The Yield of Colonic Biopsy in the Evaluation of Chronic Unexplained Diarrhea

Robert M. Genta[1,2,3], Amnon Sonnenberg[4,5]

[1]Miraca Life Sciences Research Institute, Miraca Life Sciences, Irving, TX, United States; [2]VA North Texas Healthcare System of Texas; [3]UT Southwestern Medical Center, Dallas, TX; [4]Portland VA Medical Center, Portland, OR; [5]OHSU, Portland, OR

Background

Diarrhea is a common symptom of patients with infectious, inflammatory and systemic diseases presenting with gastrointestinal manifestations.

Colonoscopy with biopsy is widely used for the evaluation of diarrhea (often defined as "persistent diarrhea of indeterminate origin").

Biopsy protocols vary amongst practices and possibly even within the same practice, but no study has addressed the diagnostic yield of different biopsy combinations.

Aims

Primary objective: To determine the yield of different biopsy sets for the diagnosis of the most common causes of diarrhea associated with histopathologic abnormalities of the colonic mucosa.

Study Design and Methods

A large national pathology database was searched for all records of patients who had a colonoscopy between 1/2008 and 8/2013 for the investigation of diarrhea.

Exclusion criteria: A known history of inflammatory bowel disease, colorectal surgery, or a history of malignant colorectal tumors.

Biopsy location and number

Each biopsy set was assigned to one of the following locations:

1) Right colon; 2) Transverse colon; 3) Left colon; 4) Rectum; and 5) Colon Not Otherwise Specified. Specimens designated as anus, anorectal, or pectinate line were not included.

A subsequent set of queries analyzed the gross description of each specimen and recorded the number of fragments of tissue counted in each container.

Histopathologic categories:

The following conditions were selected as possibly contributing to the etiology of diarrhea:

- Active colitis
- Microscopic colitis (lymphocytic and collagenous)
- Eosinophilic colitis, colonic ischemia,
- Diverticular disease-associated colitis,
- Inflammatory bowel disease (IBD)

Results

The study population comprised 69% women and 31% men aged (mean ± SD) 52.8 ± 17.4 years.

Endoscopists took significantly more tissue samples from endoscopically visible lesions than random biopsies from macroscopically normal appearing mucosa (9.8 ± 6.3 vs. 7.2 ± 4.6, p<0.0001).

Similarly, histopathologic diagnoses were significantly more often associated with specific biopsy sites when compared to normal appearing colonic mucosa (OR: 1.33, 95% CI: 1.29-1.37).

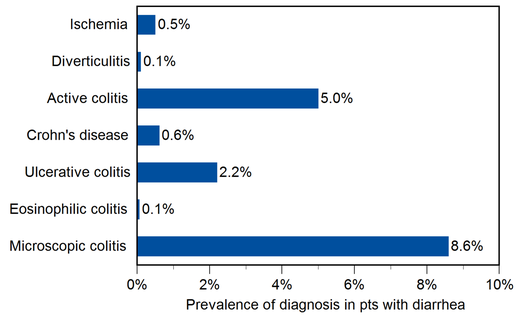

Figure 1 – In 19% of 130,204 patients with diarrhea, histopathology revealed specific mucosal lesions.

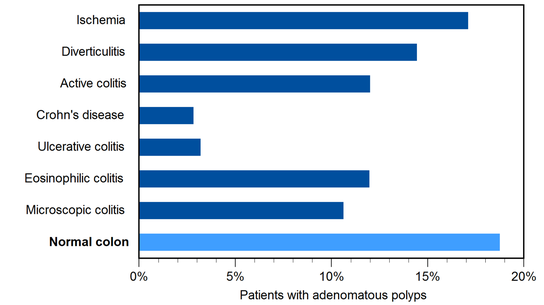

Figure 2 – In 29% of patients, the colonoscopy also revealed the presence of colon polyps. A significantly smaller number of adenomatous polyps were found in patients with microscopic colitis (OR: 0.35, 95% CI: 0.33-0.38), IBD (0.18, 0.15-0.21), or active colitis (0.63, 0.58-0.68) than in patients without mucosal inflammation.

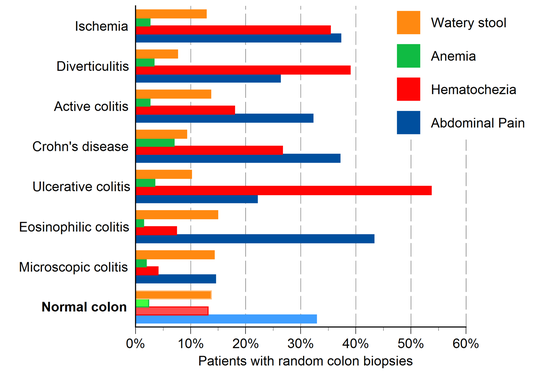

Figure 3 – In patients with diarrhea, **anemia** was predictive of IBD. **Hematochezia** was predictive of ulcerative colitis, diverticulitis and ischemic colitis. **Abdominal** pain was predictive of IBD. **Watery stool** was equally common in all diagnoses.

Study Highlights

- Colonoscopy is a successful tool in the workup of chronic diarrhea, yielding a definitive diagnosis in almost one fifth of all patients.
- Microscopic colitis, inflammatory bowel disease, and active colitis were the most common diagnoses.
- As an added benefit, colonoscopy contributes to cancer prevention through the incidental findings of colonic neoplasm: In 29% of all patients undergoing colonoscopy for the work-up of diarrhea, the endoscopy also revealed the incidental finding of colon polyps.

References

1. Marshall JB, Singh R, Diaz-Arias AA. Chronic, unexplained diarrhea: are biopsies necessary if colonoscopy is normal? *Am J Gastroenterol.* 1995;90:372-376.
2. Patel Y, Pettigrew NM, Grahame GR, Bernstein CN. The diagnostic yield of lower endoscopy plus biopsy in nonbloody diarrhea. *Gastrointest Endosc.* 1997;46:338-343.
3. Shah RJ, Fenoglio-Preiser C, Bleau BL, Giannella RA. Usefulness of colonoscopy with biopsy in the evaluation of patients with chronic diarrhea. *Am J Gastroenterol.* 2001;96:1091-1095.