

POSTER PRESENTATION

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# Venoarterial carbon dioxide gradient utility as a criterion for blood transfusion at the intensive care unit

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## Intr

Currently there is controversy about criteria for blood transfusion in critically ill patients by a level of hemoglobin and specially as a strategy to raise the venous oxygen saturation (SvO<sub>2</sub>).

## Objectives

To analyze the utility of the venoarterial carbon dioxide gradient (V-a PCO<sub>2</sub>) to detect those patients who will respond with a rise of SvO<sub>2</sub> to blood transfusion.

## Methods

Patients within their first 12 hours from admission to the intensive care unit (ICU) during the hemodynamic optimization protocol in which blood transfusion was decided to rise the SvO<sub>2</sub> after hemodynamic optimization: central venous pressure (CVP) > 8 mmHg, mean arterial pressure (MAP) > 65 mmHg, peripheral oxygen saturation (SpO<sub>2</sub>) > 90%. Pre and post transfusion hemoglobin, venous oxygen saturation (SvO<sub>2</sub>), and V-a PCO<sub>2</sub> were measured, then divided in two groups: "Responders" (R) if a rise > 5%. In SvO<sub>2</sub> after transfusion was present and in "Non responders" (NR) with a rise < 5% in SvO<sub>2</sub> after transfusion. Receiver Operating Characteristic (ROC) curve analysis was performed to assess the utility of the pre transfusion V-a PCO<sub>2</sub> as a tool to predict responsiveness of the SvO<sub>2</sub> to blood transfusion.

## Results

73 patients were analyzed, mean age of 68 ± 2, with 35 (47.9%) males, 25 (34.25%) patients in the R group and 48 (65.75%) in the NR group.

ROC curve analysis were performed resulting in an area under the curve of 0.82 (p < 0.01; CI 0.73-0.91) with a pre transfusion V-a PCO<sub>2</sub> cutoff value of ≥ 6 showing a sensitivity 66% of and a specificity of 84% for predicting those patients who will not respond with a rise greater than 5% in the post transfusion SvO<sub>2</sub>.

## Conclusions

V-a PCO<sub>2</sub> > 6 mmHg identifies those patients that will not show a rise of the SvO<sub>2</sub> as a response to blood transfusion.

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