The inpatient colonoscopy: A difficult endeavor

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The performance of colonoscopy on patients admitted to hospital is a common occurrence. There are a variety of indications for inpatient colonoscopies ranging from acute gastrointestinal bleeding to iron deficiency anemia to occult blood positivity. The practice of colonoscopy for these patients has become relatively commonplace, with most physicians rapidly scheduling the procedure and, in fact, many booking the patient directly to the endoscopy unit and obtaining the full history and consent at the time of the procedure.

This practice of inpatient colonoscopy clearly has some advantages with expedited assessment; however, there are a number of issues that limit the benefit of this procedure and may, in some cases, counterbalance the potential gain from the procedure. In the next two sections of 'Ask the Expert' we will present a 'Pro and Con' discussion for inpatient colonoscopy. In contradistinction to most 'Pro/Con' arguments, we have chosen to start with the limitations of colonoscopy in the setting of patients admitted to hospital. The opposing view will be presented in next month's *Journal*.

There is a plethora of literature on inpatient colonoscopy that demonstrates benefit and safety (1-6). At first glance, it seems that colonoscopy is something that should be offered routinely to inpatients without hesitation. Although the benefit has been demonstrated in many studies, most of these have concerned themselves with acute gastrointestinal bleeding. There are a number of reasons why the physician should hesitate before proceeding with an urgent colonoscopy.

INDICATIONS

Like many areas of gastroenterology, the indication for the procedure is the key to appropriateness. All too often, when major complications and/or litigation are involved, the element of discussion is brought back to the appropriateness of the indication for the invasive procedure. Unfortunately, the physician on call performing inpatient procedures may feel somewhat 'forced' into completing procedures for indications that may be marginal. Although ongoing gastrointestinal bleeding (3,7) with a negative upper endoscopy may be a reasonable indication for a colonoscopy, this can often be performed with no preparation and even more often can be performed as a flexible sigmoidoscopy, particularly in the setting of diverticular disease in which the bleeding is from the left side. Even when

the patient is complaining of bright red blood per rectum with hemodynamic instability, the reflex action of most gastroenterologists is to commence a colonic preparation and then perform a colonoscopy. The preparation often will take at least until the next day in most sites, and even then, has significant limitations noted below.

Perhaps more common indications for referral for colonoscopy in patients admitted to hospital include occult blood positivity and iron deficiency anemia (2,4). Both of these situations can and are managed routinely on outpatients; however, when the patient is in the hospital the physician often feels obligated to complete their investigations rather than arrange the studies on an outpatient basis. Therefore, there is a rapid response with an immediate procedure based on the presence of the patient in a convenient location as opposed to the value predicted by the study. Even more concerning is the fact that occult blood testing is performed extremely routinely in the inpatient setting. Although originally

designed for screening healthy patients for advanced colorectal neoplasia, in hospital it is routinely used to determine if the patient is bleeding. This derivation of the test has dubious importance and drives 'urgent' procedures that are performed for inappropriate indications. At the St Paul's hospital, Vancouver, British Columbia, it is not uncommon for patients intubated, ventilated, on multiple inotropes with multiorgan system failure on antiplatelet agents to have a well-meaning nurse perform an occult blood test and determine that it is positive, thus driving a consult to the gastrointestinal service and then often, a procedure that the attending endoscopist may feel obligated to perform. Although in theory the patient may have a bleeding source that is found, the overall benefit and the necessity to perform a procedure based on an inappropriately ordered initial test is questionable.

Other indications for urgent in-hospital procedures include abnormal results on radiological imaging in which a lesion is suspected in the colon. Sometimes this is associated with abdominal pain; again, both indications are routinely investigated as an outpatient and, in theory, could be performed on an outpatient basis. Perhaps the most common reason to perform a colonoscopy on a patient admitted to hospital in the Canadian system is that the patient will be placed on a long waiting list if it is arranged as an outpatient. This is perhaps the most dubious of indications, and because every endoscopist

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can simply 'bump' a patient from their slate on any given week, is unlikely to be acceptable as a necessary urgent procedure if their was a major complication and questions arose as to the necessity of the in-hospital colonoscopy.

