

REVIEW PAPER

Pediatric inflammatory bowel disease: a review of current research

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ABSTRACT

Inflammatory bowel disease (IBD), comprising Crohn's disease (CD) and ulcerative colitis, is a growing global health challenge, with approximately 25% of cases diagnosed before the age of 20. These chronic immune-mediated disorders result from complex interactions between genetic predisposition, environmental triggers, gut microbiome alterations, and immune dysregulation. Pediatric IBD presents with more extensive disease than adult-onset cases, with unique manifestations including growth failure and delayed puberty. Diagnosis relies on clinical assessment, fecal calprotectin, and endoscopic evaluation. Contemporary management emphasizes treat-to-target strategies using exclusive enteral nutrition (60–80% remission rates) and biologic therapies for moderate-to-severe disease. Anti-TNF agents remain first-line biologics, while ustekinumab has recently received Food and Drug Administration and European Medicines Agency approvals for pediatric CD based on the UNITI Jr trial, and emerging data on JAK inhibitors further expand the therapeutic landscape. This review provides a comprehensive overview of disease subtypes, pathophysiology, diagnostics, and evidence-based treatment strategies.

KEY WORDS:

inflammatory bowel disease, IBD, Crohn's disease, ulcerative colitis, children.

INTRODUCTION

Inflammatory bowel disease (IBD) encompasses two principal phenotypes – Crohn's disease (CD) and ulcerative colitis (UC) – characterized by chronic gastrointestinal inflammation with alternating periods of activity and remission [1]. Approximately 25% of patients present before the age of 20 years, with peak onset during adolescence [1]. In the United States, pediatric IBD prevalence more than doubled from 33 per 100,000 in 2007 to 77 per 100,000 in 2016, with CD twice as prevalent as UC

in pediatric populations (45.9 vs. 21.6 per 100,000) [2]. The rising incidence in industrializing regions suggests that environmental factors play a critical role alongside genetic susceptibility, with over 260 risk loci identified yet accounting for only modest disease variance [2].

Children with IBD present with more extensive and aggressive disease than adults, with approximately 22% with atypical manifestations, including growth failure, anemia, or extraintestinal features [1, 3]. Long-term complications include strictures, fistulas, and impaired growth, necessitating early recognition and comprehen-

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sive multidisciplinary care [1, 4]. Contemporary management emphasizes treat-to-target strategies aimed at biochemical, endoscopic, and transmural healing [1]. Exclusive enteral nutrition (EEN) achieves 60–80% remission rates in pediatric CD, while anti-TNF agents demonstrate 88% and 73% one-year clinical response rates in CD and UC, respectively. The therapeutic landscape has expanded significantly with the Food and Drug Administration (FDA) and European Medicines Agency (EMA) approval of ustekinumab for pediatric CD in patients aged ≥ 2 years, supported by the UNITI Jr trial (46% clinical remission at week 8) and real-world data from the REALITI study (47.3% remission at week 52) [5, 6]. Emerging evidence on JAK inhibitors and updated 2025 European Society for Paediatric Gastroenterology Hepatology and Nutrition/European Crohn's and Colitis Organisation (ESPGHAN/ECCO) guidelines further reflect the rapidly evolving treatment paradigm. Therapeutic drug monitoring (TDM) optimizes biologic therapy given the rapid drug clearance in growing children.

This review synthesizes current evidence on pediatric IBD, addressing disease subtypes, pathophysiology, clinical presentations, diagnostic approaches, and contemporary treatment strategies, with emphasis on recent clinical trial data and updated international guidelines.

MATERIAL AND METHODS

To provide a comprehensive summary of knowledge on this topic, a literature review was conducted of English-language articles with emphasis on recent publications. The review searched PubMed and the JAMA database and included 45 studies accessed before June 2026.

STATE OF KNOWLEDGE

DISEASE SUBTYPES AND CHARACTERISTICS

Crohn's disease can affect every part of the tract from the mouth to the anus, but most commonly involves the ileum and colon, also including the perianal area and is characterized by inflammation that penetrates the full thickness of the intestinal wall, patchy inflammation with affected segments interspersed among uninvolved areas (skip lesions), along with the formation of intestinal narrowing (strictures) and pathological tracts between tissues (fistulas) [7–9].

Ulcerative colitis is limited to the colon and involves superficial inflammation of the mucosal layer that extends continuously from the rectum toward more proximal regions, potentially leading to ulcerations, severe bleeding, toxic megacolon, fulminant colitis, and other complications [7–9].

