DIAGNOSIS AND ACUTE MANAGEMENT OF INFLAMMATORY BOWEL DISEASE (IBD)

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CONFLICT OF INTEREST DECLARATION: NOTHING TO DISCLOSE

Diagnosis and acute management of Inflammatory Bowel Disease (IBD)
Margaret Boland MD FRCPC

I have no financial or personal relationships to disclose
OBJECTIVES

At the end of this session, participants will be able to:

1. Recognize and have an approach to the diagnosis of IBD.
2. Differentiate between IBD and other acute presentations of diarrhea.
3. Have an approach to the management of newly diagnosed IBD.
4. Manage acute flairs of IBD and utilize available therapeutic options: what to do until the Pediatric Gastroenterologist “arrives”.

CHEO
INFLAMMATORY BOWEL DISEASES (IBD)

Crohn Disease (CD)
Ulcerative Colitis (UC)

Chronic inflammation of the bowel mucosa
Exacerbations & remission
Etiology unknown, no cure
EPIDEMIOLOGY TRENDS IN ONTARIO INCIDENCE 1999-2008

PRIMARY CARE

• Rising Incidence
  – 25% present <18 years old

• First response is crucial for earlier diagnosis:
  – Reduces overall cost
  – Reduces impact on patient and family
  – May improve long-term outcomes
RECOGNIZING A NEW CASE
# ABDOMINAL PAIN

English cohort of 268,623 children aged 0–16 years with non-specific abdominal pain as admission diagnosis, and rate for IBD in the next up to 10 years.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Observed</th>
<th>Rate ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crohn’s disease</td>
<td>1249</td>
<td>4.84 (4.45 to 5.27)</td>
</tr>
<tr>
<td>Coeliac disease</td>
<td>562</td>
<td>3.15 (2.83 to 3.5)</td>
</tr>
<tr>
<td>Ulcerative colitis</td>
<td>487</td>
<td>2.44 (2.18 to 2.74)</td>
</tr>
<tr>
<td>Appendicitis, acute or unspecified</td>
<td>12,867</td>
<td>4.23 (4.13 to 4.33)</td>
</tr>
<tr>
<td>Appendicitis, other</td>
<td>350</td>
<td>8.03 (6.66 to 9.7)</td>
</tr>
<tr>
<td>Gastroesophageal reflux disease (GERD)</td>
<td>1853</td>
<td>2.80 (2.64 to 2.96)</td>
</tr>
<tr>
<td>IBS</td>
<td>2120</td>
<td>7.22 (6.65 to 7.85)</td>
</tr>
<tr>
<td>Constipation</td>
<td>9240</td>
<td>4.33 (4.21 to 4.45)</td>
</tr>
<tr>
<td>Functional intestinal disorder, unspecified</td>
<td>88</td>
<td>6.94 (4.88 to 9.95)</td>
</tr>
</tbody>
</table>

Thornton et al, Arch Dis Child 2015
### WHEN DO CHILDREN PRESENT?

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Age at diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1-5 y</td>
</tr>
<tr>
<td>N (%)</td>
<td>112 (5.8%)</td>
</tr>
<tr>
<td>Median age at diagnosis (y)</td>
<td>4.2</td>
</tr>
<tr>
<td>Male</td>
<td>56.30%</td>
</tr>
<tr>
<td>White</td>
<td>90.20%</td>
</tr>
<tr>
<td>Positive IBD family history</td>
<td>9.80%</td>
</tr>
<tr>
<td>CD</td>
<td>42.90%</td>
</tr>
<tr>
<td>UC</td>
<td>46.40%</td>
</tr>
<tr>
<td>IBD-U</td>
<td>10.70%</td>
</tr>
<tr>
<td>Isolated colonic disease</td>
<td>67%</td>
</tr>
<tr>
<td>Hospitalization</td>
<td>33.70%</td>
</tr>
</tbody>
</table>

Baseline characteristics of 1928 children with IBD from the Pediatric Inflammatory Bowel Disease Collaborative Research Group (PIBDCRG) Registry between January 2002 and August 2012

