Physiology and Venous Oxygen Saturation

Venous oxygen saturation ($SvO_2$) is a measurement used to describe the balance between oxygen delivery and consumption in the brain. $SvO_2$ has been studied comprehensively, since it has shown to be an improved measurement over the traditional methods (heart rate, blood pressure and central venous pressure). Monitoring jugular venous oxygen saturation ($SjvO_2$) has been occurring for many decades and has shown to have useful clinical applications for neurosurgical procedures, cardiovascular procedures, head injuries, and sepsis patients.

Monitoring jugular venous oximetry allows clinicians to make more accurate adjustments, in order to improve the patient’s wellbeing and will result in better long term outcomes.

Current Method

In the past monitoring involved the use of co-oximetry laboratory analysis and fiber optic technology. Currently the most common device used are fiber optic catheters. Fiber optic catheters are an invasive method. The Mespere VO 100 Jugular Venous Oximetry is a noninvasive continuous jugular venous oxygenation monitoring system, which uses near infrared spectroscopy to measure venous hemodynamics without the need for invasive catheterization.

Interpreting a Change in Venous Oxygen Saturation

The normal range for $SjvO_2$ is 60-80%, below 60% usually indicates that there is a low oxygen delivery, and above 80% indicates that there is low consumption. When monitoring a patient, clinicians should look for changes of ±5-10% for a period of 5 minutes or longer. If this occurs, that it is an indication of a change in oxygen consumption or demand. Jugular desaturation commonly occurs in patients with traumatic brain injury, cardiac surgery patients, and patients that are comatose.
Clinical Applications of Venous Oxygen Saturation

Monitoring jugular venous oxygen saturation (SjvO₂) has been occurring for many decades and has useful clinical application for neurosurgical procedures, cardiovascular procedures, head injuries, and sepsis patients. Continuous monitoring of venous oxygenation, has shown to be a valuable measurement for clinicians. It allows them to monitor the balance between oxygen delivery and consumption. The Mespere VO 100 Jugular Venous Oximetry system is a non-invasive continuous jugular venous oxygenation monitoring system that is more accurate, precise, and has far less risks than most commonly used fiber optic catheters.

The Mespere VO 100 Jugular Venous Oximetry is ideal for use in Emergency Departments, Intensive Care Units and in Anesthesia.

References

3. Frazier J, Theory and Clinical Application of Continuous Fiberoptic Central Venous Oximetry (ScVO2) Monitoring Edwards Lifesciences