In up to 10% of pediatric cases, differentiating between CD and UC remains challenging. As the disease evolves, some of these initially unclassified IBD cases subsequently differentiate into either CD or UC [7].

PATHOPHYSIOLOGY

The pathophysiology of IBD results from an intricate interplay between genetic predisposition, environmental triggers, alterations in gut microbiome composition, impaired intestinal barrier function, and abnormal immune system activation [10–12].

GENETIC FACTORS IN INFLAMMATORY BOWEL DISEASE

Over 260 genetic risk loci have been identified through genome-wide association studies in IBD, many of which are associated with immune function [13]. However, they account for only 8–13% of disease variance in CD and 4–7% in UC [9]. Crohn's disease demonstrates a higher heritability risk compared to UC, with first-degree relatives of IBD patients showing elevated disease incidence [9]. Key genetic pathways include the *NOD2* (*CARD15*) mutation, the first identified IBD susceptibility gene for CD [8, 11]. Autophagy genes (*ATG16L1*, *IRGM*) control the intracellular breakdown of pathogens and are associated with CD [8, 14]. Multiple genes in the IL-23-Th17 pathway such as *IL23R*, *IL12B*, *TYK2*, *STAT3* are associated with both CD and UC [8, 9, 15].

ENVIRONMENTAL FACTORS IN INFLAMMATORY BOWEL DISEASE

Environmental factors play a crucial role in the development of IBD, as evidenced by the increasing global incidence – especially in developing nations – which correlates with growing industrialization and the adoption of Western lifestyles [16, 17]. An umbrella review of meta-analyses identified 71 environmental factors spanning multiple categories, with differing levels of evidence supporting their associations with IBD risk [16].

Main risk factors of IBD include:

1. Lifestyle and hygiene factors. Urban living is associated with an increased risk for both CD and IBD, likely reflecting the “hygiene hypothesis”, which posits that reduced microbial exposure during early life impairs proper immune system development. Increased hygiene practices and fewer childhood infections are associated with a higher risk of IBD [4, 11, 16, 18];
2. Smoking. Smoking has a paradoxical, disease-specific effect, which elevates CD risk while conferring protection against UC. Former smoking increases the risk for both diseases [4, 18, 19];
3. Antibiotic exposure. Antibiotic use is associated with an elevated IBD risk in all age groups, with the highest risk observed in individuals aged 40–60 years and ≥ 60 years [16, 20]. A dose-response relationship has been established, with children receiving at least four antibiotic prescriptions in the first 6 months of life demonstrating a 6.34-fold increased risk of IBD by

- the age of 18 [12, 21]. The highest risk occurs one to two years after antibiotic exposure, particularly with antibiotics targeting the gastrointestinal tract pathogens [12];
4. Surgical procedures. Appendectomy and tonsillectomy both increase the risk of CD [11, 16];
 5. Medications. Oral contraceptive use and nonsteroidal anti-inflammatory drugs are linked to an elevated risk of IBD [4, 16, 18];
 6. Dietary factors. Diets rich in animal fat, red and processed meat, ultraprocessed foods, refined sugars, and soft drinks are associated with an elevated IBD risk, particularly for CD [16, 21–23]. Dietary additives such as emulsifiers, frequently found in processed foods, may enhance intestinal permeability and promote inflammation. Additionally, low intake of fruits, vegetables, and dietary fiber is associated with an increased incidence of IBD [22, 23];
 7. Vitamin D deficiency. Low vitamin D levels are linked to an increased risk of IBD [4, 16, 18, 23].

Main protective factors of IBD include:

1. Early-life factors. Breastfeeding is associated with a reduced IBD risk, with the strongest protective effect seen when breastfeeding continues for at least 12 months. Breastfeeding positively affects gut microbiome development by promoting beneficial *Bifidobacteria*, upregulating mucin and tight junction proteins, and providing human milk oligosaccharides that prevent bacterial adhesion [4, 16, 18, 24];
2. Dietary patterns. The Mediterranean diet is associated with a reduced IBD risk and lower mortality in patients with established IBD [21, 24]. High consumption of fruits, vegetables, and dietary fiber, particularly soluble fiber that produces anti-inflammatory short-chain fatty acids such as butyrate, confers protective benefits. Tea consumption is also linked to a decreased risk of UC [22, 23];
3. Physical activity. Regular physical activity reduces an IBD risk [11, 16];
4. Microbiological factors. *Helicobacter pylori* infection is protective against both CD and UC [11, 16].

