

Critical Care Medicine

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Near-Infrared Spectroscopy and Cerebral Hemodynamics
[Letter to the Editor]

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Outline

REFERENCES

To the Editor:

We read with interest the report by Dr. Tateishi and colleagues [1] and the accompanying editorial by Drs. Prough and Pollard [2] but we are not clear what conclusions the authors drew from their results, nor whether any conclusions can be drawn. As stated in their report [1], the NIRO-500 detects changes in oxy- and deoxy-hemoglobin from an unknown baseline. As a result, it is only when the oxy- and deoxyhemoglobin values change in opposite directions or remain unchanged that it is possible to obtain any information regarding cerebral oxygen saturation, and this information is purely qualitative.

The authors [1] show an apparent correlation between the magnitude of change of jugular venous saturation and the magnitude of change of oxyhemoglobin. What this correlation demonstrates is difficult to assess, since an increase in oxyhemoglobin may be due to either an increase in cerebral saturation, or an increase in cerebral blood volume, or both.

The accompanying editorial [2] concludes that the technology shows promise. This conclusion appears to be based, in part, on the authors' [2] belief that "the directional changes in deoxyhemoglobin and oxyhemoglobin concentrations as PaCO₂ was changed were consistent with the changes in jugular venous saturations, with one exception four dot bond" This statement is not substantiated by the data provided by Dr. Tateishi and colleagues [1]: only pooled deoxyhemoglobin data were provided.

We believe that near-infrared spectroscopy does show promise as a research tool but that this conclusion cannot be drawn from the data presented by Dr. Tateishi and colleagues [1].

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2. Prough DS, Pollard V: Cerebral near-infrared spectroscopy: Ready for prime time? Crit Care Med 1995; 23:1624-1626 Ovid Full Text SFX Bibliographic Links
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