

T-Stat® on Newborn Full-Term Infant With Cardiac Failure

Background:

This case data shows esophageal saturation via T-Stat® Sto₂ on an infant with cardiac failure due to ventricular aneurysm, admitted from the Delivery Room, dusky and floppy.

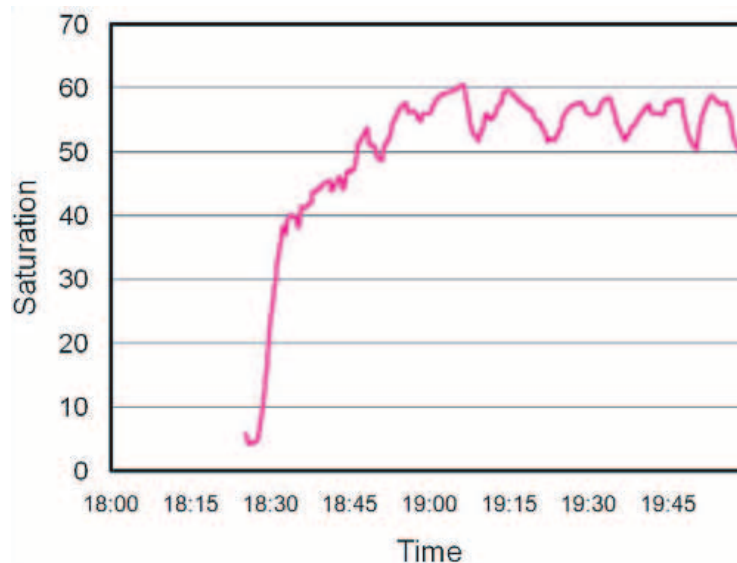
Methods:

A full-term infant with a ventricular aneurysm and cardiac failure was admitted dusky and floppy to the NICU at 10 minutes of age. A tissue oximetry buccal probe was placed orally just prior to intubation, and the infant was monitored using non-invasive Visible Light (VLS) spectroscopy,¹ sensitive to ischemia (T-Stat®, Spectros).²

Results:

T-Stat tissue saturation just prior to intubation was 4%, well below the neonatal anaerobic threshold of 28-35%. HR was 130, BP was adequate. Tissue Sto₂ recorded during intubation (shown below) was initially 5%, and rose above 30% within 5 minutes, reaching 50-60% at 30 minutes of age at which time Lactate was 10 mM. By the end of day of life 1, saturation was 60%, and remained 60-65% thereafter. Rapid normalization of tissue Sto₂ has previously been shown to reduce the incidence of multi-organ failure after ischemic events.

T-Stat Sto₂ During Immediate Post-Natal Period in Infant with Ventricular Aneurysm



Conclusions:

T-Stat® VLS oximetry probes were placed rapidly, allowing intervention to normalize oxygen delivery to be followed in real time. T-Stat® has been previously reported to allow monitoring of rapid-onset ischemic events within seconds, as previously published,¹ enabling early intervention to existing or impending tissue ischemia.

1. Continuous, noninvasive, and localized microvascular tissue oximetry using visible light spectroscopy. Anesthesiology. 2004;100(6):1469-1475.
 2. T-Stat is indicated in infants(including neonates), children, or adults at risk for reduced-flow and no-flow ischemic states.