General Internal Medicine and Clinical Innovations

Review Article

Nasogastric tube monitoring to detect re-bleeding: Two cases and discussion

Stamatis Karakonstantis*, Despoina Arna, Sevasti Maragou, Dafni Korela, Ifigeneia Kassotaki and Charalampos Lydakis

2nd Department of Internal Medicine. General Hospital of Heraklion "Venizeleio-Pananeio", Heraklion, Greece

Abstract

Background: The use of nasogastric intubation in patients with gastrointestinal bleeding is controversial. In a recent systematic review, we did not find any evidence to support (or disprove) nasogastric intubation for monitoring patients for re-bleeding.

Case report: We present two cases. The first case represents a patient with continuing bleeding but an unclear source of bleeding (upper versus lower gastrointestinal tract). The second case represents a patient at very high risk for re-bleeding, i.e., a patient that could benefit from nasogastric tube monitoring.

Discussion: The 2 cases presented demonstrate the potential value of using nasogastric intubation for monitoring selected patients with upper gastrointestinal bleeding. Prospective studies are needed to clarify whether the potential benefits of such a practice would outweigh the associated discomfort and potential side-effects.

Introduction

Nasogastric (NG) tube placement is considered one of the most painful procedures [1], and very rare, significant adverse effects may occur [2]. The routine use of nasogastric intubation in patients with gastrointestinal bleeding for diagnostic, prognostic or therapeutic purposes is not currently recommended by most guidelines, and there is ample evidence to support this recommendation [3]. However, according to our recent systematic review [3], there is no evidence to support or disprove the use of NG intubation for monitoring patients with upper gastrointestinal bleeding to detect re-bleeding. Here, we present two relevant cases and then discuss this practice.

Case 1

An 80-year old male presented to the emergency department due to hematemesis and melena. Nasogastric aspiration revealed coffee ground contents. The patient had a history of hypertension, stage III chronic kidney disease, dyslipidemia, and heart failure. His medications included 100mg acetylsalicylic acid. The patient also reported a history of gastric surgery (Bilroth II) for a bleeding peptic ulcer about 30 years before. He also reported a history of colon diverticulosis and colon polyps with polypectomy three times in the past.

An endoscopy performed later the same day revealed an anastomotic ulcer with a clean base. No lesions were found in the efferent and afferent small bowel loops. However, due to continuing melena and a continuously dropping hematocrit a second-look endoscopy was performed 2 days later without new findings and no evidence of active bleeding or high-risk stigmata. The melena continued, and the patient required daily blood transfusions. Three days later, a colonoscopy was performed, which however was incomplete and only revealed black content. A repeat colonoscopy was recommended after a proper bowel preparation. Due to the patient's inability to cooperate with the intake of 4 liters of polyethylene glycol a nasogastric tube was placed. A subsequent colonoscopy did not reveal any source of the bleeding. However, bright red blood was recovered from the nasogastric tube, and the upper endoscopy that followed revealed oozing from the previously identified anastomotic ulcer. Bleeding was controlled endoscopically with injection of 14ml of epinephrine 1/10000 and surgical management was recommended in case of recurrence. No other lesions were identified. The patient was discharged a few days later. There was no recurrence of bleeding up to follow up 1 month later.

Case 2

A 70-year old male patient, with a medical history of arterial hypertension, diabetes mellitus and stage 3 chronic kidney disease, was transferred to our emergency department due to multiple episodes of hematemesis. A nasogastric tube had been placed before transfer to the hospital revealing large quantities of bright red blood, and the patient had been transfused with 2 blood units. An urgent endoscopy revealed active bleeding from a large (likely malignant) posterior duodenal ulcer. Bleeding was controlled with epinephrine injection and the gastroenterologist recommended surgical management. The surgeon was consulted. However, because the patient was stable, and the hematocrit was stable in 2 consecutive measurements (27.6%), conservative management was recommended. The nasogastric tube was removed, and the patient was monitored frequently and had normal vital signs. Later during the night, the patient became obtunded. He was found in shock (systolic blood pressure 50mmHg). A second nasogastric intubation revealed large amounts of bright red blood. Despite urgent transfusions and vasopressor support, the patient died of hemorrhagic shock before he could get transferred for surgery.

Correspondence to: Department of Internal Medicine. General Hospital of Heraklion "Venizeleio-Pananeio", Heraklion, Greece, E-mail: stamkar2003@gmail.com

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Discussion

These two cases illustrate that placing a nasogastric tube in patients with gastrointestinal bleeding remains common practice, despite ample evidence demonstrating a lack of benefit [3]. However, there is little evidence regarding the use of nasogastric tube for monitoring purposes. The first case represents an example where the use of nasogastric tube in a patient with persistent melena, and unconvincing upper endoscopy, helped confirm the source of bleeding. Therefore, monitoring with a nasogastric tube might be useful in selected patients with persistent melena due to transient recurrent bleeding to confirm the source of bleeding. The second case represents a patient at high risk for severe re-bleeding. Although not supported by evidence, monitoring with a nasogastric tube could have potentially identified re-bleeding earlier and could have led to more timely management of the patient.

Re-bleeding is an important predictor of UGIB outcomes (transfusion requirements, need for surgery, mortality, length of hospital stay) and occurs in 7-20% of patients despite endoscopic therapy [4,5]. Placement of a nasogastric tube in selected high-risk patients could in theory help with the early detection of re-bleeding. Our previous systematic review [3] did not identify any clinical study evaluating the use of nasogastric tube for monitoring gastrointestinal bleeding patients. Nevertheless, detection of a bloody aspirate is used to define re-bleeding in studies of gastrointestinal bleeding [6].

Many questions remain unanswered (3): 1) If an NG tube is placed, for how long is monitoring necessary? Most patients with peptic ulcers re-bleed within 72 hours, however re-bleeding at later time points can occur [5,7]. 2) Which patients are the best candidates for such a monitoring strategy? Presentation with hematemesis or a bloody nasogastric aspirate were previously identified as the strongest predictors of early re-bleeding (within 72 hours) in a retrospective study [5]. Other predictors of re-bleeding include: hemodynamic instability, active bleeding at endoscopy, large ulcer size, posterior duodenal ulcer, use of NSAIDs, a lower hematocrit and a larger volume of transfusion [8,9]. Of note is that our patient (case 2) had several of these risk factors. 3) Would monitoring with an NG tube improve outcomes?

Conclusion

In conclusion, although there is no evidence from clinical studies to support the use of nasogastric tube for monitoring purposes, this may be appropriate for selected high-risk patients. Studies are needed to prove the value and safety of this practice, and whether the potential benefits outweigh the discomfort and potential harms associated with NG placement.

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