*Oliva-Hemker M et al J Pediatr 2015*
SIGNS/SYMPTOMS AT PRESENTATION

UC:

- Almost all have bloody diarrhea
- Proctitis: Blood/pain with formed stool – not common with children

Crohn’s:

- Much more varied presentation
LINEAR GROWTH DELAY

<table>
<thead>
<tr>
<th>Patients</th>
<th>Occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pediatric IBD</td>
<td>35%</td>
</tr>
<tr>
<td>Prepubertal CD</td>
<td>60-85%</td>
</tr>
<tr>
<td>Children with UC</td>
<td>6-12%</td>
</tr>
</tbody>
</table>

*Kirschner in Kirsner, ed. Inflammatory Bowel Disease; 5th Ed 2000*
PEDIATRIC CROHN’S

Classic presentation (80%)

Abdominal pain, +/- diarrhea, anorexia, weight loss

Other (non-GI) symptoms predominating (20%)

Growth/ pubertal delay
Arthritis
Perianal disease
Fever/night sweats
Anemia
Rarer extra-GI manifestations

Patients may look pale and chronically ill
# Crohn’s at Presentation

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdominal Pain</td>
<td>72%</td>
<td>86%</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>56%</td>
<td>78%</td>
</tr>
<tr>
<td>Weight loss</td>
<td>58%</td>
<td>80%</td>
</tr>
<tr>
<td>Perianal fistula/abscess</td>
<td>7%</td>
<td>8%</td>
</tr>
<tr>
<td>Fever</td>
<td>NR</td>
<td>38%</td>
</tr>
<tr>
<td>Blood in stool</td>
<td>22%</td>
<td>49%</td>
</tr>
</tbody>
</table>

SickKids IBD Centre Database, 1990-1999 (n=386)
Sawczenko et al, UK surveillance study, Arch Dis Child 2003
PHYSICAL FINDINGS IN IBD

Linear growth fallen off or impaired
Wasted
Pallor
Clubbing
Aphthous ulcers in the mouth
Tenderness in abdomen
Perianal skin tags
EXTRA-INTESTINAL SIGNS: SKIN

- Pyoderma gangrenosum
- Erythema nodosum
  - seen in about 4% of patients
  - more common with Crohn’s
# Prevalence of Extra-Intestinal Manifestations (EIM) in Children

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>CD</th>
<th>UC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total patients</strong></td>
<td>1009</td>
<td>728</td>
<td>281</td>
</tr>
<tr>
<td><strong>Any EIM</strong></td>
<td>28.2%</td>
<td>29.9%</td>
<td>23.8%</td>
</tr>
<tr>
<td>Arthralgia</td>
<td>16.5</td>
<td>17</td>
<td>14.9</td>
</tr>
<tr>
<td>Aphthous stomatitis</td>
<td>8</td>
<td>9.9</td>
<td>3.2</td>
</tr>
<tr>
<td>Arthritis</td>
<td>3.7</td>
<td>4.4</td>
<td>1.8</td>
</tr>
<tr>
<td>Erythema nodosum</td>
<td>2.8</td>
<td>3.6</td>
<td>0.71</td>
</tr>
<tr>
<td>PSC</td>
<td>1.5</td>
<td>1</td>
<td>2.8</td>
</tr>
<tr>
<td>Pancreatitis</td>
<td>0.9</td>
<td>0.7</td>
<td>1.4</td>
</tr>
<tr>
<td>AIH</td>
<td>0.6</td>
<td>0.3</td>
<td>1.4</td>
</tr>
<tr>
<td>Iritis/uveitis</td>
<td>0.7</td>
<td>0.8</td>
<td>0.4</td>
</tr>
<tr>
<td>Ankylosing spondylitis</td>
<td>0.4</td>
<td>0.5</td>
<td>0</td>
</tr>
<tr>
<td>Pyoderma gangrenosum</td>
<td>0.3</td>
<td>0.4</td>
<td>0</td>
</tr>
</tbody>
</table>