MICROBIOME DYSBIOSIS

Inflammatory bowel disease is characterized by diminished microbial diversity, with reductions in beneficial bacteria (*Faecalibacterium prausnitzii*, *Roseburia species*) and increases in pathogenic organisms such as adherent-invasive *Escherichia coli*. This dysbiosis leads to a decreased production of protective short-chain fatty acids, including butyrate [13, 25].

INTESTINAL BARRIER DYSFUNCTION

Impaired epithelial barrier integrity is a key pathogenic factor, involving reduced expression of tight junction

proteins and dysfunction of Paneth cells, which normally secrete antimicrobial peptides [13, 25]. This allows microbial translocation and immune activation.

IMMUNE DYSREGULATION

Crohn's disease is characterized by a Th1/Th17 immune response with elevated levels of interferon- γ , IL-17, TNF- α , IL-1, IL-6, IL-12, and IL-23 [8, 13, 26]. Ulcerative colitis exhibits an atypical Th2 response involving natural killer T cells that produce IL-13, which mediates epithelial cytotoxicity and barrier dysfunction [14, 27]. Both diseases share TNF- α and IL-23 as central cytokine hubs that drive inflammation [27].

SYMPTOMS

CROHN'S DISEASE SYMPTOMS

A pediatric patient with CD typically presents with chronic diarrhea, abdominal pain, drastic weight loss, and fatigue as hallmark symptoms [13, 28]. Growth failure or delayed puberty may be the single presenting manifestation of CD in children. Approximately one-fifth of patients present with perianal lesions, including skin tags, anal canal lesions (stenosis, fissures, ulcers), and fistulizing disease with or without perianal abscesses [13]. Clinical manifestations vary considerably with anatomic distribution, disease behavior, and the degree of inflammation, potentially leading to delayed diagnosis [13, 29].

ULCERATIVE COLITIS SYMPTOMS

Ulcerative colitis presents with rectal bleeding in more than 90% of patients [29]. In pediatric UC, the most common presenting symptoms are bloody stools (95%), abdominal pain (61%), and diarrhea (47%) [30]. Additional symptoms include increased stool frequency, rectal urgency, tenesmus, mucus discharge, nocturnal bowel movements, and cramping abdominal pain that is often located in the left lower quadrant. Approximately 15% of patients initially present with acute severe UC [29].

ATYPICAL PRESENTATIONS

22% of children present with growth failure, anemia, perianal disease, or other extraintestinal manifestations as the sole predominant initial feature [1]. Extraintestinal manifestations occur in 20–35% of patients and may precede intestinal symptoms in up to 25% of cases [30–32]. In pediatric IBD, the most common extraintestinal manifestations are peripheral arthritis (7.9%) and aphthous stomatitis (7.3%). Approximately 27.6% of all extraintestinal manifestations appear before IBD diagnosis [31].

DIAGNOSTIC APPROACH OR HOW TO IDENTIFY CHILDREN WITH INFLAMMATORY BOWEL DISEASE AMONG THOSE WITH OTHER CAUSES OF ABDOMINAL PAIN?

The American Academy of Pediatrics recommends a systematic, tiered diagnostic approach to identify children with IBD among those who present with abdominal pain and diarrhea [7]. Immediate endoscopy – specifically colonoscopy – is indicated for patients with overt rectal bleeding or perianal disease such as abscesses, ulcers, or fistulae (but not skin tags or fissures), regardless of any biomarker result [7].

THREE-TIERED DIAGNOSTIC WORKUP

The three-tiered diagnostic workup, based on symptoms, C-reactive protein (CRP), hemoglobin, and fecal calprotectin, for patients with major clinical red flags, is a highly accurate, noninvasive approach to evaluate for possible IBD [7, 33]. Minor clinical red flags in children with chronic abdominal pain (≥ 4 weeks), diarrhea, or both include a first-degree relative with confirmed IBD, involuntary weight loss, and/or presence of extraintestinal manifestations.

LABORATORY WORKUP

Recommended initial laboratory evaluation includes:

1. Hematologic assessment: complete blood count with differential to evaluate for anemia and thrombocytosis;
2. Inflammatory biomarkers: CRP and erythrocyte sedimentation rate;
3. Hepatic function panel: alanine aminotransferase, aspartate aminotransferase, alkaline phosphatase, bilirubin, and gamma-glutamyl transferase;
4. Nutritional marker: serum albumin;
5. Microbiologic evaluation: stool culture for enteric bacterial pathogens (*Salmonella*, *Shigella*, *Campylobacter*, *Yersinia*, *E. coli* O157), *C. difficile* toxin, ova and parasites, and fecal occult blood testing;
6. Intestinal inflammation markers: fecal calprotectin or fecal lactoferrin [1, 8, 33].

