Doppler Endoscopic Probe-Guided Treatment of Dieulafoy's Bleeding: Hearing Is Believing

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Tweet: Largest cohort study demonstrated superior 30-day rebleeding with Doppler monitoring of severe upper GI hemorrhage from Dieulafoy's lesions as compared with visually guided treatment, limited by small sample and non-randomized, non-controlled study cohorts.

Severe upper gastrointestinal hemorrhage (SUGIH) is one of the most common reasons for inpatient gastroenterology consults in the intensive care unit. Although peptic ulcer disease is the most commonly encountered pathology, Dieulafoy's lesions (DL) have been reported as the cause in about 1–2% of upper GI bleeding, with some studies reporting rates up to 10% [1]. The key to endoscopic hemostasis of a DL is its visualization and accurate localization, both of which can be near impossible in the absence of active bleeding. Although a recently bled DL does not leave any mucosal ulceration, an actively bleeding DL can be difficult to localize in the presence of pooled blood and/or clots.

Owing to the fact that DL are large submucosal arteries, arterial blood flow monitoring via Doppler endoscopic probe (DEP) is an ideal modality to map the arterial location and document its obliteration after endoscopic intervention. Nevertheless, the use of DEP is not established in the management algorithm of SUGIH. In this issue of *Digestive Diseases and Sciences*, Nulsen et al. analyze the utility of DEP in the monitoring of blood flow and guided treatment of DL [2]. The authors retrospectively identified 82 consecutive DL patients from the CURE hemostasis database and compared the 30-day outcomes of patients with SUGIH from DL with DEP to standard visually guided hemostasis (VG).

From the studied full cohort of patients with DL, rebleeding after a negative post-treatment DEP signal occurred in 10.5% of patients at 30 days, compared with 33.3% of

patients treated with VG. Poor clinical outcomes were noted in 10.5% of the DEP cohort compared with 41.3% in VG. Moreover, the authors added statistical value to the observed outcomes by incorporating propensity score matching to the analysis, wherein both rebleeding and composite outcomes were significantly more likely in patients treated with VG as compared with DEP.

First and foremost, I congratulate the authors for reporting on the use of DEP in a rare yet significant entity of SUGIH secondary to DL. Data addressing DEP in DL are limited and prospective studies comparing the treatment modalities for DL are scarce, as the authors mention. This study is the largest cohort of DL patients studied thus far and therefore adds value to the published literature. Furthermore, this is the first paper to compare the outcomes between DEP- and VG-guided treatment for DL.

It is understandable that apart from underlying patient comorbidities that can complicate an upper GI hemorrhage, the actual endoscopic hemostasis technique significantly contributes to predicting a rebleed. The authors, to their best, have managed to achieve a certain degree of homogeneity in the endoscopic hemostasis techniques owing to the fact the same cadre of the Centre for Ulcer Research and Education (CURE) hemostasis endoscopy attendings were involved in the management of SUGIH in both cohorts being compared.

Apart from the use of Doppler pre- and post-treatment in the DEP group of patients, the majority of these patients were subjected to the use of Hemoclips (HC) and Over-the-Scope clips (OTSC®) in order to achieve hemostasis as compared to the VG group. The use of mechanical hemostatic devices was 100% in the DEP group as compared with 49.2% in the VG group ($p < 0.001$). Indeed, this fact is reflected in the randomized cohort analyzed by the authors, wherein a non-significant difference was noted in the 30-day rebleeding rate between the cohorts. Although rebleeding occurred in 37.5% of VG patients compared with 11.1% of DEP patients, the small sample size appeared to be the primary limiting factor, which the authors acknowledged. Other limitations acknowledged by the authors included lack

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of randomization, a small study sample, and differences in the use of treatment modality between the groups as well as possibly between centers, an example being the lack of endoscopic band ligation in the study group, all of which is appropriately highlighted. Despite the limitations, the authors have given the readers a perspective on the potential advantages of incorporating a DEP-guided treatment strategy to DL related SUGIH.

Given the notion of “hearing is believing,” although DEP monitored obliteration of residual arterial blood flow in SUGIH due to DL does hold promise for the future, a recommendation to routinely incorporate DEP in such clinical circumstances is bound to raise controversy based on this study alone. In the future, well-conducted, adequately powered RCTs are warranted in order to establish the difference between DEP and VG cohorts with absolute certainty. Only then, such a recommendation can be put into routine practice. Although DEP can be easily used pre- and post-treatment to assess blood flow through the working channel of a standard endoscope without having to change the endoscope, widespread availability and training are important

considerations as is the cost-effectiveness of incorporating DEP into daily clinical practice of SUGIH suspected from DL. Future studies should additionally address these important practical issues. After all, hearing is believing!

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