Propofol and non-propofol based sedation for outpatient colonoscopy-prospective Comparison of depth of sedation using an EEG based SEDLine monitor

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Propofol is a popular anesthetic sedative employed in colonoscopy. It is known to increase the patient satisfaction and improve throughput. However, there are concerns among the clinicians with regard to the depth of sedation, as a deeper degree of sedation is known to increase the incidence of aspiration and other adverse events. So we planned to compare the depth of sedation between propofol and non-propofol based sedation in patients undergoing outpatient colonoscopy, as measured by an electroencephalogram (EEG) based monitor SEDLine monitor (SedlineInc., San Diego, CA). The non-randomized prospective observational study was performed in the outpatient gastroenterology suite of the Hospital of the University of Pennsylvania, Philadelphia. Patients included ASA class I-III aged more than 18 years scheduled for colonoscopy under Propofol or non-propofol based sedation. After an institutional review board approval, a written consent was obtained from prospective patients. Sedation (propofol or non-propofol based) was administered by either a certified nurse anesthetist under the supervision of an anesthesiologist (propofol) or a registered endoscopy nurse under the guidance of the endoscopist performing the procedure (non-propofol sedation). Depth of sedation was measured with an EEG based SEDLine monitor. The sedation providers were blinded to the patient state index-the indicator of depth of sedation. PSI (patient state index-SEDLine reading) was documented at colonoscope insertion, removal and at the return of verbal responsiveness after colonoscope withdrawal. Sedation spectrum was retrieved from the data stored on the SEDLine monitor. Patients sedated with propofol experience significantly deeper degrees of sedation at all times during the procedure. Additionally, during significant part of the procedure, they are at PSI levels associated with deep general anesthesia. The group that received propofol was more deeply sedated and had lower PSI values. Lighter propofol titration protocols may lead to improved patient care such as lowering risk of aspiration and hypotension. The role of processed EEG monitors such as the SEDLine monitor to improve sedation protocols remains to be determined. Trial registration We obtained an ethical clearance from the Institute. No trial registration was mandated, as no interventional drug or investigational device were used during the study.