



## Prophylactic EUS-guided gallbladder drainage: Are we doing too much?

The idea of prophylactic cholecystectomy has been a traditional surgical concept to prevent patients from experiencing the adverse events associated with gallstone disease. Patients with acute biliary pancreatitis are advised to receive cholecystectomy in the same admission to avoid the recurrent biliary-related events observed in  $\leq 18\%$  of patients.<sup>1,2</sup> Similarly, in patients with common bile duct stones with endoscopic clearance, prophylactic cholecystectomy is also advised to prevent the recurrent biliary-related events observed in  $\leq 24\%$  of patients.<sup>3</sup> In a Cochrane review evaluating the role of cholecystectomy in patients with endoscopic sphincterotomy and bile duct clearance, which included 5 randomized trials with 662 patients, patients who had adopted a wait-and-see policy had a 78% increased risk of mortality and also had higher rates of recurrent biliary pain (RR, 14.56; 95% CI, 4.95-42.78:  $P < .0001$ ), jaundice, or cholangitis (RR, 2.53; 95% CI, 1.09-5.87:  $P = .03$ ), and of repeated ERCP or other forms of cholangiography.<sup>4</sup> The authors also concluded that prophylactic cholecystectomy should be offered to patients whose gallbladders remain in situ after endoscopic sphincterotomy and common bile duct clearance.

In the current study by Robles-Medranda et al,<sup>5</sup> patients with malignant distal biliary obstruction with cystic duct obstruction were randomized to whether or not to have their gallbladders prophylactically drained by EUS (EUS-GBD), simulating a prophylactic cholecystectomy. They found that 27% of the patients who did not have their gallbladders drained experienced recurrent acute cholecystitis. The median hospital stay was also longer in this group. Hence, a potential benefit of prophylactic gallbladder drainage was demonstrated in this group of patients.

The next question we should then ask is whether or not prophylactic gallbladder drainage should be performed in this group of patients. The decision may be based on weighing the risks versus the benefits in doing the procedure, which needs to be tailored to each patient individually. Regarding the indication for prophylactic EUS-GBD, it is markedly different from the scenario whereby prophylactic cholecystectomy is offered to patients with gallstone

disease. In addition, in patients with unresectable malignancies, the health status of the patient should be considered. The health status in this group of patients could range from terminal illness to good response to chemotherapy with longer life expectancy. Hence, the perceived benefit of prophylactic EUS-GBD would be greater in those with better life expectancy. In terms of the risks of EUS-GBD, the procedure is relatively safe, with a low risk of peri-procedural adverse events observed by those trained with the procedure; thus, prophylactic EUS-GBD would be more justified when the expertise is available.<sup>6,7</sup> Finally,

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one also needs to consider the cost effectiveness of EUS-GBD on reducing the cost of readmission and reinterventions. In a budget impact analysis, the cost of the stent accounted for the major cost difference between the 2 procedures.<sup>8</sup> EUS-GBD saved on the cost in management of adverse events, reinterventions, and unplanned readmissions, but these did not offset the cost of the stent. Hence, for prophylactic EUS-GBD to be cost effective, cheaper stents for EUS-GBD will be required. With a few new single-step lumen-apposing stents becoming available, the cost of these devices should be on a downward trend, potentially making EUS-GBD more cost effective.<sup>9,10</sup>

In conclusion, the role of prophylactic EUS-GBD is an interesting concept that will require more studies for evaluation. The decision on performing prophylactic EUS-GBD will need to be tailored individually after full discussion of the risks and benefits with each patient.

### DISCLOSURE

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Abbreviation: EUS-GBD, EUS-guided gallbladder drainage.

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