Age and Dysynergia Subtypes Associated with Normal Sphincter Pressures in Women with Fecal Incontinence

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Introduction: Fecal incontinence (FI) has a prevalence of 7-15% and is frequently associated with low sphincter pressures, sensory abnormalities, and advanced age. Initial management often focuses on pelvic floor strengthening exercises and medications. Twenty-three percent of patients with FI have 100% of healthy patients demonstrate patterns of dysynergic defecation (DD) on high resolution anorectal manometry (HRAM). Some DD patients may present with overflow incontinence, which typically does not improve with pelvic floor strengthening. Our aim was to identify factors associated with normal sphincter pressures in women with FI undergoing evaluation with HRAM and balloon expulsion testing (BET).

Methods: We reviewed medical records of HRAM and BET in 134 women with FI (Rome III). Patients with normal resting and squeeze anal pressures were compared to those with abnormal pressures using Wilcoxon rank sum test for continuous variables and Fisher's exact test for categorical variables. Multi-variable logistic regression was performed to identify factors associated with normal resting and squeeze anal pressures through a backward elimination approach, where continuous variables were dichotomized using the cutoff values determined by maximizing the Youden index from the Receiver Operating Characteristic (ROC) curves.

Results: Among 134 females, abnormal resting and/or squeeze pressures were identified in 113 and normal resting and squeeze pressures were identified in 21 (Table 1). Women with normal sphincter pressures were younger (mean age 52.7 vs. 59.0, P = 0.036) and more often had normal defecation indices (100% vs. 83.2%, P = 0.043) compared to women with abnormal pressures. There was an overall association between dysynergia subtype on ARM and sphincter pressure (P = 0.021). Results of the logistic regression demonstrated that dysynergia subtype 1 or 3 (OR 7.2, 95% CI 1.8 - 28.8) and age 67 years (OR 8.5, 95% CI 1.5 - 48.6) were associated with greater odds of having normal sphincter pressures.

Conclusion: FI patients with normal sphincter pressures are more likely to be younger and have Type 1 or Type III DD, patterns associated with normal intrarectal pressures with paradoxical or inadequate sphincter relaxation during simulated defecation.

The Efficacy and Safety of Endoscopic Band Ligation for Colonic Diverticular Hemorrhage

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Introduction: Colonic diverticular hemorrhage is a common cause of lower gastrointestinal bleeding. However, low detection rate of a responsible diverticulum for diverticular hemorrhage and frequent rebleeding rate after endoscopic hemostasis, are clinical problems. Recently, several papers reported the usefulness endoscopic band ligation (EBL) for colonic diverticular hemorrhage. However, the efficacy and safety of EBL were unclear. Therefore, the aim of this study was to evaluate the efficacy and safety of EBL for colonic diverticular hemorrhage compared with endoscopic clipping.

Methods: From April 2012 to March 2016, total 260 cases of 129 patients who were suspected diverticula hemorrhage in our hospital were enrolled. Urgent colonoscopy was performed within 24 hours from arrival to our hospital. Diverticular hemorrhage was diagnosed as active bleeding from a diverticulum, a visible non-bleeding vessel within a diverticulum, or a densely adherent clot despite vigorous irrigating based on the physician’s decision. Hemostasis was performed with clipping or EBL. We evaluate the successful rate of the endoscopic procedure, early rebleeding rate within thirty days and adverse event during and after clipping or EBL.

Results: Colonic diverticular hemorrhage was diagnosed in 85 of 260 cases (32.7%). EBL was firstly attempted in 35 cases. However, EBL was failure in three cases despite sufficient suction, and was converted to clipping. Therefore, these three cases were subsumed in the clipping group. Success rate of clipping and EBL were 100% (35/35) and 91.4% (32/35), respectively (P-value=0.066). Early rebleeding rate of clipping and EBL was 4.3% (2/35) and 6.3% (2/32) respectively (P-value < 0.05). Two patients in the clipping group were required for interventional radiology and surgery because of endoscopic treatment failure. No adverse event was found in both groups.

Conclusion: EBL is reasonable for hemostasis of colonic diverticular hemorrhage because of ligating the inverted diverticular with a bleeding vessel. Our data demonstrated that the rebleeding rate of the EBL group was significantly lower than that of the clipping group. Therefore, EBL would be the alternative endoscopic hemostasis for colonic diverticular hemorrhage.

