Digestive Diseases and Sciences
https://doi.org/10.1007/s10620-024-08461-2

INVITED COMMENTARY

Estimating the Penalties of Cytopenias Pre-endoscopy: Is Enough Known?

Harsh Patel[1] · **Dhruvil Radadiya**[1]

Received: 26 March 2024 / Accepted: 18 April 2024

Given that diagnostic and therapeutic endoscopic procedures are less invasive than surgical interventions, they nevertheless carry risks, depending in part on the type of planned intervention. Patients are routinely informed of common risks such as infections, bleeding, and perforation prior to undergoing routine endoscopic procedures [1, 2]. Since the risk of bleeding and infection may be enhanced in patients with thrombocytopenia and neutropenia, respectively, these patients may engender apprehension in endoscopists pre-procedure. This reluctance is further intensified due to the absence of clear guidance from professional societies who have not published high-quality and novel evidence-based advice [3, 4].

In this issue of *Digestive Diseases and Sciences*, Loganathan and colleagues [5] conducted a systematic review and pooled analysis of post-procedural outcomes in neutropenic or thrombocytopenic patients undergoing gastroenterological endoscopic procedures. The outcomes of interest included bleeding in the thrombocytopenic patients (5%) and infection and 30-day all-cause mortality in the neutropenic patients (10% and 13%, respectively). Though the authors should be commended for their study of this clinically important topic, recommendations regarding safety await the availability of more robust data and further consideration of some of the limitations of the current study.

Their analysis remains limited due to its design and other issues inherent with studies on this topic; conclusions were constrained by the limited number of single-arm retrospective studies marked by small sample sizes and high heterogeneity. Without direct comparison arms, it is very difficult to interpret the significance of pooled outcomes in patients with thrombocytopenia and neutropenia compared with normocytic patients. Another unanswered concern is the contribution of pre-procedural platelet transfusions or antibiotics in thrombocytopenic and neutropenic patients, respectively, aimed at mitigating those higher risks. Four studies of thrombocytopenic patients [6–9] and three on neutropenic patients [10–12] reported pre-procedure platelet transfusion and antibiotics, respectively, although outcomes for those patients are not reported. The presence of both thrombocytopenia and neutropenia in the same patient, which is also commonly encountered in particular in patients with hematologic problems, could not be addressed since only one study included those patients. Moreover, the underlying disease contributing to thrombocytopenia or neutropenia and its acuity strongly inform the outcome and laboratory thresholds used [13, 14]. Subsequently, the management of cytopenias is also dependent on their etiology and acuity. For example, the approach to addressing a febrile neutropenic patient with acute leukemia markedly contrasts with that for a patient with benign cyclic neutropenia, despite a similar absolute neutrophil count (ANC). In cases of uncertainties surrounding the interpretation of the complete blood count (CBC), it is advisable to seek expert consultation from our hematology and oncology colleagues.

The key to discussing risks and benefits with patients is to understand that risk varies with the planned intervention and also with patient factors, such as age, and comorbidities, and the etiology and acuity of the cytopenia. The authors could not stratify outcomes based on different endoscopic procedures or endoscopic interventions within the same procedures, since no accounting was made for key individual interventions, such as the number of biopsies or size and number of polyps removed. Therefore, the authors' conclusion that it is safe to perform interventions in these populations awaits further justification.

In summary, comparative studies with appropriate matching of baseline patient and procedure characteristics are needed to better confirm or refute elevated risks for thrombocytopenic and neutropenic populations. Future studies

✉ Dhruvil Radadiya
Dhruvil.radadiya3@gmail.com

[1] Division of Gastroenterology, Hepatology and Motility, Department of Internal Medicine, University of Kansas, Kansas City, KS, USA

Published online: 13 May 2024

should aim to report the severity of thrombocytopenia and neutropenia at inclusion and then report distinct outcomes for types of procedures such as EGD, colonoscopy, EUS, or ERCP as well as interventions performed (diagnostic vs therapeutic). Once those data are available, they should be followed by studies assessing outcomes with interventions intended to curb those risks. In the meantime, the study by Loganathan and colleagues can help guide clinical decision making by providing preliminary and unverified estimates regarding outcomes in these patient populations, pending the availability of higher-quality evidence.

Funding None.

Declarations

Conflict of interest All authors declare that they have no conflicts of interest.

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