

T-Stat Sto2 vs. Somanetics INVOS During Brief Cardiac Arrest

Background:

This case report compares T-Stat[®] Sto2 as measured in the oral cavity (buccal mucosa), and INVOS[®] rSo2 as measured on the forehead, during cardiac repair with cardiac standstill.

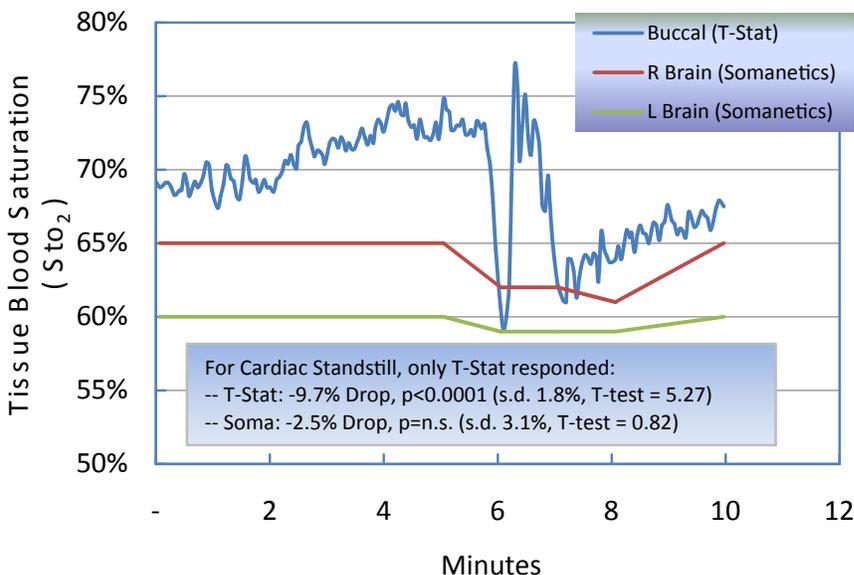
Methods:

Subjects undergoing cardiac surgery were monitored using both non-invasive Visible Light (VLS) spectroscopy,¹ sensitive to ischemia (T-Stat[®], Spectros),² and NIRS cerebral oximetry (s INVOS 5100, Somanetics), under IRB approval at the Stanford Univ. Medical Center.

Results:

Baseline values showed a standard deviation of 1.8% for the T-Stat[®] and 3.1% for the INVOS monitors. During arrest, T-Stat[®] showed a rapid drop of 10% ($p < 0.0001$), while INVOS showed only a 2.5% decline ($p = n.s.$ due to larger noise in NIRS signal).

Comparison of T-Stat Sto₂ vs. Somanetics INVOS rSo₂



Conclusions:

T-Stat[®] VLS oximetry detects rapid-onset events within seconds, as previously published,¹ enabling improved physician response times than with a slower INVOS NIRS technology. In addition, as baseline variation in T-Stat[®] is less than with published NIRS devices, changes become statistically significant more rapidly, again allowing for an improved response time.

1. Continuous, noninvasive, and localized microvascular tissue oximetry using visible light spectroscopy. Anesthesiology. 2004 Jun;100(6):1469-75.

2. T-Stat is indicated in infants(including neonates), children, or adults at risk for reduced-flow and no-flow ischemic states.