Screening Indication for Colonoscopy May Not Be Necessary to Measure Adenoma Detection Rates


Introduction: The adenoma detection rate (ADR) is a key measure of colonoscopy quality. The ADR is the proportion of screening colonoscopies in average-risk patients ≥ 50 years where at least one adenoma is detected. However, efficient measurement of the ADR can be a challenge. Many exams cannot be included because less than half of colonoscopies are performed for screening purposes. Furthermore, indication for colonoscopy may not be available or of uncertain accuracy. Measuring ADR without being restricted by the indication could improve feasibility and adherence to reporting. We hypothesized that the ADR of an entire colonoscopy cohort, irrespective of the indication, would be similar to that of screening only.

Methods: We reviewed existing procedure data of consecutive colonoscopies performed over six-months in 2015. We measured the overall ADR (irrespective of indication), the screening ADR, and the non-screening ADR (surveillance and diagnostic). We excluded colonoscopies performed by endoscopists with less than 25 procedures. We evaluated the associations between the ADR and indication, and compared the rates between procedures for all indications and those for screening. Screening did not include those performed for positive fecal immunochemical test. We calculated weighted serrated adenoma/poly detection rates separately.

Results: We evaluated 1010 colonoscopies performed by 7 gastroenterologists. Approximately one-third was screening (34.2%); the remainder surveillance (43.8%) and diagnostic (22.0%). The patients were predominantly men (94%) with a mean age 64 ± 10.4 years. There was no significant difference in the ADR for all patients compared to screening patients only, 50.2% (95% CI: 47.1-53.3%) vs 51.4% (95% CI: 48.5-54.7%), p=0.71. The ADR was 64.3% and 35.5% in patients undergoing surveillance and diagnostic

Table 1. Patient characteristics

| Age, mean (sd) | Balloon expulsion time (seconds), mean (sd) | Defecation index, mean (sd) | Max tolerance, mean (sd) | Sensation, n (%) |
|---------------|-------------------------------------------|-----------------------------|--------------------------|-----------------
| 59.0 (14.0)   | 44.8 (57.0)                               | 94 (85.2%)                  | 117.0 (66.8)             | Normal 20 (17.7%) |
| <65 seconds, n (%) | 52.7 (10.8)                                | 94 (85.2)                  | 117.0 (66.8)             | Hyper sensitive 15 (13.3%) |
| ≤112 seconds, n (%) | 36.8 (45.3)                                | 94 (85.2)                  | 117.0 (66.8)             | Hypersensitive 15 (13.3%) |
| Abnormal defecation index (less than 1.4), n (%) | 7.0 (0.3)                                  | 94 (85.2)                  | 117.0 (66.8) | < 0.001 |
| First sensation, mean (sd) | 100 (88.5%)                                | 48.8 (22.8)                | 117.0 (66.8) | < 0.001 |
| Desire to defecate, mean (sd) | 22.8 (12.0)                                | 48.8 (22.8)                | 117.0 (66.8) | < 0.001 |
| Max tolerance, mean (sd) | 132.4 (53.2)                               | 48.8 (22.8)                | 117.0 (66.8) | < 0.001 |

Table 2. Factors associated with normal resting and squeeze pressure based on the logistic regression model

<table>
<thead>
<tr>
<th>Variable</th>
<th>Odds Ratio (95% CI)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age ≥ 65 years</td>
<td>1.65 (1.10-2.43)</td>
<td>0.018</td>
</tr>
<tr>
<td>Diabetes</td>
<td>1.35 (0.88-2.04)</td>
<td>0.166</td>
</tr>
<tr>
<td>Family history of colon cancer</td>
<td>1.46 (0.94-2.28)</td>
<td>0.074</td>
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</tbody>
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Figure 1.
Long-term Outcomes in Patients with Diverticular Hemorrhage Based on Initial Diagnosis with Urgent Colonoscopy and Different Treatments

Gordon Ohning, MD, PhD1, Dennis Jensen, MD2, Thomas Kovacs, MD3, Kevin Ghassemi, MD4, Rome Urgent Colonoscopy and Different Treatments

We compared rates of rebleeding, surgery, diverticulitis, & death for patients admitted for hematochezia (DH) based on endoscopic diagnosis & treatment during long term follow-up (FU). We compared rates of rebleeding, surgery, diverticulitis, & death for patients admitted for hematochezia (DH) based on endoscopic diagnosis & treatment during long term follow-up (FU).

