Comparative Effectiveness Review
Number 233

Management of Colonic Diverticulitis

Evidence Summary

Main Points

- **Computed tomography (CT) diagnosis and clinical sequelae**
  - CT accurately diagnoses acute diverticulitis (moderate strength of evidence [SoE]) and may increase appropriate management versus clinical diagnosis (low SoE). Due to sparse data, there is insufficient evidence about CT accuracy to stage acute diverticulitis. Misdiagnoses on CT may not increase the risk of poor clinical outcomes (low SoE). The significance of incidental findings is unclear (low SoE).
- **Treatment of patients with acute diverticulitis**
  - Outpatient management: For patients with uncomplicated acute diverticulitis, outpatient management may be as effective as inpatient care (low SoE), but there is insufficient evidence regarding important clinical outcomes, including treatment failure, mortality, or emergency surgery.
  - Antibiotic treatment: For patients with uncomplicated diverticulitis, antibiotic treatment may not affect pain symptoms, length of hospital stay, recurrence risk, quality of life, or need for surgery compared to no antibiotic treatment (low SoE). For patients who do receive antibiotics, the evidence is insufficient to guide choice of antibiotic regimen.
  - Interventional radiology: The evidence is insufficient regarding the benefits or harms of percutaneous drainage for patients with complicated acute diverticulitis.

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- **Colonoscopy following an episode of acute diverticulitis**
  - There is low SoE that patients with recent diverticulitis (within 6-12 months) may be more likely to have colorectal cancer (CRC) than the general population.
  - With low SoE, among patients with recent diverticulitis, those who undergo colonoscopy may, ultimately, have similar rates of CRC diagnoses as those who did not; however, no studies evaluated comparative risks of CRC death.
  - Patients who are 50 or older or who had complicated diverticulitis (with abscess, peritonitis, etc.) are at increased risk of having CRC (moderate SoE), advanced colonic neoplasia (high SoE), or advanced adenoma (low SoE) on colonoscopy.
  - Colonoscopies conducted within 1.5 to 12 months after acute diverticulitis rarely have complications or incomplete tests (high SoE).
- **Nonsurgical interventions to prevent recurrent diverticulitis**
  - 5-aminosalicylic acid (5-ASA) offers no benefit to patients to reduce the risk of recurrence of diverticulitis (high SoE). Evidence for other interventions is insufficient.
- **Elective surgery to prevent recurrent diverticulitis**
  - For patients with prior complicated or smoldering/frequently recurrent (after uncomplicated) diverticulitis, elective surgery reduces the risk of recurrent diverticulitis (high SoE). However, there is no evidence regarding which patients would benefit most from elective surgery. With low to moderate SoE, serious surgical complications included 30-day mortality (0.7%), 30-day readmission (7.3%), and reoperation (5.5%).

Background and Purpose

Colonic diverticulitis is caused by inflammation of abnormal outpouchings (diverticula) in the wall of the large intestine. Acute episodes of diverticulitis may be uncomplicated or accompanied by complications, such as perforations, peritonitis, abscesses, fistulas, and strictures. Traditional management for patients with uncomplicated diverticulitis includes hospitalization, bowel rest, antibiotics, and intravenous fluids. Complicated diverticulitis may require more invasive interventions, such as surgery or interventional radiology procedures. There remain uncertainties about the effectiveness and harms of various treatment options, preventive options for long-term recurrence, and detection strategies for CRC.

This systematic review evaluates: (1) the accuracy of CT and harms related to false positive, false negative, and incidental findings on CT imaging; (2) the effectiveness and harms of hospitalization for acute uncomplicated diverticulitis, antibiotics for acute diverticulitis, and interventional radiology for acute complicated diverticulitis; (3) the need for colonoscopy in people with a history of diverticulitis; and (4) the effectiveness and harms of pharmacologic, nonpharmacologic, and elective surgery to prevent

recurrent diverticulitis. The findings of the review are expected to inform healthcare providers, policymakers, and patients, and support new guidance on diagnosis, staging, and nonsurgical treatment of acute diverticulitis, and interventions to prevent recurrence, and CRC screening in people with a history of diverticulitis.

Methods

We employed methods consistent with those outlined in the Agency for Healthcare Research and Quality Evidence-based Practice Center Program Methods Guidance (https://effectivehealthcare.ahrq.gov/topics/cer-methods-guide/overview). Our searches covered studies published from 1990 to June 1, 2020.

Results

CT: Existing reviews found high sensitivity (94%) and specificity (99%) of CT to diagnose acute diverticulitis (moderate SoE). There is insufficient evidence to evaluate diverticulitis staging criteria. There is low SoE that: (1) CT imaging leads to appropriate management decisions for patients with acute diverticulitis, (2) misdiagnoses on CT do not result in poor clinical outcomes, and (3) incidental findings, although common, have unclear clinical significance. There is insufficient evidence about staging diverticulitis by CT imaging.

Outpatient management of acute diverticulitis: The evidence is insufficient to make conclusions about whether or not outpatient management of patients with uncomplicated diverticulitis leads to higher rates of treatment failure, mortality, and emergency surgery than inpatient management. Adverse outcomes, such as mortality and emergency surgery are uncommon (3% of patients or fewer), regardless of setting. Studies found no evidence of differences in rates of long-term diverticulitis recurrence or elective surgery based on management setting (low SoE).

