Factors Attributing Hypoxemic Events during Upper-Gastrointestinal Endoscopy

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While hypoxemia frequently occurs during endoscopy, it is known that especially prolonged hypoxemic events lasting more than 15 s are associated with unwanted events (e.g. tachycardia, coronary ischemia).

Therefore, it might be of great value to have more information on the aspects which might affect or even trigger the occurrence of potential hypoxemic events during endoscopy.

In the post-hoc analysis randomized controlled trial of ventilation monitoring (investigation of the clinical value of capnography) by Qadeer and coworkers [1], the potential occurrence of hypoxemia episodes (evaluated by means of pulse oximetry) and different ventilation forms (evaluated by capnography) were analyzed under different aspects (association with ventilation patterns, endoscopic intubation, narcotic/benzodiazepine administration) when performing upper-gastrointestinal endoscopy.

In total, 123 mainly low-risk patients were enrolled in this trial who underwent ERCP and EUS under combination/sedation with benzodiazepines and narcotics with moderate sedation as targeted sedation level. All hypoxemic events (defined as oxygen desaturation below 90% for ≥ 90 s and apnea as lack of respiratory activity for ≥ 1 s) were judged according to the above-mentioned aspects. In

total, 132 hypoxemic events were detected, mainly occurring within the first 5 min after drug administration or endoscopic intubation; and in about two thirds of these cases hypoxemic events were associated with abnormal ventilation patterns, while only one third of all apnea/abnormal ventilation events eventually lead to hypoxemia.

The authors stated the total dose of the used drug as the main predictor of apnea. The ASA classification of the patients does not have an impact on predicting the potential occurrence of hypoxemic events and might therefore be overestimated as part of the pre-procedural assessment of patients undergoing endoscopy under sedation. To know the potential predictors for hypoxemic events and to be aware of them is the first step in preventing hypoxemia or its early recognition with prompt management, and may therefore reduce severe events during endoscopic procedures. Further trials are needed to evaluate predictive risk factors also for lower-gastrointestinal endoscopy and deeper sedation levels.

Reference

- 1 Qadeer MA, Lopez AR, Dumot JA, Vargo JJ: Hypoxemia during moderate sedation for gastrointestinal endoscopy: causes and associations. *Digestion* 2011;84:37–45.