

Early Colonoscopy for Acute Lower GI Bleeding Usually Is Not the Answer



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This article reviews Shiratori, Y, Ishii N, Aoki T, et al. Timing of colonoscopy in acute lower GI bleeding: a multi-center retrospective cohort study. *Gastrointest Endosc* 2023 Jan;97(1):89-99.e10.

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STRUCTURED ABSTRACT

Question: Is early colonoscopy (<24 hours) beneficial to reduce re-bleeding or other clinically important outcomes compared to colonoscopy performed electively (24-48 hours) or late (48-120 hours) for patients hospitalized with an acute lower gastrointestinal bleed (LGIB)?

Design: Multicenter, retrospective study of patients who underwent a colonoscopy within 120 hours of admission for a LGIB.

Setting: Forty-nine hospitals in Japan.

Patients: Patients were from the CODE-BLUE-J study¹ of people hospitalized with acute LGIB at 49 participating hospitals in Japan. Exclusion criteria included: patients who had prior LGIB; patients who did not receive a colonoscopy (or received it after 120 hours); patients who had post-procedural bleeding, colorectal cancer, or other neoplasms; patients with an upper GI bleed; or those who had bleeding after a colorectal surgery. A total of 6,270 patients were identified.

Exposures: Patients were identified to have undergone early (within 24 hours), elective (24-48 hours), or late (48-120 hours) colonoscopy.

Outcomes: Primary outcome was 30-day rebleeding rate, defined as a significant quantity of fresh blood loss or passage of wine-colored stools after colonoscopy, associated with any of the following: systolic blood pressure <100 mm Hg, pulse rate \geq 100 beats/min, or >2 g/dL decrease in hemoglobin. Secondary outcomes included: (a) stigmata of recent hemorrhage, defined as the presence of active bleeding, detection of vessel or adherent clot; (b) 30-day mortality; (c) need for interventional radiology or surgery during the admission and after colonoscopy; (d) blood transfusion; and, (e) length of hospital stay, measured in days.

Statistical Analysis: This was a retrospective study that used inverse probability of treatment weighting to adjust for baseline characteristics. They then created propensity scores to account for covariates that would predict timing of colonoscopy, and performed inverse probability of treatment weighting to adjust for baseline characteristics among groups. The purpose of these steps is to mimic a randomized control trial in a retrospective study – where the baseline covariates are balanced between the arms of the study (in this case, early, elective, or late colonoscopy).

Results: Patients were identified to have undergone early (n=4,133), elective (n=1,137), or late (n=1,000) colonoscopy. Compared to both the elective and late groups, the early group had increased rate of identification of stigmata of recent hemorrhage, more endoscopic therapies performed, and a shorter length of hospital stay. However, the early group also had a higher 30-day rebleeding rate. There were no significant differences in the requirement for interventional radiology or surgery procedures, mortality, and transfused packed red blood cells among the groups. The findings are summarized in **Table 1**.

A subgroup analysis based on shock index (which reflects hemodynamic stability) and performance status (which reflects level of functioning, higher performance status is worse) found a benefit in early colonoscopy. Early colonoscopy had a significantly lower intervention or surgery requirement in the shock index \geq 1 cohort (odds ratio [OR] 0.27; 95% confidence interval [CI], 0.10-0.72) compared with late colonoscopy. There was an interaction with performance status, with markedly divergent odds of rebleeding among those with poor performance status (\geq 3), in early vs late (ref) colonoscopy: performance status 0-2: OR 2.48, 95% CI, 1.90-3.24 and performance status \geq 3: OR 0.46, 95% CI, 0.16-1.28.

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| | Rebleeding (OR; 95% CI) | Stigmata of recent hemorrhage (OR; 95% CI) | 30-day mortality (OR; 95% CI) | Radiology or surgical intervention (OR; 95% CI) | Blood transfusion needed (OR; 95% CI) | Length of stay (OR; 95% CI) |
|-------------------------|-------------------------|--|-------------------------------|---|---------------------------------------|-----------------------------|
| Early vs elective (ref) | 1.35; 1.127-1.62 | 1.79; 1.52-2.09 | 1.052; 0.44-2.53 | 1.02; 0.68-1.54 | -0.302; 0.66-0.06 | -0.820; 1.50 to -0.14 |
| Elective vs late (ref) | 1.712; 1.29-2.28 | 1.51; 1.19-1.91 | 1.362; 0.43-4.37 | 0.98; 0.58-1.66 | 0.433; 0.00-0.87 | -0.65; 1.75-0.45 |
| Early vs late (ref) | 2.26; 1.75-2.91 | 2.56; 2.09-3.14 | 1.63; 0.58-4.59 | 0.96; 0.62-1.48 | 0.06; 0.28-0.39 | -1.30; 0.04 to -0.55 |

Table 1: Odds ratios of outcomes between colonoscopy timing. CI, confidence interval; OR, odds ratio.

