumed cardiac cause**

- **Restrictive Oxygen**
  - \( \text{PaO}_2 \text{ 9-10 kPa} \)
  - High BP
  - Low BP

- **Liberal Oxygen**
  - \( \text{PaO}_2 \text{ 13-14 kPa} \)
  - High BP
  - Low BP
Results – 789 patients

- 62.5 (±13.5) years
- 81% men
- 23% first shock by external defibrillator
- 85% shockable initial rhythm
- 92% acute coronary angiography
- 44% ST-segment elevation in ECG
- 86% bystander CPR
- 18 (12-26) min to ROSC
- 7.24 (7.15-7.25) pH on arrival
- 5.0 (2.9-7.9) mM lactate on arrival
Results – All Cause Mortality or Coma/Vegetative State

HR 0.95; 95% CI, 0.75-1.21, p=0.69
Results – Secondary Endpoints
Conclusion

• A restrictive oxygenation (PaO_2 of 9 – 10 kPa) or a liberal oxygenation (PaO_2 of 13 – 14) target in comatose patients resuscitated for OHCA did not result in different rates of death or severe disability / coma.

Acknowledgement

• The patient and relative for their support of research in challenging circumstances
• The health care providers at the Cardiac ICU at Odense University Hospital and Rigshospitalet especially the dedicated nursing staff, who diligently adhered to the protocol.
• The Novo Nordisk Foundation for funding the trial

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