Numbers are % of cohort

*Dotson JL et al, JPGN 2010*
INVESTIGATIONS FOR IBD

Differentiate from infection:

• **Chronic diarrhea:** >6 weeks

• DDx of chronic bloody diarrhea:
  • Yersinia, Shigella, Salmonella, Campylobacter, E. coli
  • *C. difficile*

• DDx of chronic non-bloody diarrhea:
  • Amoebiasis, other parasitic
  • *Mycobacterium tuberculosis*

→ Stool C&S, O&P, *C. diff* toxins A/B  x3
→ Yersinia titres (serology)
→ TB skin test
INVESTIGATIONS

Bloodwork: CBCD, albumin, ESR, CRP

- Anemia (microcytic, normocytic)
- Elevated inflammatory markers:
  - Platelets - Thrombocytosis
  - ESR, CRP
- Hypoalbuminemia
# FREQUENCY OF NORMAL LABORATORY VALUES

## TABLE 3  Frequency of Normal Individual Laboratory Values

<table>
<thead>
<tr>
<th>Laboratory Value</th>
<th>CD Mild (N = 105)</th>
<th>CD Moderate (N = 196)</th>
<th>CD Severe (N = 65)</th>
<th>UC Mild (N = 39)</th>
<th>UC Moderate (N = 72)</th>
<th>UC Severe (N = 20)</th>
<th>IBD All</th>
<th>IBD Moderate/Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESR</td>
<td>35&lt;sup&gt;a,b&lt;/sup&gt; (37)</td>
<td>16&lt;sup&gt;a&lt;/sup&gt; (31)</td>
<td>14&lt;sup&gt;b&lt;/sup&gt; (9)</td>
<td>74&lt;sup&gt;d,e&lt;/sup&gt; (29)</td>
<td>28&lt;sup&gt;d&lt;/sup&gt; (20)</td>
<td>15&lt;sup&gt;e&lt;/sup&gt; (3)</td>
<td>26</td>
<td>18</td>
</tr>
<tr>
<td>Hemoglobin level</td>
<td>51&lt;sup&gt;a,b&lt;/sup&gt; (54)</td>
<td>24&lt;sup&gt;a&lt;/sup&gt; (47)</td>
<td>20&lt;sup&gt;b&lt;/sup&gt; (13)</td>
<td>62&lt;sup&gt;d,e&lt;/sup&gt; (24)</td>
<td>31&lt;sup&gt;d&lt;/sup&gt; (22)</td>
<td>5&lt;sup&gt;e&lt;/sup&gt; (1)</td>
<td>32</td>
<td>24</td>
</tr>
<tr>
<td>Platelet count</td>
<td>58&lt;sup&gt;a,b&lt;/sup&gt; (61)</td>
<td>43&lt;sup&gt;a&lt;/sup&gt; (85)</td>
<td>34&lt;sup&gt;b&lt;/sup&gt; (22)</td>
<td>95&lt;sup&gt;d,e&lt;/sup&gt; (37)</td>
<td>49&lt;sup&gt;d&lt;/sup&gt; (35)</td>
<td>50&lt;sup&gt;e&lt;/sup&gt; (10)</td>
<td>50</td>
<td>43</td>
</tr>
<tr>
<td>Albumin level</td>
<td>82&lt;sup&gt;a,b&lt;/sup&gt; (86)</td>
<td>51&lt;sup&gt;a,c&lt;/sup&gt; (100)</td>
<td>31&lt;sup&gt;b,c&lt;/sup&gt; (20)</td>
<td>87&lt;sup&gt;e&lt;/sup&gt; (34)</td>
<td>76&lt;sup&gt;f&lt;/sup&gt; (55)</td>
<td>10&lt;sup&gt;e,f&lt;/sup&gt; (2)</td>
<td>60</td>
<td>50</td>
</tr>
</tbody>
</table>

*Mack et al., Pediatrics, 2007*
INVESTIGATIONS

Radiology:

• Abdominal ultrasound:
  • Ileal, colonic thickening– 50-60% sensitive
  • Good for intra-abdominal abscess
  • Mesenteric lymph nodes non-specific in the child

• (Small bowel follow-through x-ray)
  • Don’t want barium in colon when scope

• Magnetic Resonance Enterography (MRE)
  • More than just MRI of abdomen/pelvis
  • Protocol with sorbitol as contrast in small bowel
SO YOU THINK IT MAY BE IBD?

