

POSTER PRESENTATION

Open Access

Conservative versus liberal oxygenation targets for mechanically ventilated patients: pilot multicentre randomised trial

L Barrot¹, R Panwar², M Hardie³, R Bellomo⁴, G Eastwood⁵, P Young⁶, P Harrigan⁷, M Bailey⁸, G Capellier^{9,10*},
CLOSE Study Investigators and the ANZICS Clinical Trials Group

From ESICM LIVES 2015

Berlin, Germany. 3-7 October 2015

Introduction

There is now increasing recognition of potential harm due to hyperoxia. Conventional practice of oxygen therapy often result in hyperoxia. Nearly all patients on mechanical ventilation receive supplemental oxygen therapy. However, RCTs investigating the effects of different oxygenation level during MV are lacking

Objectives

We aim to systematically evaluate whether liberal oxygenation strategy is beneficial or harmful compared to conservative oxygenation strategy for patients on invasive MV.

Methods

Patients likely to require 48 hours of MV, older than 18 years were included. Prospective trial conducted in 4 university affiliated ICU in Australia, New Zealand and France. Enrolled patients were randomly allocated to either liberal or conservative oxygenation arm (SaO₂/SpO₂ >96% or between 88-92% respectively) and followed until day 90. The bedside nurse titrated FiO₂ to reach the oxygenation target.

Results

357 patients were screened and 104 were enrolled, 53 and 51 respectively in conservative and liberal arm respectively. Patients characteristics were similar at baseline. ABG's were checked more often in the conservative arm. Using an hypoxemia threshold of SpO₂ < 88%, 1% and 0.3% of the values in the conservative and liberal arm respectively were in hypoxemic range. With a PaO₂ threshold < 55

mmHg, 7% and 1% respectively of the values were in hypoxemic range. With a threshold of SpO₂>98% while FiO₂ > 0.21, 4% and 22% of SpO₂ values respectively were in the hyperoxic range. Same difference were found when using an hyperoxic threshold of PaO₂>120 mmHg (p < 0.05 for all comparison). Participants spent majority of time within the intended target range in both groups. Mean AUC and 95%CI for SpO₂, SaO₂, PaO₂ and FiO₂ were significantly lower in the conservative group compared to liberal group. Survival analysis curve were similar for both groups (OR 0.77 (95%CI:0.4-1.50; p = 0.44)). For patients with a P/F ratio < 300, the separation in mean FiO₂ was wider between the two arms. Outcome were similar. There slightly more arrhythmia-free days in the conservative arm. In this P/F < 300 subgroup, the adjusted hazard ratio for death by day 90 was lower in the conservative arm compared to liberal arm.

Conclusions

Our study demonstrate that conservative oxygenation strategy is a feasible and safe alternative to the usual liberal oxygenation strategy.

Grant Acknowledgment

Intensive Care Foundation (ANZ), University Hospital Besançon (France) and Don Du Souffle (France).

Authors' details

¹CHRU Besançon, Medical ICU, Besançon, France. ²John Hunter Hospital, Newcastle, Australia. ³John Hunter Hospital, ICU, Newcastle, Australia. ⁴Austin Hospital, Department of Intensive Care, Melbourne, Australia. ⁵Austin Hospital, Intensive Care Unit, Melbourne, Australia. ⁶Wellington Hospital, Wellington, and Medical Research Institute of New Zealand, Intensive Care Unit, Wellington, New Zealand. ⁷John Hunter Hospital, Intensive Care Unit, Newcastle, Australia. ⁸Australian and New Zealand Intensive Care Research

⁹CHRU Besançon, Intensive Care Unit, Besançon, France
Full list of author information is available at the end of the article

Centre, Department of Epidemiology and Preventive Medicine, Melbourne, Australia. ⁹CHRU Besançon, Intensive Care Unit, Besançon, France. ¹⁰Franche-Comté University, EA 3920, Besançon, France.

Published: 1 October 2015

References

1. Damiani E, Adrario E, Girardis M, Romano R, Pelaia P, Singer M, Donati A: **Arterial hyperoxia and mortality in critically ill patients: a systematic review and meta-analysis.** *Crit Care* 2014, **18**(6):711.
2. Panwar R, Capellier G, Schmutz N, Davies A, Cooper DJ, Bailey M, *et al.*: **Current oxygenation practice in ventilated patients-an observational cohort study.** *Anaesth Intensive Care* 2013, **41**(4):505-514.

doi:10.1186/2197-425X-3-S1-A423

Cite this article as: Barrot *et al.*: Conservative versus liberal oxygenation targets for mechanically ventilated patients: pilot multicentre randomised trial. *Intensive Care Medicine Experimental* 2015 **3**(Suppl 1):A423.

Submit your manuscript to a SpringerOpen[®] journal and benefit from:

- Convenient online submission
- Rigorous peer review
- Immediate publication on acceptance
- Open access: articles freely available online
- High visibility within the field
- Retaining the copyright to your article

Submit your next manuscript at ► springeropen.com