To facilitate urgent endoscopist assessment in hospital, many units have an endoscopy room and staff dedicated on a daily basis to inpatients. This is convenient because it allows urgent assessment of appropriate patients with staff who are available for just that indication. Unfortunately, it also results in ease of availability for those physicians with a low threshold for endoscopy. There are a plethora of indications for endoscopy, and usually it is relatively easy to justify an indication for the procedure. Sometimes it seems that the more available endoscopy is, the more that it is performed. This leads to inappropriate 'urgent' endoscopy in which patients could theoretically be reviewed endoscopically at a later date; however, due to the presence of an 'empty' endoscopy room (if there were not enough emergency procedures that day) the balance in favour of endoscopic assessment becomes present. Additionally, typically there is a cost benefit to the endoscopist, who is financially rewarded for this action. At the St Paul's hospital, we have seen patients appear in the emergency department having taken a full preparation for 'urgent' colonoscopy simply because there were 'empty' slots that day on the emergency list. This is not a good indication for urgent procedures.

Many colonoscopies performed in hospital, therefore, likely could (and should) be arranged in an outpatient setting if adequate and expedited availability is present.

PREPARATION

The preparations used in inpatient colonoscopy vary from physician to physician (8-13). Typically, in the acute bleeding patients with a suspected lower gastrointestinal bleed, a purge preparation or no preparation at all (because blood is a purgative to the colon) is used. Many hospitals have gastrointestinal wards; however, with beds rarely available on these specialized wards, preparations are often administered in wards less familiar with the importance of an adequate cleansing of the colon. We have found that if an order is just written to the nursing staff without direct discussion with the patient, an adequate preparation rarely occurs (14,15). This is not surprising when one considers the negative reinforcement that a nurse receives with a successful preparation (particularly a debilitated hospitalized elderly patient who requires assistance with each and every bowel motion). Although at least one report (16) declared that outpatient and inpatient preparations were similar, we have not found this to be true at St Paul's hospital, where inpatient preparations are notoriously poor (17). This may limit completion of the procedure and lead to repetitive procedures or simply an incomplete examination with the associated risk of missing a significant lesion (18).

More often than not, unless a fellow or resident is directly assigned to ensure that the preparation was ingested, we see the preparation sitting in its entirety on the bedside of the patient the morning after they were supposed to ingest it. This leads to a second endoscopic booking and increased frustration in the endoscopy clinic. Even worse, is the patient whom everyone believes took the preparation; however, the endoscopic image of the rectum displays evidence to the contrary, and in this situation, the physician may choose to persist in completing the examination in the poorly prepped colon thus limiting the conclusions that can be drawn from the procedure.

Even with very cooperative patients, we have seen frustration with adequate preparations. Patients in hospital are less mobile and peristalsis appears directly affected by their overall conditions. The colonic preparations, even when ingested, do not appear to have the same effect. For some reason, when they are ingested as an outpatient, the result seems much improved in terms of cleanliness.

For these reasons, it seems that the way to ensure the cleanest colon for examination purposes is to have most patients evaluated as outpatients. Alternatively, assigning members of the endoscopy team (physician assistants, residents, fellows, etc) to assess each patient the morning of the procedure to ensure adequate preparation ingestion is beneficial.

COMPLEXITY OF THE PATIENT

The final reason to avoid colonoscopy in the hospitalized patient is the sheer complexity of these patients. Patients with multisystem disorders and on a plethora of medications undergoing multiple investigations simultaneously – all expedited because they are inpatients – are high-risk patients. These patients often have cardiac and respiratory issues (often acute) with electrolyte and delicate fluid balance issues for which sedation and a full colonic preparation may lead to further compromise.

Additionally, it is typically in this high-risk patient that the training endoscopist (typically a gastroenterology resident) (19) is learning the art of endoscopy. It is unfortunate that the most high-risk patients are the ones most likely to be exposed to the least-trained endoscopist; however, that is the situation in most Canadian centres. The patients in hospital are usually the ones seen by the gastroenterology team including residents and fellows and the expectation is that when they see the patient, they may have the opportunity to attempt the procedure. Clearly this depends on the level of training; however, in gastroenterology, it would be expected that all trainees should be able to at least start the colonoscopy after their first three months. In this situation, in which the patient will tend to have multiple comorbid disorders, be poorly prepped and perhaps acutely bleeding, some discretion with the appropriateness of using the trainee to perform the procedure is necessary because these patients can be very difficult to endoscopically examine, even for an expert endoscopist with many years of experience.

SUMMARY

The performance of colonoscopy on in-hospital patients can be fraught with frustration. Not only do these patients have multiorgan system failure and take multiple medications, they also tend to have poor preparation and mobility status. Their colonoscopies tend to be difficult to complete and often a resident is starting the procedure. The indications for performing in-hospital procedures are variable; many of these patients could be evaluated in an outpatient setting if adequate and expedited availability of endoscopy was present.

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