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Predictive Factors for Endoscopic Hemostasis in Patients with Upper Gastrointestinal Bleeding

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See "Predictive Factors for Intractability to Endoscopic Hemostasis in the Treatment of Bleeding Gastroduodenal Peptic Ulcers in Japanese Patients" by Naotaka Ogasawara, Mari Mizuno, Ryuta Masui, et al., on page 162-173

Upper gastrointestinal bleeding (UGIB) is the most common gastrointestinal emergency; the annual incidence of hospital admission for UGIB is 0.1%. The most common cause is peptic ulcer bleeding (PUB), which is noted in 31% to 67% of all cases.¹ Mortality rates have remained unchanged at 6% to 8% because of patient characteristics such as older age, higher incidence of concurrent illness, and high hospitalized chance.² Endoscopic treatment of UGIB has recently advanced by the administration of high-dose intravenous proton pump inhibitors (PPIs). It has been noted that 70% of patients with UGIB stop bleeding spontaneously without recurrence, 10% bleed continuously, and 20% experience continued or recurrent bleeding in the first 24 to 72 hours. Despite improvements in endoscopic hemostasis and pharmacological therapies, upper gastrointestinal (UGI) ulcers rebleed in 10% to 20% of patients.³

Therefore, determining the factors involved in rebleeding after initial endoscopic hemostasis is extremely important for patients with UGIB. In addition, understanding the factors that contribute to intractable or insufficient initial endoscopic hemostasis is needed to improve the management of such ulcers.

This Japanese study focused on defining the factors associated with the intractability to endoscopic hemostasis in patients with bleeding upper gastroduodenal peptic ulcers.⁴

Received: January 29, 2014 Revised: February 21, 2014

Accepted: February 23, 2014

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In general, the main predictors for rebleeding after endoscopic hemostasis were hemodynamic instability, comorbidity, active bleeding, large ulcers, and exposed vessel characteristics.

The risk of bleeding peptic ulcers associated with nonsteroidal anti-inflammatory drug (NSAID) use in patients with *Helicobacter pylori* is well-known, but the risk factors for bleeding after initial hemostasis are different.⁵ Although these two main risk factors are causal factors for bleeding in patients with peptic ulcers, they cannot be the main deciding factors for rebleeding after initial hemostasis in PUB.

The most important factors are endoscopic factors relating to stigmata size and location, and successful endoscopic hemostasis using the correct hemostatic method.⁶ This study shows that exposed vessels with a diameter of ≥ 2 mm on the bottom of ulcers (odds ratio [OR], 4.38; 95% confidence interval [CI], 1.25 to 4.01) and Forrest type Ia and Ib (OR, 2.21; 95% CI, 1.33 to 3.00) predicted intractable endoscopic hemostasis. The diameter or the number of exposed vessels can be the risk factor determining the success of endoscopic hemostasis. Control of bleeding from vessels with large diameters cannot be achieved by mechanical clipping or simple thermal coagulation; endoscopists should be more careful to control stigmata. A difficult location can also be an important deciding factor for successful endoscopic hemostasis, especially mechanical hemostasis. However, thermal coagulation such as argon plasma coagulation can be a compensatory method in cases of incomplete mechanical hemostasis because of a difficult location.

This study shows that among 119 of our patients who were administered low-dose aspirin (LDA), 26 (21.8%) were intractable to initial endoscopic hemostasis. However, LDA, steroids, and NSAIDs were not risk factors for intractability to endoscopic hemostasis, which was in agreement with previous

findings.⁴ However, in clinical practice, the use of anticoagulants and antihemostatic agents can be important factors for successful endoscopic hemostasis. Endoscopists should pay careful attention to achieving endoscopic hemostasis. Further large-scaled and detailed studies are needed to explore this.

A new interesting result of this study is that hypoalbuminemia was a deciding factor; the authors explained that hypoalbuminemia might reflect a reduction in the serum coagulation factor level. Both hypoalbuminemia and a loss of serum coagulation factors might delay mucosal healing after injury and result in intractability to endoscopic hemostasis. This conclusion would need a proper evaluation of the blood profile, and could be a deciding factor in patients with liver cirrhosis and those taking anticoagulants and antihemostatic agents.

Furthermore, the authors analyzed the individualized risk factor for emergent or scheduled second-look endoscopy after initial hemostasis. This study showed that emergency endoscopy after the first endoscopic hemostasis was significantly associated with shock ($p < 0.05$) and exposed vessels with a diameter of ≥ 2 mm on the bottom of the ulcer ($p < 0.0001$) and Forrest bleeding type Ia ($p < 0.001$ compared with Ib, $p < 0.0001$ compared with IIa). The risk factors for emergency endoscopy after the first endoscopic hemostasis were similar to those for intractability to endoscopic hemostasis determined by univariate or multivariate analysis. I would like to mention the importance of the experience of the endoscopist and preendoscopic or postendoscopic PPI medication in this situation. I anticipate more large-scaled or detailed studies will be undertaken.

Recently, transarterial embolization (TAE) has been considered an alternative to salvage surgery. TAE reduced the number of complications and the need for surgery without increasing overall mortality.⁷⁻⁹ Although several studies have demonstrated the use of TAE for treating acute hemorrhage from UGI ulcers,^{10,11} the choice of TAE or surgery after failed endoscopic treatment depended on the discretion of the operating surgeon or physician and the interventional radiologist. As the authors mentioned as a limitation of their study, only one patient received TAE after a failed third endoscopic hemostasis; this situation results in a high rate of operations or morbidity related to surgery. Endoscopists must adhere to strict guidelines when selecting TAE or surgery; more detailed consensus and clinical experience are needed.

I would like to highlight several important issues that could be the possible limitations of this study. First, the various factors for practical endoscopic hemostasis should include the experience of the endoscopist, the procedure time, and the hemostatic method. The experience of the endoscopist performing each endoscopic hemostasis is the main deciding factor; correct and safe endoscopic hemostasis is the most impor-

tant issue in mechanical or thermal hemostasis. Endoscopists need adequate training and learning time to ensure the best outcome of endoscopic hemostasis.¹²

Second, preendoscopic or postendoscopic PPI medication is also an important issue influencing the endoscopic outcome for PUB; preendoscopic PPI use can decrease endoscopic risk factors and enhance the visual field for various endoscopic situations.¹³ Some studies propose PPI medication as the most important deciding factor for the outcome of endoscopic hemostasis.¹⁴

In conclusion, predictive factors for endoscopic hemostasis include various clinical, pharmacologic, diagnostic, and therapeutic endoscopic factors. More detailed prospective studies are needed to determine which factors are associated with unsuccessful endoscopic hemostasis in order to obtain the best therapeutic outcome.

Conflicts of Interest

The author has no financial conflicts of interest.

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