Evaluation of the Sedline to Improve the Safety and Efficiency of Conscious Sedation.
Caputo T.D., Ramsay M.A., Rossmann J.A., Beach M.M., Griffiths G.R., Meyrat B., Barnes J.B., Kerns D.G., Crump B., Bookatz B., Ezzo P. *Proc (Bayl Univ Med Cent).* 2011 Jul;24(3):200-4.

Abstract

Brain function monitors have improved safety and efficiency in general anesthesia; however, they have not been adequately tested for guiding conscious sedation for periodontal surgical procedures. This study evaluated the patient state index (PSI) obtained from the SEDline monitor (Sedline Inc., San Diego, CA) to determine its capacity to improve the safety and efficiency of intravenous conscious sedation during outpatient periodontal surgery.

Twenty-one patients at the periodontics clinic of Baylor College of Dentistry were admitted to the study in 2009 and sedated to a moderate level using midazolam and fentanyl during periodontal surgery. The PSI monitoring was blinded from the clinician, and the following data were collected: vital signs, Ramsay sedation scale (RSS), medications administered, adverse events, PSI, electroencephalography, and the patients' perspective through visual analogue scales.The data were correlated to evaluate the PSI's ability to assess the level of sedation.

Results showed that the RSS and PSI did not correlate ($r = -0.25$) unless high values associated with electromyographical (EMG) activity were corrected ($r = -0.47$). Oxygen desaturation did not correlate with the PSI ($r = -0.08$). Satisfaction ($r = -0.57$) and amnesia ($r = -0.55$) both increased as the average PSI decreased.

In conclusion, within the limits of this study, PSI appears to correlate with amnesia, allowing a practitioner to titrate medications to that effect. It did not provide advance warning of adverse events and had inherent inaccuracies due to EMG activity during oral surgery. The PSI has the potential to increase safety and efficiency in conscious sedation but requires further development to eliminate EMG activity from confounding the score.