Methods: Retrospective analysis of prospectively collected data for patients presenting with severe hematochezia with an endoscopic Diagnosis of DH & FU after 60 days. During index hospitalization & for recurrent bleeding from non-TIC sources (Incidental diverticulosis) was high after Surgery (40%), in presumptive DH (47.5%), & in definitive DH (38.5%), but rates of colon surgery were low. Diverticulitis occurred in only 3 PREDISCH patients (1%). For PREDISCH patients during long term FU, the incidence of a later DEH diagnosis by repeat colonoscopy for reblooding was 27%. No patients died of severe DH, but from co-morbidities.

Results: Of the 49,029,080 individuals in the database at the time of the study, we identified 47,180 patients with their first occurrence of CDI between June 2013 and 2016, out of which 2,220 (4.7%) patients were diagnosed with CDC. The overall 3-year incidence of CDC in the United States was 9.5/100,000 persons (Figure 1). The age-based incidence of disease showed a consistent gradual rise from younger to older age intervals (Figure 2). Incidence of CDC was higher in the elderly (>65yrs) (OR 6.27; 95% CI: 5.31-7.28, p < 0.0001). Caucasians vs. African-Americans and Asians (OR 1.53; 95% CI: 1.34-1.74, p < 0.0001) and females (OR 1.37; 95% CI: 1.26-1.50, p < 0.0001). Compared with controls (individuals in database without CDC), individuals with CDC were more likely to have a history of proton-pump inhibitor use (OR 1.42; 95% CI: 1.26-1.61, p < 0.0001) and histamine receptor-2 antagonist use (OR 1.78; 95% CI: 1.55-2.07, p < 0.0001), surgery (OR 4.69; 95% CI: 3.8-5.69, p < 0.0001), hospital admission (OR 5.87; 95% CI: 5.33-6.46, p < 0.0001), quinolone drug class use (OR 1.46; 95% CI: 1.27-1.68, p < 0.0001), proton-pump inhibitor use (OR 1.42; 95% CI: 1.26-1.61, p < 0.0001) and histamine receptor-2 antagonist use (OR 1.36; 95% CI: 1.15-1.6, p=0.0003) in the last 3 years.

The 2013-2016 Epidemiology of Incident Clostridium Difficile Colitis Cases in the United States: A Retrospective Study from the Explorys Database

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Introduction: While Clostridium difficile infection (CDI) and Clostridium difficile associated diarrhea (CIDD) has been extensively studied, the epidemiologic data on incident Clostridium difficile colitis (CDDC) have mostly been acquired from small studies. The aim of this study was to describe the incidence and risk factors of CDC in the United States, utilizing a large database.

Methods: We queried a commercial database (Explorys Inc, Cleveland, OH), an aggregate of electronic health record data from 26 major integrated US healthcare systems from 1999 to June 2016. We identified an aggregated patient cohort of eligible patients with a first-ever diagnosis of CDC between June 2013 to June 2016, based on Systematized Nomenclature Of Medicine – Clinical Terms (SNOMED-CT). We calculated the incidence of CDC among different patient groups and evaluated risk factors for the disease.

Results: Of the 69,629,080 individuals in the database at the time of the study, we identified 47,180 patients with their first occurrence of CDI between June 2013 and 2016, out of which 2,220 (4.7%) patients were diagnosed with CDC. The overall 3-year incidence of CDC in the United States was 9.5/100,000 persons (Figure 1). The age-based incidence of disease showed a consistent gradual rise from younger to older age intervals (Figure 2). Incidence of CDC was higher in the elderly (>65yrs) (OR 6.27; 95% CI: 5.31-7.28, p < 0.0001). Caucasians vs. African-Americans and Asians (OR 1.53; 95% CI: 1.34-1.74, p < 0.0001) and females (OR 1.37; 95% CI: 1.26-1.50, p < 0.0001). Compared with controls (individuals in database without CDC), individuals with CDC were more likely to have a history of proton-pump inhibitor use (OR 1.42; 95% CI: 1.26-1.61, p < 0.0001) and histamine receptor-2 antagonist use (OR 1.36; 95% CI: 1.15-1.6, p=0.0003) in the last 3 years.