History

Physical examination

Laboratory tests

Approach to management...

...call the Pediatric Gastroenterologist (that’s why we are there😊)
DEFINITIVE TEST: TISSUE PATHOLOGY

• (Surgical resection)
• Colonoscopy and upper endoscopy
UPPER ENDOSCOPY OFTEN LOOKS NORMAL
CROHN’S: COLON DISEASE

Aphthous ulcers

Ulceration at Ileocecal valve

Linear and serpiginous ulcers
CROHN’S: UPPER AND LOWER ENDOSCOPY MAY HAVE VISIBLE FINDINGS

Stellate ulcers
COLON

“Cobblestone” appearance
TERMINAL ILEUM

Ulcers
STOMACH
DECISIONS TO TREAT TAKE INTO ACCOUNT

Disease severity
Location
Patient age and sex
Remaining growth potential
Risk of therapy
Quality of life
Cost/Insurance
MEDICATIONS

• Induction of remission:
  • Corticosteroids (prednisone, budesonide, methylprednisolone)
  • Enteral nutrition
  • 5-ASA (UC only)
  • Anti-TNF alpha (infliximab, adalimumab)

• Maintenance of remission:
  • 5-ASA
  • Immunomodulators (azathioprine, MTX)
  • Anti-TNF alpha
THERAPY IN CROHN’S

Adapted from Hanauer. Http://www.medscape.com

CONVENTIONAL “STEP-UP” THERAPEUTIC PARADIGM
MORBIDITY AND MORTALITY

31 fatalities

2 (6%) IBD-U

10 (32%) Crohn’s Disease
- Procedure-related (n=1), 10%
- Disease-related (n=2), 20%
- Infections (n=4), 40%
- Cancer (n=3), 30%

19 (61%) Ulcerative Colitis
- Infections (n=9), all immune suppressed 47%
- UC unrelated (n=3), 16%
- Unknown (n=2), 11%
- Toxic megacolon (n=2), 11%
- Post colectomy (n=2), 11%
- CRC (n=1), 5%

12 avoidable deaths by colectomy?

Multinational European study 2006-2011

De Ridder et al Inflamm Bowel Dis 2014
TREATMENT RECOMMENDATION

Pediatric IBD be managed by Pediatric Gastroenterologists partnering with FP
ANTICIPATORY GUIDANCE
STABLE PATIENTS

- **Interval visits to FP**
  - **Disease and age-specific**
    - Interval symptoms
    - Acute events (FP, ED or IBD clinic)
    - Medication adherence; dose and timing
    - Psychosocial functioning, mental health, coping skills
    - Family functioning, finances, insurance
    - School/work
  - **Nutritional care**
    - Total energy (calories)
    - Eating habits (related to disease, age, mental health)
    - Calcium, vitamin D, iron
VACCINATION

• At diagnosis we want to know:
  – Vaccination history – titres
  – Travel history (past & future)
  – Varicella immunology
  – Hepatitis serology
  – EBV serology (IgG+IgM)
  – TB Skin Test, CXR
  – Live virus vaccination (MMR, Varicella)

  → prior to starting immunosuppression

VACCINATION

• Young Children:
  – DPTP
  – HiB
  – HBV, (HAV) → prior to biologic
  – Influenza (inactivated)

• School-Aged Children & Adolescents:
  – HPV
  – Influenza Pneumococcus, Meningococcus

FLU VACCINE: HOW ARE WE DOING?

