Pediatric Inflammatory Bowel Disease

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KEYWORDS

• Pediatrics • Adolescents • Inflammatory bowel disease • Crohn • Ulcerative colitis

KEY POINTS

- Inflammatory bowel disease (IBD) is a chronic immune-mediated condition of the gastrointestinal (GI) tract in which the goal of treatment is to induce and maintain durable remission.
- There is a wide spectrum of presenting symptoms in pediatric IBD, but esophagogastroduodenoscopy and colonoscopy are imperative to confirm the diagnosis.
- Treatment goals include achieving mucosal healing of the GI tract, reaching growth potential, limiting medication toxicities, and optimizing quality of life for all patients and families.

INTRODUCTION

IBD is a chronic immune-mediated condition of the GI tract in which the goal of treatment is to induce and maintain durable remission. Although classically divided into Crohn disease (CD) and ulcerative colitis (UC), IBD actually has a wide range of phenotypes with varied responses to therapy, which makes the natural history of this chronic disease difficult to predict. Pediatric IBD has several unique considerations in comparison to adult IBD, namely related to growth, development, pubertal maturation, bone health, and the psychological impact on the patient and family. Additionally, the longevity of disease burden and its consequent morbidity is significantly more in children than in adults diagnosed with IBD. The growing incidence and prevalence of IBD further highlight the importance of pediatric primary care providers being knowledgeable about and closely involved in the care of these patients.

Disclosure Statement: J.R. Rosh: Advisor/Consultant: Abbvie, Janssen; Grant/Research Support: Abbvie, Janssen.

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Pediatr Clin N Am 64 (2017) 577–591
http://dx.doi.org/10.1016/j.pcl.2017.01.005 **pediatric.theclinics.com**

IBD can be categorized into CD, UC, and IBD-unspecified. CD may involve any portion of the GI tract, typically with serpiginous and aphthous ulcers often in patchy distribution, known as skip lesions. The pathognomonic feature of CD is noncaseating epithelioid granulomas, but the presence of granulomas is not essential for a diagnosis of CD. Most commonly, children have ileocolonic involvement and approximately one-third have upper tract involvement as well.[1,2] The inflammation in CD is typically transmural, which can lead to disease complications, including fistulae and subsequent intra-abdominal or perianal abscess formation. Perianal disease, including anal skin tags, fissures, fistulae, and abscesses, are associated only with Crohn disease. A subset of pediatric CD patients presents with stricturing disease at diagnosis, but the natural history of the disease shows that many patients progress from an inflammatory phenotype to stricturing disease over their lifetime.

UC is characterized by continuous mucosal inflammation of the colon starting from the rectum and extending proximally. UC is unique from CD because it does not have small bowel involvement other than the possibility of backwash ileitis (typically nonspecific inflammation in the terminal ileum in UC patients with pancolitis and no ileocecal valve changes) and does not have granulomas on histopathology.[3] Additionally, the depth of inflammation is much more superficial and largely limited to the mucosa in UC.

IBD-unspecified describes those patients with colonic disease but who otherwise have features that are not specific for CD or UC. The full range of clinical phenotypes and the complexity of IBD suggest a multifactorial pathophysiology. The etiology is not completely understood, but it is hypothesized to be the result of a dysregulated immune response to commensal and/or pathogenic organisms in genetically susceptible hosts.

Genome-wide association studies in adults and older children have identified approximately 200 IBD risk-associated loci. This highlights the polygenic nature of the disease, and many of the identified gene polymorphisms associated with CD and UC influence immune-mediated pathways, leading to dysregulation in autophagy, cell-mediated immune responses, or innate immune responses. This dysregulation allows for an altered intestinal microbial composition resulting in dysbiosis, which may induce intestinal inflammation.[4,5]

EPIDEMIOLOGY

The incidence of IBD in the general population is rising.[6,7] High suspicion and recognition by general practitioners are imperative because IBD is not uncommon in children, with up to 25% of patients with IBD diagnosed before age 20.[8] Environmental factors have been implicated in the rapid rise in IBD especially with the recognition that children who emigrate from underdeveloped countries where the incidence of IBD is low take on an increased risk of IBD when they are established in Western societies.[9,10] Additionally, the prevalence in children younger than age 20 with CD and UC is higher in the northeast United States than in Western US states.[11]

Although the average age of diagnosis of pediatric IBD is 10 years to 12 years, a growing subcohort of pediatric IBD includes very-early-onset IBD (VEO-IBD). VEO-IBD is diagnosed in children who present with symptoms by age 5 years and accounts for up to 15% of pediatric IBD cases. VEO-IBD may have a distinct phenotype that favors a colonic disease distribution, does not respond to conventional therapies, and can include primary immunodeficiencies with GI manifestations. Monogenic causes of VEO-IBD have been described and whole-exome sequencing has been innovative in identifying these rare novel variants.[12]