Capnographic monitoring reduces the incidence of arterial oxygen desaturation and hypoxemia during propofol sedation for colonoscopy: a randomized, controlled study (ColoCap Study).

The aim of this randomized study was to determine whether intervention based on additional capnographic monitoring reduces the incidence of arterial oxygen desaturation during propofol sedation for colonoscopy. Patients (American Society of Anesthesiologists classification (ASA) 1-3) scheduled for colonoscopy under propofol sedation were randomly assigned to either a control arm with standard monitoring (standard arm) or an interventional arm in which additional capnographic monitoring (capnography arm) was available. In both study arms, detection of apnea or altered respiration induced withholding propofol administration, stimulation of the patient, chin lift maneuver, or further measures. The primary study end point was the incidence of arterial oxygen desaturation (defined as a fall in oxygen saturation (SaO(2)) of \geq 5\% or <90\%); secondary end points included the occurrences of hypoxemia (SaO(2)<90\%), severe hypoxemia (SaO(2)\leq 85\%), bradycardia, hypotension, and the quality of sedation (patient cooperation and patient satisfaction). A total of 760 patients were enrolled at three German endoscopy centers. The intention-to-treat analysis revealed a significant reduction of the incidence...
of oxygen desaturation in the capnography arm in comparison with the standard arm (38.9% vs.
53.2%; P<0.001). The numbers of patients with a fall in SaO(2)<90% and<=85% were also
significantly different (12.5% vs. 19.8%; P=0.008 and 3.7 vs. 7.8%; P=0.018). There were no
differences regarding the rates of bradycardia and hypotension. Quality of sedation was similar in
both groups. Results of statistical analyses were maintained for the per-protocol population. Additional
capnographic monitoring of ventilatory activity reduces the incidence of oxygen desaturation and
hypoxemia during propofol sedation for colonoscopy.