Patient safety during deep sedation with propofol in a Turkish university hospital

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Background and goal of the study

Patients receiving procedural sedation are at risk of respiratory compromise.[1] The goal of this work is to quantify potential adverse events during propofol sedation for GI endoscopy and to assess the impact of capnography monitoring on the incidence of these events.

Material and methods

This investigation at a large university hospital in Ankara was designed as a retrospective cohort study for pre- and post-capnography implementation. A cumulative endpoint was defined as the incidence of oxygen desaturation (mild or severe), bradycardia, and tachycardia. It was calculated that 666 patients per group (baseline and capnography) were required to power the analysis of a 20% or greater reduction in the cumulative endpoint following capnography implementation. Data on 730 baseline procedures and 880 procedures using capnography were collected.

A variety of procedure types was recorded but Gastrectomy, Colonoscopy, and Gastrectomy + Colonoscopy accounted for the vast majority of procedures (Baseline: 76%; Capnography: 84 %).

Recorded parameters included procedure duration, sedative used **(Figure 1)**, risk classification (ASA I-IV), and age group (≤50, 51 - 60, 61 - 70, 71 – 80, >80).

Data were collected between February 2020 and January 2021. Results were collected on-site in an Excel-based data tool. No patient identifiers were recorded.

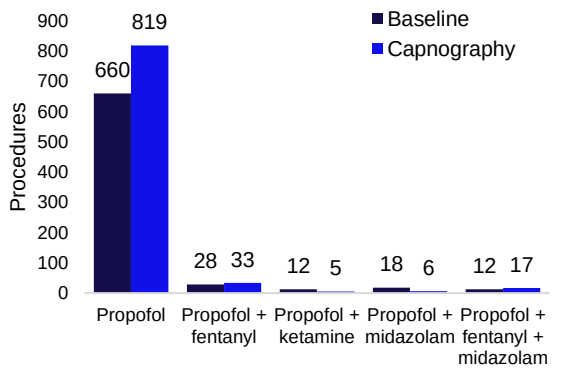

Figure 1 Sedative distribution Number of procedures utilizing each combination of sedatives.

Results and discussion

The utilization of capnography reduced the cumulative endpoint incidence from 7.53% to 2.95%, corresponding to a 60.8% reduction **(Figure 2)**. This was driven by the incidence of mild oxygen desaturations which was reduced from 6% baseline to 1.6% with capnography **(Figure 3)**.

Of the three major procedures Gastroscopy saw the biggest improvement of adverse event incidence (6.8% to 1.3%). This reduction was highest in patients classified as ASA 1 where the incidence decreased from 6.2% to 0.6% after implementing capnography. Our work supports previous findings that monitored anaesthesia care could be associated with reduced cardiopulmonary event risk in healthy patients.[2]

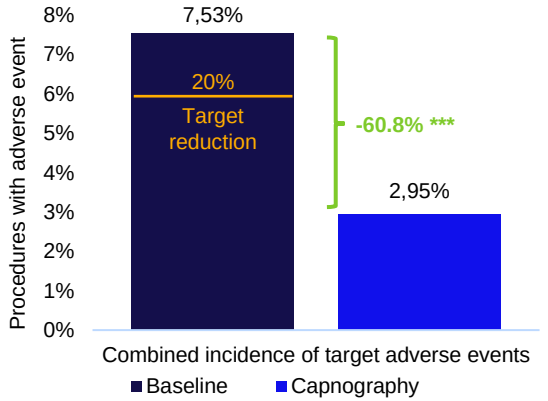

Figure 2 Incidence of the cumulative endpoint The cumulative endpoint consists of the incidence of oxygen desaturation (mild or severe), bradycardia, and tachycardia; ***Reduction significant at p<0.001

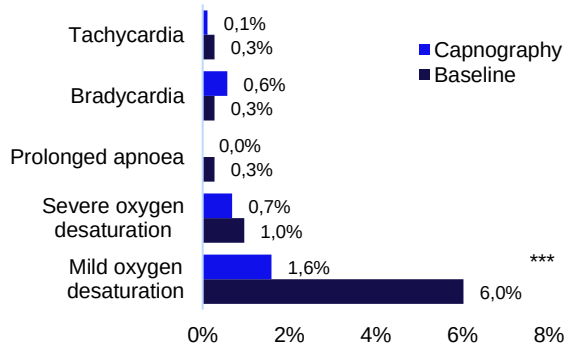

Figure 3 Incidence of individual adverse events ***Reduction significant at p<0.001

Conclusions

Introduction of capnography monitoring led to a substantial reduction in patient safety events, suggesting that this technology should be considered as a potential gold standard during any propofol sedation, including in healthy patients.

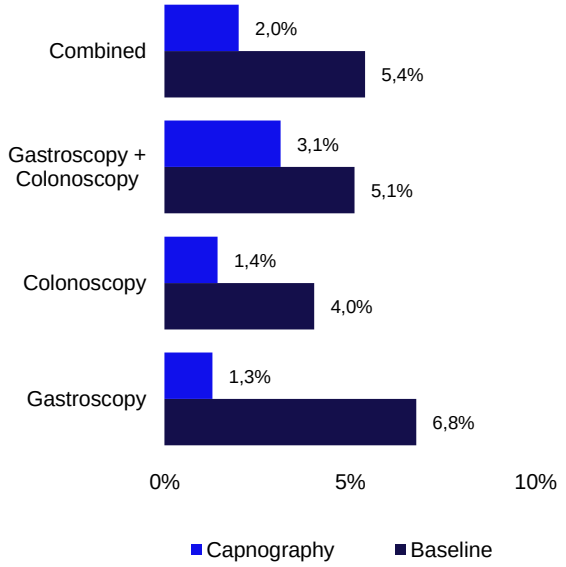

Figure 4 Incidence of adverse events across the three most common procedures

Disclosure

VB, CV, MÖ, NA declare no conflict of interests.

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