Approximately 10–20% of pediatric IBD patients present with entirely normal laboratory values, meaning a negative workup cannot reliably exclude the diagnosis [1].

COMPARATIVE VALUE OF LABORATORY MARKERS

A meta-analysis encompassing 1,120 pediatric patients with suspected IBD demonstrated that fecal calprotectin provided the greatest incremental diagnostic value when combined with clinical symptoms, outperforming all serum markers (Δ AUC 0.26) [34]. Incorporating fecal calprotectin into the evaluation substantially reduced the proportion of patients classified as an intermediate

risk from 55% to 6%, enabling more accurate stratification into low- and high-risk categories. Although hematologic and biochemical markers such as hemoglobin and albumin remain valuable for guiding therapeutic decisions, fecal calprotectin is particularly recommended as a triaging tool to determine the need for endoscopic evaluation in pediatric patients [34].

FECAL CALPROTECTIN

Fecal markers of inflammation correlate more closely with intestinal inflammation than blood markers. Calprotectin is a cytosolic protein complex derived primarily from neutrophils that becomes elevated in the presence of intestinal inflammation. Normal fecal calprotectin levels ($50 \mu\text{g/g}$) can reliably exclude IBD. Endoscopic evaluation is recommended when calprotectin levels exceed $250 \mu\text{g/g}$ and enteric pathogens (including *Clostridioides difficile*) have been ruled out [7].

Children with fecal calprotectin levels $< 600 \mu\text{g/g}$ and no symptoms suggestive of IBD are unlikely to have IBD. In one study, 76% of patients referred solely for elevated fecal calprotectin ($> 50 \mu\text{g/g}$) without other concerning features did not have IBD. The likelihood of IBD increases proportionally with calprotectin levels; values $\geq 250 \mu\text{g/g}$ warrant endoscopic evaluation once infectious etiologies have been excluded [35].

Fecal calprotectin offers high diagnostic sensitivity (98%) with moderate specificity (68%) in children undergoing evaluation for suspected IBD [1].

ENDOSCOPIC AND HISTOLOGIC DIAGNOSTICS

Early recognition and timely referral for endoscopic evaluation are essential, as diagnostic delay is associated with an increased risk of disease complications, including stricture formation, internal fistulizing disease, and impaired linear growth at diagnosis. Esophagogastroduodenoscopy and ileocolonoscopy with biopsy remain the gold standard for diagnosing and classifying IBD in children [1, 3]. Gross and histopathologic findings are crucial for determining disease severity, extent, and distinguishing UC from CD [1].

DISEASE CLASSIFICATION

Crohn's disease can affect any portion of the gastrointestinal tract and perianal region, characterized by transmural inflammation, intermittent disease activity with inflamed segments interspersed among normal areas (skip lesions), and the potential development of strictures and/or fistulas [7]. Crohn's disease involving the colon only is more common in children than adults, making it difficult to distinguish from UC in some patients [1].

Ulcerative colitis is generally limited to the colon and features continuous inflammation that begins in the rec-

tum and extends proximally, manifesting as proctitis, left-sided colitis, or pancolitis – the latter being the most common presentation in pediatric patients [7].

The term IBD unspecified (previously indeterminate colitis) is reserved for patients who cannot be definitively classified [7]. Video capsule endoscopy may be indicated to evaluate the proximal small intestine when there is a high suspicion for CD, and conventional endoscopy cannot confirm the diagnosis [1].

TREATMENT

TREATMENT GOAL

Therapeutic targets progress from short-term symptomatic relief to medium-term clinical remission and normalization of inflammatory biomarkers (fecal calprotectin and CRP), culminating in long-term objectives of endoscopic and transmural healing, restoration of normal growth, optimization of quality of life, and disability prevention [7].

EXCLUSIVE ENTERAL NUTRITION

According to AGA guidelines, EEN effectively induces both clinical remission and endoscopic response in CD. The intervention demonstrates particular efficacy in children, with remission rates of 60–80% that parallel those achieved with corticosteroids, while the evidence base in adult populations remains less well-established [24]. The exclusive enteral nutrition regimen requires patients to maintain a diet consisting solely of liquid nutritional formula for 6–8 weeks, with complete exclusion of all solid foods and other dietary intake. Standard polymeric products are generally well accepted by patients, with available evidence showing no significant differences in efficacy or tolerability between specific formulations [24].

