Does hyperoxemia since pre hospital emergency medicine influence prognostic in patients with septic shock?

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INTRODUCTION

Deleterious effects of prolonged hyperoxemia exposition well established especially after cardiac arrest and brain trauma [1]. Definition of hyperoxemia is not consensual despite a threshold of 100mmHg partial for the British Thoracic Society [2].

The aim of this study was to determine if there is an association between level of PaO₂/FiO₂ ratio (P/F) and mortality at day 28 (D28).

METHOD

Monocentric retrospective observational study in a university teaching hospital general adult intensive care unit (ICU) including 45 patients with a PaO₂ measurement at ICU admission.

RESULTS

Origins of sepsis were mainly pulmonary (72%) and urinary (16%).

Average P/F ratio at the time of admission in ICU was 200±88mmHg.

When P/F ratio is higher than 225, the D28 mortality risk is multiplied by 3.9: OR=3.9 [1.3 - 12.2]; (p=0.04).

When P/F ratio was lower than 200, we observed an 85% decrease of D28 mortality: OR=0.15 [0.04 – 0.47] (p=0.0077).

DISCUSSION

In this study, we observed a strong association between hyperoxemia during pre-hospital cares and D28 mortality for patients admitted into ICU for septic shock requiring mechanical ventilation since pre-hospital stage. A P/F ratio lower than 200 at ICU admission of patients with septic shock requiring mechanical ventilation and sedation seems to be a target. PaO₂ is a parameter that could be obtained simply and quickly to adjust oxygen dose since pre hospital care and to avoid toxic effects of hyperoxemia. In order to confirm those results and to define the "target" value of the oxygen dose for those patients, larger multicentric prospective studies should be performed.

REFERENCES

1. Damiani et al. Critical Care 2014
2. O'Driscoll et al. Thorax 2011