- Number of flu vaccines received

![Graph showing the number of vaccinations received by patients with IBD and non-IBD. The graph displays the percentage of patients who received different numbers of vaccinations.](image-url)
<table>
<thead>
<tr>
<th>RANK</th>
<th>GOOGLE</th>
<th>YAHOO</th>
<th>BING</th>
<th>GOOGLE 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>IBDCrohns.About.com</td>
<td>Wikipedia.org</td>
<td>Wikipedia.org</td>
<td>MayoClinic.org</td>
</tr>
<tr>
<td>2</td>
<td>Familydoctor.org</td>
<td>About.com</td>
<td>About.com</td>
<td>Wikipedia.org</td>
</tr>
<tr>
<td>3</td>
<td>Wikipedia.org</td>
<td>WebMD.com</td>
<td>I hateibd.com</td>
<td>WebMD.com</td>
</tr>
<tr>
<td>4</td>
<td>MedicineNet.com</td>
<td>I hateibd.com</td>
<td>Crohns.net</td>
<td>Healthline.com</td>
</tr>
<tr>
<td>6</td>
<td>NLM.NIH.gov (Medline Plus)</td>
<td>CDC.org</td>
<td>WebMD.com</td>
<td>Health.com</td>
</tr>
<tr>
<td>7</td>
<td>Kidshealth.org</td>
<td>Familydoctor.org</td>
<td>IBD-treatment.com</td>
<td>MedicineNet.com</td>
</tr>
<tr>
<td>8</td>
<td>WebMD.com</td>
<td>Crohns.net</td>
<td>CCFA.org</td>
<td>Emedicine.medscape.com</td>
</tr>
<tr>
<td>9</td>
<td>CDC.org</td>
<td>Emedicine.com</td>
<td>Gastroslc.com</td>
<td>EatrightOntario.ca</td>
</tr>
<tr>
<td>10</td>
<td>Goldberg.getwebspace.com</td>
<td>CCFA.org</td>
<td>IBDsupport.org</td>
<td>Kidshealth.org</td>
</tr>
</tbody>
</table>
OTHER ONLINE ACTIVITIES

Facebook, Twitter, YouTube, mobile apps….

Suggested approach:

1. Determine the nature of the information your patient is searching for on the Internet
2. Direct your patients toward accurate and away from inaccurate resources*
3. Discuss the information that your patient’s receive on the Internet
4. Don’t dismiss the significance of the Internet as a resource for your patients

Kyle J. Fortinsky, Inflamm Bowel Dis 2012;18:1156–1163
EMERGENCIES IN IBD
EMERGENCIES

• Medications:
  1) Serious infection

• UC:
  1) Acute severe UC
  2) Toxic Megacolon

• Crohn’s:
  1) Major hemorrhage
  2) Intra-abdominal abscess
  3) Obstruction, penetrating disease
### MEDICATIONS

#### Risk of Serious Infection (TREAT Registry):

<table>
<thead>
<tr>
<th>Medication</th>
<th>Odds Ratio</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Use of Infliximab</td>
<td>1.088</td>
<td>0.578-2.048</td>
</tr>
<tr>
<td>Current Use of 6MP/AZA/MTX</td>
<td>0.821</td>
<td>0.451-1.495</td>
</tr>
<tr>
<td>Current Use of Corticosteroids</td>
<td>2.315</td>
<td>1.563-6.06*</td>
</tr>
<tr>
<td>Current Use of Narcotic Analgesics</td>
<td>3.079</td>
<td>1.227-4.368*</td>
</tr>
</tbody>
</table>

* P < 0.01
## MEDICATIONS

### Risk of Death (TREAT Registry):

<table>
<thead>
<tr>
<th></th>
<th>ODDS RATIO</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Use of Infliximab</td>
<td>1.015</td>
<td>0.531-1.942</td>
</tr>
<tr>
<td>Current Use of 6MP/AZA/MTX</td>
<td>0.731</td>
<td>0.398-1.340</td>
</tr>
<tr>
<td>Current Use of Corticosteroids</td>
<td>2.096</td>
<td>1.147-3.832*</td>
</tr>
<tr>
<td>Current Use of Narcotic Analgesics</td>
<td>1.787</td>
<td>0.946-3.379</td>
</tr>
</tbody>
</table>