BIOLOGIC THERAPY

Biologic therapy has revolutionized pediatric IBD management, with anti-TNF agents (infliximab and adalimumab) serving as first-line biologics for moderate-to-severe disease. These agents are the only FDA-approved medications for children with CD and UC, achieving clinical response rates of 88% in CD and 73% in UC, with remission rates of 56% and 39%, respectively, at one year [1]. Infliximab is indicated for both CD and UC in children, while adalimumab is approved for pediatric CD [1]. These anti-TNF agents are superior to thiopurines for inducing mucosal healing and are the only drugs proven to completely heal perianal fistulas in CD. Importantly, infliximab improves linear growth in children with growth failure [1]. Ustekinumab, an anti-IL-12/23 monoclonal antibody, is now FDA and EMA-approved for moderately to severely active CD in pediatric patients

aged ≥ 2 years (FDA label 2026). Approval was based on the phase 3 UNITI Jr trial (NCT04673357), a 52-week study of 101 patients aged 2–17 years. In the full efficacy population ($n = 93$), 46% achieved clinical remission and 87% achieved clinical response at week 8. Among patients ≥ 40 kg, week 52 remission was maintained in 43.5–60.0% across dosing intervals, with only 6.3% discontinuing therapy. Immunogenicity was low, and serum concentrations were comparable to those of adults [33, 36, 37]. Vedolizumab remains off-label in pediatric IBD, as it has not received FDA or EMA approval for use in patients under 18 years of age and is currently used as a second-line option after anti-TNF failure based on real-world evidence and expert consensus [7, 33, 36, 37]. These findings are corroborated by real-world evidence. The REALITI study ($n = 479$, ImproveCareNow registry) demonstrated week 52 clinical remission of 47.3% and corticosteroid-free remission of 41.3%, with no new safety signals. The STEP-CD study ($n = 101$, ESPGHAN Porto Group, 99% anti-TNF-exposed) reported corticosteroid- and EEN-free remission of 40.5% at weeks 12 and 52, with week 6 response, intravenous induction, and older age predicting sustained remission [5, 6]. A systematic review (444 patients, 11 studies) confirmed remission rates of 47% (week 16), 57–59% (week 26), and 40–64% (week 52), with rare severe adverse events [38].

TREATMENT STRATEGY AND PATIENT SELECTION IN BIOLOGIC TREATMENT

Early biologic therapy is supported by current evidence in pediatric patients presenting with high-risk features such as significant growth delay, deep ulcerations on endoscopy, perianal fistulas, or other predictors of adverse outcomes [7]. Anti-TNF therapy is reserved for patients who fail to achieve an adequate response with first-line conventional therapies, including exclusive enteral nutrition, steroids, and immunomodulators. The American Academy of Pediatrics recommends targeting biochemical or endoscopic remission, rather than clinical remission alone, given that intestinal inflammation often persists even when symptoms resolve [7].

THERAPEUTIC DRUG MONITORING

Therapeutic drug monitoring is now considered essential for optimizing biologic therapy in pediatric IBD. This approach measures trough concentrations before the next scheduled dose, enabling individualized adjustments to dosing and administration intervals based on patient-specific pharmacokinetics [7, 39]. The North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition emphasizes that TDM is particularly important in children due to rapid drug clearance and changing medication needs related to growth and development [7, 39]. For very early onset IBD (age

< 6 years), intensified dosing at 200 mg/m² with close TDM is recommended, targeting infliximab concentrations > 23 µg/ml before the second infusion and > 16 µg/ml before the third infusion [39]. For TDM of ustekinumab, NASPGHAN recommends targeting trough concentrations > 4.5 µg/ml for mucosal healing, with early targets of ≥ 28 µg/ml (week 2), ≥ 19 µg/ml (week 4), and ≥ 7 µg/ml (week 8). Every-4-week dosing may be needed in some patients to achieve adequate troughs [40].

SAFETY CONSIDERATIONS

Anti-TNF therapy is associated with infusion- and injection-site reactions, psoriasis-like rashes, and an increased risk of opportunistic infections, including fungal, viral, and mycobacterial infections. Comprehensive pre-treatment screening is mandatory and should include evaluation for tuberculosis, hepatitis B and C viruses, Epstein-Barr virus, cytomegalovirus, and fungal infections [1].

