1

The Utility of Repeat Esophageal Manometry
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Purpose: Esophageal manometry (EM) is routinely performed in the evaluation of dysphagia, chest pain and gastroesophageal reflux (GER). The clinical utility of EM has been previously described; however, the utility of repeating EM has not been studied. The aim of this study was to evaluate the clinical utility of repeating EM by determining whether repeat EM provides new information or changes diagnosis.

Methods: We conducted a retrospective review of consecutive patients who underwent at least two EM studies at a tertiary medical center between 2002 and 2012. All EM studies were performed with solid-state catheters and read by one of two experienced gastroenterologists.

Results: From 2002-2012, 132 patients underwent at least two EM studies. The mean age of patients was 52.7; 73% were female. There was an average of 20.8 months between EM studies. EM was repeated to evaluate symptoms of dysphagia (48.9%), chest pain (11.4%) and GER (37.9%), and to rule out chronic intestinal pseudo-obstruction (2.3%). Overall, 76 (57.6%) had a change in diagnosis between the first and second EM. Four patients (3.0%) were identified as having achalasia on the second EM; the average time between EM in these patients was 7.5 months. Other new diagnoses included diffuse esophageal spasm (n=3; 2.3%), nutcracker esophagus (n=5; 3.8%), ineffective esophageal motility (n=21; 15.9%), motor failure in the body of the esophagus (n=6; 4.5%) and hypotensive LES (n=8; 6.1%). Additionally, 29 patients (22.0%) with a previously abnormal EM were found to have a normal EM when restudied. Of the patients with a change of indication between EM1 and EM2, 67% had a new diagnosis on EM2.

Conclusion: In this retrospective review, the diagnosis changed in 57.6% of patients in whom EM was repeated. Patients with a change of indication between EM1 and EM2 had the highest rate of a new diagnosis on EM2. Repeating EM is reasonable if symptoms of dysphagia or chest pain persist or if symptoms change over time.

2

Randomized, Placebo-Controlled, Crossover Pharmacodynamic Study Comparing the Effects of Zegerid® Capsule to Prevacid® Delayed-Release Capsule

Purpose: The primary objective was to evaluate the difference in the onset of action between two PPIs in fasting subjects on the seventh day of treatment. The secondary objectives included evaluations such as the difference in the onset of action in fasting subjects on the 1st day of treatment, the median time to an intragastric pH >4.0 for 10 consecutive minutes after drug administration on day 1 and day 7 of treatment, etc.

Methods: Subjects were healthy male or female non-Asian adults within the age range of 18-65 years. Subjects were randomized in a three-way crossover to either Zegerid Capsules (20 mg omeprazole/1100 mg sodium bicarbonate), Prevacid Capsules (15 mg lansoprazole), or no treatment. The treatment or no-treatment periods were 7 days. There was a minimum two-week washout period between treatments. Subjects underwent a 24-hour intragastric pH study on the first and seventh days of each period. A total of 63 subjects were randomized, and 59 completed per protocol. The primary efficacy endpoint was the earliest time for which a statistically significant difference between the median intragastric pH scores for the three consecutive five-minute intervals at steady-state on day 7. Secondary efficacy endpoints included evaluation of primary efficacy endpoint on day one, determination of the time to sustained difference in inhibition of intragastric acidity between the two active study treatments on day 1 and day 7, etc. A total of 14 subjects experienced 21 treatment-emergent adverse events.

Results: Zegerid achieved significant difference over Prevacid on day 7 for all of the five-minutes post-dose intervals beginning at the 10-15 minute interval (p = 0.0242) and sustaining through the 115-120 minute interval (p = 0.0170). On day 7, over the 24-hour period, Zegerid maintained pH > 3.5 and 4 significantly longer than Prevacid (p=0.0075), and held the pH > 3.5 and 4 more than 50% of the time (at least 12 hours; p=0.0219). Zegerid maintained the pH >4 significantly longer than Prevacid during the first four hours after dosing, with the first dose on day 1 (p = 0.0021), and the last dose on day 7 (p <0.0001).

Conclusion: Zegerid capsules provide a significantly stronger acid suppressing pharmacodynamic effect, both in onset and duration of effect, than Prevacid capsules. The results also confirmed significant pH control over placebo in both active treatments. Both Zegerid and Prevacid were safe and well-tolerated.

Disclosure: Dr. McGraw, and O’Malley are employees of Merck. Dr. Pratha is a Merck consultant, and the investigator. Mr. Tobin is employed by the CRO that provided study support services for Merck (performed the analyses, etc.). This research was supported by an industry grant from Merck.

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Cryotherapy for Palliation of Malignant Dysphagia
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Purpose: Cryotherapy is an established therapy for the ablation of Barrett’s esophagus with dysplasia or intramuscular carcinoma. Our center has also performed cryotherapy for the purpose of palliation of malignant dysphagia in patients who were not candidates for esophagectomy; however, little literature exists for the use of cryotherapy for this purpose. Our aim was to report a single center experience with cryotherapy for palliation of malignant dysphagia without curative intent.

