

Nurse Administrated Remimazolam Sedation (NARS) for Endoscopic Ultrasound (EUS) and Endoscopic Retrograde Cholangiopancreatography (ERCP) - A prospective study of 410 procedures in a Danish University Hospital

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Aims

EUS and ERCP are uncomfortable procedures requiring adequate patient sedation for succesfull completion. In the last decades non-anesthesiologist sedation for advanced endoscopy often has been Midazolam in combination with an opiod or Nurse Administrated Propofol Sedation. In this prospective study we replaced Midazolam with Remimazolam, a new ultra short acting benzodiazepine. The study aim was to evaluate the feasibilty, safety and patient satisfaction with Nurse Administrated Remimazolam Sedation (NARS) for EUS and ERCP.

Methods

At the Advanced Endoscopy Unit, Department of Gastrointestinal Surgery, Aalborg University Hospital, Denmark, EUS and ERCP procedures were performed in sedation with Remimazolam combined with Alfentanil (a short acting opiod) from December 1st. 2022 until November 28th. 2023. The sedation was administered by the nurse under supervision of the endoscopist. Following data were collected prospectively: Gender, age, ASA score, all doses of Remizolam and Alfentanil adminstrated, endoscopic technical succes and procedural related adverse cardiopulmonary events. After the procedures the patients were asked regarding amnesia and the willingness to undergo a new procedure with the same type of sedation.

Results

Remimazolam and Alfentanil sedation was administered in 410 procedures: 257 (62.7%) EUS, 143 (34.9%) ERCP and 10 (2.4%) combined EUS/ERCP. Study population: 200 (48.8%) females and 210 (51.2%) males. Median age: 70.5 (17-92) years. ASA score: I=40 (9.8%), II=193 (47%), III=168 (41%) and IV=9 (2.2%). The mean dose of Remimazolam was 16.1mg (5-40) and Alfentanil mean dose was 0.68 mg (0.25-1). The overall technical succes rate was 96.3%. Mild cardiopulmonary adverse advents (transient hypoxia, low blood pressure or tachycardia) were observed in 11 (2.7%) procedures. None of these required procedural interruption, ventilation or anesthesiologist assistance. One patient had post procedure shivering and received an antidote injection. The procedures were performed in octogenarians defined as 80 years old or above in 62 (15.1%) cases, with mean Remimazolam dose of 13.2 mg (5-35) and mean Alfentanil dose 0.55mg (0.25-0.75). In the post procedure interview 310 (75.6%) of the patients claimed complete procedural amnesia and 94 (22.9%) partial amnesia. Six patients (1.5%) had no amnesia. All the participants reported willingness to undergo a new procedure with the same type of sedation.

Conclusions

Nurse Administrated Remimazolm Sedation (NARS) in combination with Alfentanil for EUS and ERCP was safe in this study, even for octogenarians and ASA III and IV patients. The technical succes rate was high. Most participants claimed complete procedural amnesia. Surprisingly, all the participants reported willingness to undergo a new procedure with the same type of sedation. This study suggest that Remimazolam is a safe and effective alternative to Midazolam or Propofol sedation for EUS and ERCP.

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