Sedation Practices for Gastrointestinal Endoscopy in Europe, North America, Asia, Africa and Australia

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Key Words

Sedation · Gastroscopy · Colonoscopy

Abstract

Gastroscopy and colonoscopy are standard practice for diagnosing upper gastrointestinal and colonic diseases. Sedation improves tolerance of the endoscopic procedures, but may be responsible for about 50% of the complication rate of the examination. Data from countries of the five continents regarding the rate of using sedation for gastrointestinal endoscopy are rare. We performed a literature search (PubMed) to identify published national or international studies and summarize data on the rate of using sedation for diagnostic gastrointestinal endoscopic procedures in countries of Europe, North America, Asia, Africa and Australia. In continents where data were not available, we used mailed questionnaires to endoscopy centers in countries of these continents. Our data indicate that the use of sedation for diagnostic gastrointestinal endoscopy is high in North America and Australia, but varies considerably among countries in Europe, Asia and Africa.

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Introduction

Routine diagnostic gastrointestinal (GI) endoscopy is the standard practice for diagnosing esophageal, gastric, duodenal and colonic diseases. It has very low complication and mortality rates [1] and may be done without or with a variety degree of conscious sedation, using a wide range of intravenous sedatives. The use of sedation improves the tolerance and acceptance of the examination [2], but increases the cost of the procedure and is responsible for about 50% of the GI endoscopy complication rates [3]. The decision to use premedication may be influenced by national and cultural differences among countries, as well as patient wishes and endoscopist's attitude to the examination.

The aim of this study was to summarize and present data from countries of the five continents on the rate of sedating patients for diagnostic gastroscopy and colonoscopy. For this purpose we searched PubMed to identify relevant English language publications, using proper key words. We identified a few national or international studies from Europe and North America investigating the rate of using conscious sedation for diagnostic GI endoscopy, but there were no data available from Australia, Asia or Africa. Therefore, for the purpose of this investigation, two of the authors conducted a mail questionnaire survey in these three continents.

Upper GI Endoscopy

Published national surveys have documented major differences among countries in the rate of using sedation for routine diagnostic gastroscopy in Europe. In Finland, only 1.5% of the endoscopists use sedation in about 25% of their patients [4]. In Spain, sedation is used in 17% of gastroscopies [5], and in Germany, most endoscopists use sedation in 10–50% of their patients [6]. In the UK, the sedation rate decreased by 54%, from 70% in 1990 to 32% in 1998 [7], while in Switzerland it increased, with 77% of the endoscopists sedating their patients in 2003 [8]. The results of a recent European survey (29 countries) showed that in about 50% of the countries, less than 25% of the patients undergo routine diagnostic upper GI endoscopy with sedation [9] (fig. 1). However, a wide variation of the rate of sedated gastroscopy was confirmed, as in 7% of the countries the sedation rate was higher than 75%.

A variety of sedatives were in use in these 29 countries. These included diazepam, midazolam, meperidine, fentanyl and propofol, with the most popular being midazolam and propofol [9]. It is important to note that in 8 of 12 countries where an anesthesiologist sedated the patients and propofol was included in the list of the preferred sedatives, the sedation rate was less than 25% [9].

Since most gastroscopy complications are cardiopulmonary, especially in sedated patients, monitoring is important to diagnose and prevent them [2, 3]. With the increasing rate of using propofol, the rate of respiratory depression could increase and therefore monitoring these patients is mandatory. According to a European survey [9], monitoring equipment was available in 91% of the responders' endoscopy units. However, in as much as 46% of the countries, monitoring was not available in the majority of endoscopy units. The lack of monitoring could also be a factor influencing the low sedation rate reported for these countries.

Data from the USA show that the vast majority (>98%) of upper GI endoscopies are performed with sedation. Sedatives mainly used are benzodiazepines (74%) and propofol (26%). Endoscopists monitor their patients with (at least) pulse oximetry (99%) [10].

Y. Satake received replies to his questionnaire from 45 centers in 7 countries in Asia and Australia. All upper GI endoscopies seem to be performed under sedation in Australia (2 centers). However, there is a large variation in the rate of using sedation among Asian countries, varying from 50–100% (fig. 2). In many Asian countries, not a few upper GI endoscopies are performed without sedation. Among sedatives, midazolam is used in all of

Fig. 1. Reported (questionnaire) sedation rates for diagnostic gastroscopy in 29 European countries in which endoscopy societies are members of ESGE. * IDNK: Data not available.

Fig. 2. Reported (questionnaire) sedation rates for diagnostic gastroscopy and colonoscopy in Asian countries and Australia. The numbers in parentheses represent the number of endoscopy centers which replied to the questionnaire.

countries and use of propofol has been experienced in every country which replied to the questionnaire. In most of the facilities, except of one in Australia, propofol is used in the presence of anaesthesiologist.

Data from Africa are only available from the ESGE mailed questionnaire study [9] where Morocco, Tunisia

and Egypt participated as ESGE members. The sedation rates for upper GI endoscopy reported from these countries ranged between 25 and 50%.

Colonoscopy

Like gastroscopy, in the past 5 years published studies from Europe show major differences among countries, as well as within the same country, of the rate of using sedation for colonoscopy. In a study of 14 Norwegian centers, the mean sedation rate was 37% (range 6–97%) [11]. Another study from 33 district hospitals in Portugal showed that sedation was used in 24.5% of the procedures [12], which is lower than the rate of 45.5% reported from 34 endoscopy centers from Romania [13]. A study from 278 centers, including 12,835 consecutive colonoscopies, in Italy showed that sedation and/or analgesia was used in about 50% of the patients [14]. In contrast, a study on colonoscopy practice in the UK, including 68 endoscopy units and 9,223 colonoscopies, showed a sedation rate of 94.6% [15]. A recently published study, including 21 centers from 11 European countries, confirmed the above data, reporting most patients (>85%) received conscious sedation in 9 centers, deep sedation in 5 centers and no sedation for most patients in 2 centers [16].

Midazolam (47%) for sedation and opioids (33%) for analgesia was the current sedation practice in 21 centers in 11 European countries [16]. Like upper GI endoscopy, pulse oximetry was used in 77% of the colonoscopies [17]. Lower figures have been reported in a multicenter study of colonoscopy practices in Italy [18]. In the USA and Canada, sedation and analgesia are used in almost all colonoscopies [10]. The mailed questionnaire survey by Y. Satake showed similar data to those of his gastroscopy survey. All colonoscopies seem to be performed under sedation in Australia, but there is a large variation in the rate of using sedation (50–100%) among Asian countries (fig. 2). In several Asian countries, many colonoscopies are performed without sedation. Among sedatives, midazolam is used in all countries and the use of propofol has been experienced in every country which replied to the questionnaires.

Conclusions

The above data indicate that in North America and Australia, almost all routine diagnostic endoscopic procedures are performed with conscious sedation. However, in Europe, Asia and Africa, the sedation rate varies among countries and even among centers of the same country.

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