

## **The risk of bleeding following therapeutic endoscopy is low in patients with cirrhosis**

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**Background:** Patients with cirrhosis may be at increased risk of bleeding after invasive procedures due to defects in coagulation; however the bleeding risk following therapeutic endoscopy remains poorly understood. We aimed to determine the incidence and risk factors for post-procedural bleeding for patients with cirrhosis undergoing therapeutic endoscopy.

**Methods:** We performed a retrospective cohort study of patients undergoing three common endoscopic procedures (colonoscopic polypectomy, endoscopic variceal ligation, and biliary sphincterotomy) at Indiana University Hospital between 2007 and 2014. Clinical and procedural data were collected, including complications in the 30 days following the procedures.

**Results:** We identified 447 procedures: 128 polypectomies, 63 sphincterotomies, and 256 variceal ligations. The incidence of bleeding was 2% (4 polypectomies, 1 sphincterotomy, and 4 variceal ligations) after a median of 4.5 days. Prophylactic platelet transfusions were provided to 11 patients and plasma was transfused in 17 patients. Of those who received prophylactic transfusions, only one bled (post-polypectomy despite prophylactic hemoclip placement). The patients that bled had a median INR of 1.48 which was slightly elevated compared to the overall median INR 1.26. Post-polypectomy bleeding occurred following removal of fairly large polyps (8, 9, 10, 25 mm) compared to the median overall polyp size of 5 mm.

**Conclusion:** The incidence of bleeding for patients with cirrhosis undergoing therapeutic endoscopy is low. More data on post-procedural bleeding are needed to determine risk factors and to inform appropriate prophylactic measures. These data may be used to guide clinicians in counseling patients prior to these procedures.