Methods: We conducted a retrospective chart review of all patients who underwent cryospray ablation at DHMC for the indication of dysphagia palliation without curative intent. Patients were treated endoscopically with liquid nitrogen spray cryotherapy (Cryospray Ablation System, CSA Medical, Baltimore, MD). After application of spray cryotherapy, the tumor was either debulked with the assistance of a cap or the ablated area was dilated with a TTS balloon.

Results: Eight patients underwent a total of 18 cryotherapy procedures for the purpose of palliation of dysphagia secondary to distal esophageal adenocarcinoma. Patients had stage T1 (n=1), T3 (n=4), T4 (n=2), and unknown stage (n=1). Tumor debulking was unsuccessful in one patient secondary to inability to advance the Cryospray catheter alongside the decompression tubing. Three patients then went on to receive palliative chemoradiation after cryosurgery. Of the seven patients in whom Cryosurgery therapy was completed, five (71%) had documented improvement in dysphagia symptoms after cryotherapy. Three patients underwent serial cryotherapy procedures for malignant dysphagia; the average interval between procedures was 9 weeks. Two patients had no improvement in dysphagia; one patient was able to undergo successful esophageal stent placement 3 weeks after cryotherapy.

Conclusion: Spray cryotherapy for the palliation of malignant dysphagia through tumor debulking is technically feasible, provided that the tumor is not completely obstructing the esophageal lumen. However, the efficacy of cryotherapy compared to other palliative measures such as stenting remains unknown. Cryotherapy for palliation of malignant dysphagia should be further studied in a prospective manner.

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Beware of the Darkness
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Purpose: “Acute esophageal necrosis,” also known as black esophagus is distinctive endoscopic appearance of esophagus.

Methods: A 60-year-old man with a history of chronic diabetes and alcohol abuse presented to emergency room with a month history of watery diarrhea, intermittent nausea/vomiting, and 20-lb weight loss. Laboratory results showed normochromic neutropenic anemia, elevated liver function test, and ESR 29. Computed tomography (CT) scan of thorax and abdomen revealed free fluid in the abdomen and a 9×15 cm left pleural effusion. Patient had a previous Whipple’s procedure due to pancreatic pseudocyst secondary to alcoholic pancreatitis. Examination revealed a frail, malnourished male with stable vital signs and conjunctival pallor. Cardiac, respiratory, abdominal and neurological examinations were unremarkable. Laboratory exam revealed hemoglobin 7.4 g/dL, WBC 9.7 x10^9/L, INR 2.4. Stool tests for Clastridium difficile toxin and enteric pathogens were negative. Patient was started on IV fluids and transfused two units of packed cells. An upper endoscopy done following an episode of hematemesis revealed circumferential “blackened distal esophageal mucosa” with clear demarcation at the gastro-esophageal junction and isometric changes in the duodenal mucosa, characterized by linear ulcers and scattered echare formation. Subsequently, he had a massive upper GI hemorrhage- unresponsive to blood transfusion and fluid resuscitation. Patient died of hypovolemic shock and multi organ failure.

Results: Acute esophageal necrosis is an uncommon endoscopic finding described as diffuse black discoloration of the distal esophagus with clear demarcation at the gastro-esophageal junction. Incidence is 0.01% to 0.2% of upper GI endoscopies. Mortality ranges from 35-50%. It is attributed, in part, to hypersurfusion and direct acidic injury due to massive reflux of gastric content. Risk factors include alcohol abuse, advanced age, male gender, malignancies, gastric outlet obstruction, hypercoagulable state, and diabetes. Patients may present with nausea, vomiting, heart burn, hematemesis, and melena. It should be differentiated from caustic injury, anachrosis nigricans, pseudomelanosis, and coal dust deposition. Treatment includes nasogastric tube insertion, blood transfusions, IV proton pump inhibitors and total parenteral nutrition until recovery, which can take 3-4 weeks. Unusual complications include perforation, mediastinitis, stricture formation, and secondary infection.

Conclusion: Black esophagus is an indication of diffuse esophageal necrosis and high mortality; and should be monitored in critical care setting.

5

Upper Esophageal Sphincter Abnormalities Are Strongly Predictive of Treatment Response in Patients with Achalasia
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Purpose: The introduction of high resolution esophageal manometry (HRM) has allowed the ability to assess the upper esophageal sphincter (UES). However, UES abnormalities are often interpreted as incidental findings with no defined surgical indications. Upper esophageal sphincter abnormalities are associated with dysphagia in patients with achalasia. It is unknown how prevalent such abnormalities are in patients with achalasia. This study aimed to determine the prevalence of upper esophageal sphincter abnormalities in a cohort of patients with achalasia and their association with swallowing dysfunction.

Methods: We performed a retrospective study of 41 consecutive patients referred for HRM with a final manometric diagnosis of achalasia. Patients were sub-divided by presence or absence of UES abnormality, and clinical and manometric profiles were compared. Correlation between UES abnormality and...