

Usefulness of Acoustic Monitoring of Respiratory Rate in Patients Undergoing Endoscopic Submucosal Dissection

Gastroenterol Res Pract. 2016;2016:2964581. doi: 10.1155/2016/2964581. Epub 2015 Dec 27.

Suzuki T(1), Tsuda S(1), Nakae H(1), Imai J(1), Sawamoto K(1), Kijima M(1), Tsukune Y(1), Uchida T(1), Igarashi M(1), Koike J(1), Matsushima M(2), Suzuki T(3), Mine T(1).

Author information:

(1)Division of Gastroenterology and Hepatology, Department of Internal Medicine, Tokai University School of Medicine, 143 Shimokasuya, Isehara, Kanagawa 259-1193, Japan. (2)Tokai University Tokyo Hospital, 1-2-5 Yoyogi, Shibuya-ku, Tokyo 151-0053, Japan. (3)Department of Anesthesiology, Tokai University School of Medicine, 143 Shimokasuya, Isehara, Kanagawa 259-1193, Japan.

Aim. The study assessed the usefulness of a recently developed method for respiratory rate (RR) monitoring in patients undergoing endoscopic submucosal dissection (ESD) under deep sedation.

Methods. Study subjects comprised 182 consecutive patients with esophageal cancer or gastric cancer undergoing ESD. The usefulness of acoustic RR monitoring was assessed by retrospectively reviewing the patients' records for age, gender, height, weight, past history, serum creatinine, RR before ESD, and total dose of sedative.

Results. Respiratory suppression was present in 37.9% of (69/182) patients. Continuous monitoring of RR led to detection of respiratory suppression in all these patients. RR alone was decreased in 24 patients, whereas both RR and blood oxygen saturation were decreased in 45 patients. Univariate analysis showed female gender, height, weight, and RR before treatment to be significantly associated with respiratory suppression. Multivariate analysis showed RR before treatment to be the only significant independent predictor [odds ratio (OR) 0.83, 95% confidence interval (CI) 0.73-0.95, and $P = 0.006$] of respiratory suppression.

Conclusion. In this study, the difference in RR before treatment between patients with and without respiratory suppression was subtle. Therefore, we suggest that acoustic RR monitoring should be considered in patients undergoing ESD under sedation to prevent serious respiratory complications.