New measure provides more data on oxygen levels during sedation

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The "area under the curve of oxygen desaturation" (AUC_{Desat}) may provide a more sophisticated approach to monitoring blood oxygen levels during procedures using sedation, according to a study published in *Anesthesia & Analgesia*.

The AUC_{Desat} provides information not only whether [blood oxygenation](#) has dropped too low—but also on the depth, duration, and rate of episodes of [oxygen desaturation](#). The new study by Paul Niklewski, PhD, of University of Cincinnati and colleagues reports on the development of the AUC_{Desat} as a potentially useful new approach to monitoring patient during sedation.

Four-Component Desaturation Measure Better Reflects Patient Risks

In the study, 13 Board-certified anesthesiologists reviewed a total of 204 records, including information on a wide range of physiological measures, of procedures performed in sedated patients. After review, each anesthesiologist assigned a risk score for that procedure, based on their perceptions of the patient's risk of complications related to oversedation.

The risk scores were then analyzed in depth to determine their relationship to [oxygen saturation levels](#). Oxygen saturation is typically measured by pulse oximetry—the familiar "finger clip" test. Levels of

less than 95 percent are typically defined as desaturation—meaning that the red blood cells aren't at or near their maximum oxygen-carrying capacity.

The researchers were interested in finding out how anesthesiologists' perceptions of patient risk were affected not only by the presence or absence of desaturation, but also by the duration, depth, and number of desaturation events. They also assessed the value of the AUC_{Desat}, which incorporates all four components into a single number.

Overall, the anesthesiologists ranked arterial blood oxygen level as the most important factor in assessing patient risk, with an average rank of 4.69 out of 5. The respiratory rate was the second most important factor.

Of the oxygen saturation measures analyzed, the AUC_{Desat} was the best predictor of the anesthesiologists' rankings—better than the mere presence of desaturation or the other individual components. Using the data, the researchers were able to define AUC_{Desat} scores identifying groups of patients at low, medium, and high perceived risk of complications during sedation.

Sedation is essential for many types of medical procedures. But even though it has an excellent safety profile, sedation is not risk-free. Anesthesiologists play an important role in monitoring patient safety during sedation.

Since adverse clinical outcomes are rare, surrogate indicators of possible safety problems are used. Oxygen saturation is a common and important measure, reflecting the potential for harm related to low blood oxygenation.

The new study suggests that the AUC_{Desat}, providing more complete information on the characteristics of desaturation episodes, could be a

useful new tool for monitoring patient risk during procedures. "AUC$_{Desat}$, given it is a single numerical variable, is an ideal endpoint for assessment of risk of adverse clinical outcomes in <u>sedation</u> studies," Dr Niklewski and coauthors conclude. They plan further studies to further define the role of oxygen desaturation—including how well AUCDesat corresponds to actual physiological outcomes during procedures.

More information: <u>journals.lww.com/anesthesia-an …</u> <u>ment_of_Risk.12.aspx</u>

Provided by Wolters Kluwer Health

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