

Evaluation of Non-Invasive Hemoglobin Measurements Using the Masimo Rainbow Radical-7® Device in a Patient with Extracorporeal Membrane Oxygenation

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Circulatory assist devices such as extracorporeal membrane oxygenation are indicated in cases of cardiogenic shock refractory to optimal conventional treatment. Bleeding is a serious complication of such systems, mainly due to coagulation disorders caused by continuous administration of heparin, as well as platelet dysfunction. Serial coagulation and hemoglobin (Hb) measurements are essential. Hb measurements can be performed through repeated arterial blood gasometry, and more recently with a new spectrophotometric sensor, Masimo Rainbow Radical-7® device, which gives Hb values continuously and non-invasively. We report a case of a patient undergoing cardiac surgery who required extracorporeal membrane oxygenation for severe cardiogenic shock immediately after surgery.

We compare the correlation and the level of agreement with Hb levels measured by 2 existing systems in clinical practice.

Our results indicate that the Masimo® spectrophotometric monitor showed statistically comparable Hb values, in the correlation ($r=.85$; $P<.01$) and in agreement with those obtained by serial blood gas analyzer, ABL800 FLEX® (wavelength).

In view of these results we consider the Masimo® device as a valid alternative for the continuous follow-up of the Hb and control of bleeding in these patients.