

“Post Resuscitation Care in the Critical Care Environment: a retrospective audit of oxygen management”

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The Australian Resuscitation Council (ARC) recommends titration of oxygen to a saturation of 94-98% and ventilation to normocarbica (PaCO₂/PvCO₂ 35-40mmHg) as best practice in post resuscitation management. The aim of this study was to examine oxygen management in the first 24 hours post cardiac arrest for 200 randomly selected adult patients admitted to the Intensive Care Unit (ICU) from the Emergency Department (ED) from 01/01/2010 to 31/12/2013. A retrospective audit occurred at two health services in Melbourne, Australia. The median age was 64 years, 74% were males, 91.5% suffered Out of Hospital Cardiac Arrest and 8.5% arrested in ED. In 54.0%, the initial rhythm was shockable (Ventricular Fibrillation or Pulseless Ventricular Tachycardia), median ambulance response time was 7 minutes, median time to return of spontaneous circulation was 27 minutes and 94% were intubated pre-hospital. On ED arrival, 40.4% were hypercapnic (PaCO₂ /PvCO₂ >45mmHg), 19.5% were hypoxaemic (PaO₂<80 mmHg) and 33.6% were hyperoxic (PaO₂>200mmHg). FIO₂ (Fraction of Inspired Oxygen) was 1.0 in 90.5% of ED patients (median duration 104 minutes) and 70.0% of ICU patients (median duration 60 minutes). The highest PaO₂ was >200mmHg in 31.5% of ED and 42.5% of ICU patients and <80mmHg in 17% of ED and 67% of ICU patients. The highest PaCO₂/PvCO₂ was >60mmHg in 64% of ED and 34% of ICU patients. Acidosis was more severe in those that did not survive compared with those that did. Hyperoxia and acidosis was common in the first 24 hours of post resuscitation care in both ED and ICU. Titration of FIO₂ and ventilation rates according to blood gases, in conjunction with localised mechanical ventilation management protocols may improve outcomes of survivors of cardiac arrest through normalisation of oxygen and carbon dioxide levels. Objective, evidence based protocols for post resuscitation care that span the whole patient journey is recommended.

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