COMMENTARY

Why Is This Important?

Acute LGIBs pose a dilemma – as gastroenterologists, we know that colonoscopy plays an important role in diagnosis of the LGIB etiology, but that endoscopic therapy is limited. Previously, the 2016 ACG guideline² recommended a rapid bowel purge following hemodynamic resuscitation with colonoscopy performed within 24 hours to improve diagnostic and therapeutic yield. This contrasted with the British Society of Gastroenterology and the European Society of Gastrointestinal Endoscopy guidelines, which do not recommend early colonoscopy.^{3,4} This lack of consensus was driven by conflicting literature prior to 2016.⁵ While systematic reviews and meta-analyses have found at least higher rates of stigmata of recent hemorrhage and endoscopic intervention when colonoscopy is performed within 24 hours,⁶⁻⁸ 2 recent small randomized controlled trials (RCTs) have found no improvement in rebleeding or mortality with early colonoscopy.⁹⁻¹⁰

These data led to an updated 2023 American College of Gastroenterology (ACG) guideline: “we recommend performing a nonemergent inpatient colonoscopy, as performing an urgent colonoscopy within 24 hours has not been shown to improve clinical outcomes.”¹¹ Nevertheless, confirmatory data is needed. The authors of the present study note the difficulty in performing RCTs for acute LGIBs—particularly as it relates to sample size and ensuring populations are representative of what is seen in the real-world, but also the limitations in observational studies, which can lack granularity. This well-designed study attempts to correct for the shortcomings of both by mimicking a RCT with observational data, and its findings provide further support for the new ACG guideline recommendation.

Key Study Findings

Compared to both the elective (24-48 hours) and late group (48-120 hours), the early group (within 24 hours)

demonstrated increased rate of identification of stigmata of recent hemorrhage, more endoscopic therapies were performed, and length of hospital stay was shorter. However, early colonoscopy was associated with higher 30-day rebleeding compared to both the elective and late groups. There were no significant differences in the requirement for interventional radiology or surgery procedures, mortality, and transfused PRBCs among the groups.

Subgroup analyses showed that those with moderate or severe shock or those with poor performance status may benefit from early colonoscopy. Specifically, early colonoscopy in the moderate-severe shock group led to fewer additional procedures by radiology or surgery, and there was a non-significant decrease in rebleeding rate for the poor performance status group.

Caution

Given the retrospective nature of this study, there are some methodologic limitations that could not be overcome. The authors use propensity scores and inverse probability of treatment weighting to overcome the lack of randomization in study design. Although this could still lead to bias and can be susceptible to unmeasured confounders, the authors do an excellent job of showing the findings for the observed, imputed, and weighted imputed data. Also, they excluded anyone who did not receive a colonoscopy, which may reflect an exclusion bias itself. Lastly, it's hard to understand why the early group had a higher rebleeding rate, and

particularly why those with poor performance status may benefit from early colonoscopy.

My Practice

The updated ACG guidelines reflect my practice well. I generally recommend colonoscopy for hospitalized patients—but like the new guidelines, I consider whether the bleeding has stopped based on the patient's hemodynamic status and response to resuscitation. Among those persons who have undergone a computed tomography (CT) angiogram in the emergency room with evident extravasation, I recommend interventional radiology evaluation and embolization urgently. Otherwise, I recommend resuscitation, ideally holding anticoagulants, and a nonurgent inpatient colonoscopy. This study really bolsters that approach for me, but also highlights a new area of interest, that those with moderate-severe shock or poor performance status may be served by early colonoscopy. Personally, these subgroups may be similarly or better served by early CT angiogram and I am more apt to send them for CT angiogram (if their creatinine allows) than urgently perform a colonoscopy with attempts at rapid bowel purge.

For Future Research

I would like to see further evaluation of the authors' finding that those with poor performance status or high shock index can benefit in terms of early colonoscopy. In particular, I would want to know if CT angiogram provides the same (or greater) benefit in these groups, and if it is a more cost-effective

approach. That the early group also had higher rebleeding rates similarly suggests that CT angiogram may be an appropriate first step for durable hemostasis. Parsing these out could identify which subgroups of patients warrant early colonoscopy, which is especially critical given the resource intensive nature of colonoscopy.

Conflicts of Interest

Dr. Kumar reports no conflicts of interest.

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