EMERGING THERAPIES

While JAK inhibitors (tofacitinib, upadacitinib) and newer biologics (risankizumab, mirikizumab) have received FDA approval for the treatment of IBD in adults, evidence supporting their use in pediatric populations remains limited. Notably, upadacitinib has shown early promise in a multicenter international retrospective study of pediatric CD, in which 75% of adolescents (15 of 20) achieved corticosteroid-free clinical remission by week 12 [41].

CORTICOSTEROID THERAPY

The American Academy of Pediatrics endorses corticosteroids for remission induction in pediatric IBD while advising against their use for maintenance due to adverse effects from long-term exposure. For CD, both corticosteroids and EEN achieve similar remission rates, though corticosteroids are associated with hypertension, hyperglycemia, and bone health impairment, whereas EEN provides nutritional benefits. Ulcerative colitis management involves corticosteroids (alone or combined with aminosalicylates) for induction, followed by aminosalicylate monotherapy for maintenance [7, 32, 33].

SURGICAL INDICATIONS

Surgical requirements differ between pediatric CD and UC – approximately 14% of CD patients need surgery within 5 years, compared to 15–20% of UC patients who eventually require colectomy [1]. Surgical intervention serves dual purposes: managing acute complications and providing definitive treatment for medically refractory cases, while also offering the potential to improve growth in children with growth failure [42].

CROHN'S DISEASE: SURGICAL INDICATIONS

In pediatric CD, surgical indications fall into emergent and non-emergent categories. Emergent surgery is warranted for acute bowel obstruction (characterized by vomiting and failure to pass stool or flatus), intestinal perforation, pelvic sepsis arising from perianal disease, uncontrolled gastrointestinal hemorrhage, and toxic megacolon [13, 42, 43]. Non-emergent indications for surgery encompass medically refractory disease (representing 56% of surgical cases), complications that cannot be managed medically, stricturing disease producing obstructive symptoms, penetrating disease complicated by fistulas or abscesses, and growth failure that persists despite optimized medical therapy [42]. The most frequently performed surgical procedures are ileocecal resection with partial or total colectomy (44–71%), followed by colectomy alone (10–18%) and small intestinal resection (4–17%). In pediatric series, specific indications included ileocecal disease (63%), terminal ileal stricture (7.1%), abscess or peritonitis (11%), and bowel perforation (3.7%) [42].

ULCERATIVE COLITIS: SURGICAL INDICATIONS

In pediatric UC, total colectomy with ileal pouch-anal anastomosis is the preferred surgical procedure to avoid permanent ileostomy [1]. Emergent indications include toxic megacolon, colonic perforation, and uncontrolled hemorrhage [30, 44]. Elective indications encompass medically refractory disease despite optimized therapy, medication intolerance, endoscopically unresectable dysplasia, and colorectal cancer [30, 32]. Patients with acute severe UC who do not demonstrate improvement within 72 hours of IV corticosteroid or rescue therapy should receive surgical consultation, given that early operative intervention reduces post-colectomy complications [32]. Approximately 25% of patients hospitalized with acute severe UC require colectomy during their first admission, a rate that rises to 40% with subsequent hospitalization [30, 32, 45].

CONCLUSIONS

Pediatric IBD is an increasingly prevalent global health challenge requiring specialized clinical expertise. The rising incidence, particularly in industrializing regions, underscores the critical role of environmental factors alongside genetic susceptibility. Children with IBD present unique challenges, including more extensive disease, growth failure, delayed puberty, and significant psychosocial impact. Contemporary management has evolved with treat-to-target strategies prioritizing biochemical, endoscopic, and transmural healing. Exclusive enteral nutrition remains an effective steroid-sparing option for CD, while anti-TNF biologics continue to serve as the cornerstone of moderate-to-severe disease management. The Food and

Drug Administration and EMA approval of ustekinumab for pediatric CD in patients aged ≥ 2 years, supported by the UNITI Jr trial and real-world data from the REALITI and STEP-CD studies, represents a landmark expansion of the approved biologic armamentarium. Emerging evidence on JAK inhibitors such as upadacitinib and the 2025 ESPGHAN/ECCO guidelines on pediatric UC further reflect the rapidly evolving therapeutic landscape. Therapeutic drug monitoring, with specific pediatric targets now established for infliximab, ustekinumab, and vedolizumab, is essential for optimizing biologic therapy in growing children. Early recognition through systematic diagnostic approaches incorporating fecal calprotectin and timely endoscopic evaluation remains paramount. A multidisciplinary, risk-stratified approach integrating medical therapy, nutritional support, and surgical intervention offers the best opportunity to achieve optimal long-term outcomes in pediatric IBD patients.

DISCLOSURES

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