Pain and sedation during colonoscopy – a never ending story

Oyvind Holme1,2, Michael Bretthauer1,2,3

1 Department of Medicine, Sørlandet Hospital, Kristiansand, Norway
2 Department of Health Management and Health Economics, University of Oslo, Oslo, Norway
3 Department of Transplantation Medicine and KG Jebsen Center for Colorectal Cancer Research, Oslo University Hospital, Oslo, Norway

In this issue of the journal, Iqbal and colleagues report on a study performed at 3 hospitals in the UK which shows that colonoscopy without sedation can be performed with an acceptable level of discomfort and with quality measures comparable to that achieved using conscious sedation [1]. Interestingly, in Iqbal’s study, patients examined without sedation experienced less pain and discomfort than did patients who received sedation.

The question is why. We believe that the answer is multifactorial, and includes endoscopist skills, patient expectations, traditions, insertion techniques, and endoscope equipment.

New generations of colonoscopes may enable us to improve not only adenoma detection and cecum intubation rates, but also patient experience. Thinner and more flexible endoscopes may cause less stretching of the mesentery, which is one of the principal sources of pain during colonoscopy. Pediatric endoscopes have been shown to achieve higher cecum intubation rates in difficult colonoscopies than in adult colonoscopies [3]. However, due to their softness, excess looping can occur, and pain scores rated by the patients are comparable to adult colonoscopies [3, 4]. Colonoscopes with adjustable stiffness improve cecal intubation rates compared to standard colonoscopes, but their ability to reduce patient discomfort has not been uniform in randomized trials. In a meta-analysis, pain scores were not different when variable stiffness colonoscopes were compared to standard colonoscopes [5]. One could imagine that combining the 2 inventions (variable stiffness and pediatric colonoscope) would reduce discomfort, but this was disappointingly not shown in a randomized trial in routine colonoscopy [4].

A major leap ahead was achieved with the introduction of very slim colonoscopes (with an outer diameter of 9.2 mm to 9.6 mm). Even if they are prone to cause excess looping, they induce less stretching of the mesentery and thus less painful colonoscopies. Cecum intubation abilities are not compromised with these colonoscopes as the length of the endoscopes is increased. In one randomized trial of unsedated colonoscopy with a super-slim endoscope, 200 patients were randomized to the slim-scope group, none of whom experienced severe pain, and 70% of the procedures were pain-free [6]. In another randomized trial, both maximum pain and overall pain were...
significantly reduced with the slim scope compared to a variable stiffness adult colonoscope [7]. New colonoscope prototypes, such as self-propelling scopes have not been evaluated in randomized trials that have assessed patient discomfort [8]. For many years, new technical improvements in colonoscopes have failed to significantly reduce discomfort during colonoscopy, propelling the increasing demand for deeper sedation. With the latest generation of super-slim scopes, that has changed. However, a drawback with slim endoscopes is their smaller working channel, making suction of fecal material and retrieval of polyps more difficult.

Iqbal and colleagues used air insufflation during colonoscopy. There is compelling evidence that water [9] and CO2 insufflation [10] instead of air significantly reduce patient pain and discomfort related to colonoscopy. Water or CO2, during insertion, combined with CO2 during withdrawal, are the methods of choice; air insufflation should be abandoned altogether as it represents outdated practice.

Unsedated colonoscopy requires different insertion technique. While sedated patients tolerate insertion by pushing through loops, negotiation and withdrawal and straightening out loops needs to be performed during insertion in unsedated colonoscopy. Thus, cecum intubation times in unsedated colonoscopy are often some minutes longer on average. But these minutes are well spent, as recovery time is much shorter than with sedation. In some countries, patients expect sedation during colonoscopy. That has often been used as an argument to continue with the use of sedation. It’s what patients are used to. However, in a study from the United States, it has been shown that patients are happy with unsedated colonoscopy if they are introduced to it properly [11]. And they certainly gain from it because of no need for recovery, escort or restrictions on driving an automobile.

So, we may be ready to perform painless, sedation-free colonoscopies with last-generation colonoscopes. The challenge is to convey this message to our patients and, not the least, to our colleagues. As Iqbal and colleagues describe in their report, hospital factors, rather than patient factors, may be barriers to sedation-free colonoscopy.

**Competing interests:** None

**References**

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