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Update on Diverticular Disease and Implications for Primary Care

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ABSTRACT

Recent data would seem to suggest a change in primary care management of diverticulosis. Studies now question the etiology, management, and recommendations for primary and secondary prevention of diverticular disease in the primary care setting. Although diverticulosis is commonly found on colonoscopy, few patients will go on to develop diverticular disease, which is characterized by abdominal symptoms and the presence of chronic inflammation in some cases. Data suggest more active management and specialty referral for patients with diverticular disease to prevent complications of bleeding, diverticulitis, colitis, abscess formation, fistula, stricture, and perforation and, possibly, neoplasia.

Keywords: diverticular disease, diverticulosis, diverticulutis

INTRODUCTION

Diverticulosis is common in the United States and Europe. An autopsy study from 1969 reported diverticulosis in 35%-50% of cases.[1] Diverticular disease affects 2.5 million people in the US. Colonic diverticular disease is the sixth most common outpatient gastrointestinal disease diagnosed in the US and may be related to environmental factors as it is less prevalent in other countries. It accounts for 280,000 hospitalizations per year in the US. The incidence increases with age. In one study, diverticulosis was found in 71% of colonoscopies in those > 80 years old.[2] Age-related changes include an increase in the collagen cross-linking and elastin content, resulting in rigidity. About 80%-85% of people with diverticulosis are asymptomatic.

Symptomatic uncomplicated diverticular disease (SUDD) may present clinically with symptoms similar to irritable bowel syndrome (IBS), and therefore it may be hard to distinguish SUDD from IBS. These symptoms include: nonspecific episodes of lower abdominal pain, sometimes colicky, usually relieved by flatus or bowel movement; bloating; and a change in bowel habits. The remaining 15%-20% of people with diverticulosis will have symptomatic disease. Stollman and Raskin found that 10%-25% of patients with diverticulosis will develop diverticulitis[3]; however, in more recent study of 2,200 veterans, only 1% of those found to have diverticulosis on colonoscopy developed diverticulitis confirmed on computed tomography (CT) over a 11-year period.[4] There is a 25%-33% incidence of recurrent diverticulitis after an episode of acute diverticulitis.[5] A systematic review and meta-analysis of 12 publications by Katz et al. concluded that the disease tends to recur more often in younger patients and that younger patients also tend to be male.[6] The recurrence rate in the younger group (40-50 years old) was 31.6% versus 18.5% in those > 50 years old, but the follow-up periods in the studies varied, ranging from 15 months to 8 years in one study.

In patients with diverticulosis, 1%-2% will require hospitalization and 0.5% will require surgery. The most common complications of diverticulosis are bleeding and diverticulitis; however, more severe complications of diverticulitis may include colitis, abscess, perforation, fistula, and stricture formation. Brar et al found invasive malignancy and clinically significant neoplasia in 4 and 23 of 249 patients, respectively, based on colonoscopy findings.[7] In a subgroup of patients with complicated diverticulitis, an incidence of advanced adenoma (18.9% versus 5%) and invasive malignancy (5.4% versus 0%) was found

when compared with patients with uncomplicated diverticulitis. In a colonoscopy-based study of 41,037 patients with colon cancer, there was an increased incidence of colon cancer in the first year after diagnosis of diverticular disease.[8]

PATHOGENESIS

Diverticulosis is believed to be caused by multiple factors. Intraluminal pressure is a factor, which may be caused by straining to have a bowel movement. The sigmoid is a common area of occurrence of diverticulosis with a small lumen but high intraluminal pressure. The weakest points in the sigmoid are the areas of arterial penetration (vasa recta) The process of inflammation is thought to be similar to appendicitis with food obstructing the neck of the diverticulum with resultant bacterial overgrowth, bacterial translocation, inflammation, and possible perforation. *Symptomatic* diverticulosis is also associated with higher motility and hypertrophic musculature in affected areas of the colon.

RISK FACTORS

It was believed that a diet high in insoluble fiber, as found in fruits and vegetables, is protective against the formation of diverticula. A low-fiber diet is thought to be a risk for diverticula formation because of the resulting reduction in colon lumen size, which may result in the transmission of muscular contraction force to the colon wall and increased wall pressure causing herniation. In their review of multiple studies, Peery and Sanaler concluded that a high-fiber diet does not protect against the formation of diverticulosis and, contrary to what was previously believed, the higher the fiber in the diet the more diverticulum found on colonoscopy assessment.[9] The authors also found that constipation was not a factor in the formation of diverticula. People reporting 7 bowel movements in 1 week had a 34% higher risk of diverticulosis compared with patients reporting fewer than 7 bowel movements per week. However, they did conclude that, although a high-fiber may not be protective against diverticula formation, there is evidence that it may protect against diverticular disease.

A 2014 study of middle-aged women reported a statistically significant reduction in risk for diverticular disease with higher fiber intake, especially fruit and cereal.[10] Crowe studied 47,330 men and women in England and Scotland and found those with high fiber consumption were 41% less likely to have complications from diverticular disease. Obesity is a risk factor due to the proinflammatory effects of adipolines and chemokines. In contrast to previous belief, intake of corn, nuts, and seeds was not associated with an increase in diverticular bleeding or diverticulitis. High intake of red or processed meat was associated with a 2- to 4-fold increase in the risk of developing diverticular disease. The risk of diverticular disease is lower among vegetarians.[11] A higher incidence of diverticular disease is found in those with low vitamin D levels. It is hypothesized that vitamin D helps maintain colonic homeostasis and mucosal integrity. Smoking as a risk factor has been identified in some studies; however, a study of the relationship between diverticular disease and smoking, alcohol, and caffeine did not show an association.[12] Exercise is protective against the development of diverticular disease.[13]

A Danish study identified 10,420 siblings from inpatient and outpatient settings. They found that siblings were 2.92-fold more likely to develop diverticular disease compared with the general population and that monozygotic twins had a relative risk ratio of 14.5, compared with 5.5 for dizygotic twins. The estimated genetic contribution of developing diverticular disease in a sibling was calculated to be 53%[14]; however, environmental factors could also account for the greater incidence among siblings, considering shared lifestyles. Table 1 summarizes the common risk factors for diverticular disease.

The most common complication of diverticular disease is bleeding with the contributory risk factors of obesity, hypertension, anticoagulant use, diabetes,

Table 1. Risk Factors for Diverticular Disease

- Greater than 7 bowel movements/week
- Low-fiber diet
- Obesity
- High intake of red or processed meat
- Low serum 25-hydroxyvitamin D
- Smoking
- Alcohol use
- Sedentary lifestyle
- First-degree relative with diverticulosis