Antibiotic treatment of acute diverticulitis: With low SoE, studies did not find that antibiotic treatment for patients with uncomplicated diverticulitis resulted in differences in pain symptoms, length of hospital stay, recurrence risk, quality of life, but may reduce need for surgery compared to no antibiotic treatment. Evidence regarding dDeath, treatment failure, diverticulitis-related morbidities, rehospitalization, and adverse events are mostly rare and evidence is insufficient to make conclusions. These events are mostly rare. Studies that compared antibiotic regimens each evaluated different regimens. Thus, there is insufficient evidence about their relative effectiveness.

Interventional radiology: The evidence is insufficient to make conclusions regarding the potential benefits or harms of percutaneous drainage.

Colonoscopy: There is low SoE that patients with recent acute diverticulitis may be at about 3 times the risk of finding CRC on colonoscopy than healthy controls, but the finding is not statistically significant. With low SoE, studies comparing patients who underwent colonoscopy soon after an episode of acute diverticulitis (within about 2-12

months) with those who did not undergo colonoscopy, found no evidence of differences, ultimately, in rates of CRC; however, no studies evaluated comparative risks of CRC death. Among these patients, about 2 percent have CRC, 7 percent have advanced colonic neoplasia (CRC or advanced adenoma), and between 1 and 3 percent have specific premalignant lesions (moderate to high SoE). There is also variable (low to high) SoE that older patients (≥50 years) and patients with recent complicated diverticulitis are at particularly high risk of CRC and various premalignant lesions. There is high SoE that procedural complications are rare (fewer than 1% of patients) and that colonoscopy failure rates are also uncommon (3.5%) soon after acute diverticulitis.

Nonsurgical interventions to prevent recurrent diverticulitis: There is high SoE that 5-ASA does not reduce the risk of recurrence and is not more harmful than placebo. Evidence for other interventions (rifaximin, combination 5-ASA and rifaximin, combination 5-ASA and probiotics, probiotics, and burdock tea) is too sparse to make conclusions (insufficient). No studies evaluated medical nutrition therapy.

Elective surgery to prevent recurrent diverticulitis: There is high SoE that elective surgery reduces the risk of recurrence of diverticulitis among patients with prior complicated or frequently recurrent diverticulitis, but no evidence regarding which patients may benefit most from surgery. There was low to moderate SoE that serious adverse events are uncommon with elective surgery, including that fewer than 1 percent of patients die postoperatively.

Limitations

With few exceptions, the evidence base examined in this review for each specific question is based on very few studies or of low SoE. Evidence is particularly sparse for questions related to the benefits and harms of CT scanning for acute diverticulitis, the appropriateness of outpatient management of uncomplicated or mildly complicated diverticulitis, interventional radiology for nonsurgical complicated diverticulitis, and various interventions for prevention of recurrent diverticulitis. In addition, there is limited evidence regarding which patients might benefit most from (or be most harmed by) the various interventions. Regarding colonoscopy, the studies have not adequately addressed whether patients who undergo colonoscopy after diverticulitis are at decreased risk of dying from CRC compared to patients who forgo colonoscopy.

Implications and Conclusions

Many of the important questions about which interventions should be used for which patients remain either unanswered or answered with only low SoE.

Prior reviews have demonstrated that CT imaging accurately diagnoses acute diverticulitis. While the clinical implications of false positive, false negative, and incidental findings remain unclear, there is a low SoE that misdiagnoses on CT did not result in poor clinical outcomes. Of note, there is insufficient evidence regarding the test accuracy of clinical staging classifications based on CT imaging.

For selected patients with uncomplicated acute diverticulitis, outpatient management may be as effective as inpatient care. In addition, for patients with uncomplicated diverticulitis, antibiotic treatment may not affect pain symptoms, length of hospital stay, risk of recurrence, or quality of life but may reduce the need for surgery. For patients who do receive antibiotics, the evidence is insufficient to guide choice of antibiotic regimen. The evidence is insufficient to assess the clinical value of percutaneous drainage.

Patients with recent episodes of diverticulitis are at increased risk of having undiagnosed CRC or advanced colonic neoplasia, particularly if they are at least 50 years of age or have had complicated diverticulitis. However, there is no evidence regarding whether colonoscopy soon after an episode of acute diverticulitis affects CRC mortality.

5-ASA offers no benefit to patients to reduce the risk of recurrence of diverticulitis. There is insufficient evidence regarding other potential prophylactic treatments. In particular, despite clinical and patient interest, there is no comparative evidence regarding medical nutrition therapies.

Patients with a history of prior complicated or frequently recurrent diverticulitis who undergo elective surgery are at greatly reduced risk of recurrent diverticulitis; however, there is no evidence regarding which patients would most benefit from elective surgery. Postoperative mortality is uncommon, but patients not uncommonly require readmission or reoperation.

The evidence base, particularly for comparisons of interventions is mostly of low strength of evidence (or insufficient or completely lacking). To enable better guidance about best options for patient management, there is a clear need for high-quality research to address the unanswered questions. Ideally, large-scale, multicenter trials should be conducted in unrestricted populations (i.e., without eligibility restrictions that may reduce applicability of findings) with appropriate subgroup analyses and, as needed, analytic methods to account for the inherent differences between people who receive different treatments.

Full Report

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