*P < 0.01*
MEDICATIONS

Viral Exacerbations with anti-TNF:

- Hepatitis B & C
- Herpes virus
- HIV
- HPV
- Epstein-Barr
- Varicella
- Live vaccine-related
- Others
INFECTION

• Infliximab Black Box Warnings:
  o Serious infection
  o Most on concomitant immunomodulator
  o Discontinue if serious infection, sepsis
  o TB – treat latent infection
  o Reports of bacterial, viral, fungal infection
  o 2011/9/7: Increased risk of Legionella and Listeria
**ACUTE SEVERE UC**

**Definition:**

- **PUCAI >65**

---

**TABLE 2. Pediatric UC activity index.**

<table>
<thead>
<tr>
<th>Item</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdominal pain</td>
<td></td>
</tr>
<tr>
<td>No pain</td>
<td>0</td>
</tr>
<tr>
<td>Pain can be ignored</td>
<td>5</td>
</tr>
<tr>
<td>Pain cannot be ignored</td>
<td>10</td>
</tr>
<tr>
<td>Rectal bleeding</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>0</td>
</tr>
<tr>
<td>Small amount only, in &lt;50% of stools</td>
<td>10</td>
</tr>
<tr>
<td>Small amount with most stools</td>
<td>20</td>
</tr>
<tr>
<td>Large amount (&gt;50% of the stool content)</td>
<td>30</td>
</tr>
<tr>
<td>Stool consistency of most stools</td>
<td></td>
</tr>
<tr>
<td>Formed</td>
<td>0</td>
</tr>
<tr>
<td>Partially formed</td>
<td>5</td>
</tr>
<tr>
<td>Completely unformed</td>
<td>10</td>
</tr>
<tr>
<td>Number of stools per 24 h</td>
<td></td>
</tr>
<tr>
<td>0-2</td>
<td>0</td>
</tr>
<tr>
<td>3-5</td>
<td>5</td>
</tr>
<tr>
<td>6-8</td>
<td>10</td>
</tr>
<tr>
<td>&gt;8</td>
<td>15</td>
</tr>
<tr>
<td>Nocturnal stools</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td>Yes</td>
<td>10</td>
</tr>
<tr>
<td>Activity level</td>
<td></td>
</tr>
<tr>
<td>No limitation of activity</td>
<td>0</td>
</tr>
<tr>
<td>Occasional limitation of activity</td>
<td>5</td>
</tr>
<tr>
<td>Severely restricted activity</td>
<td>10</td>
</tr>
<tr>
<td>Sum of PUCAI (0-85)</td>
<td></td>
</tr>
</tbody>
</table>
Consensus for Managing Acute Severe Ulcerative Colitis in Children: A Systematic Review and Joint Statement From ECCO, ESPGHAN, and the Porto IBD Working Group of ESPGHAN

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*Am J Gastroenterol* 2011; 106:574–588;
ACUTE SEVERE UC

Recommendations:

• ABCs, IV hydration, admit
• Frequent vital monitoring (EL 2b, Grade B)
• Blood tests (EL 2b, Grade B)
  • CBC, differential
  • ESR, CRP, albumin
  • Liver enzymes
• Stool C&S, C. diff
  • (Pediatric EL 4, Grade C / Adult EL2b, Grade B)
• Abdo x-ray if signs of systemic toxicity
  • (EL 4, Grade D)

Turner D et al., Am J Gastroenterol, 2011
ACUTE SEVERE UC

NO evidence for:

- Empiric antibiotics
- NPO
- Heparin

But - there is evidence and recommendations for venous thromboembolism (VTE) prophylaxis in all hospitalized patients with moderate to severe flares with little pediatric data

*Turner D, et al., Am J Gastroenterol, 2011*

*Papa A et al, Inflamm Bowel Dis 2015;21:1204-13*
ACUTE SEVERE UC

Pain Management:

- Severe, escalating abdominal pain should be investigated for toxic megacolon & perforation
  - (EL 5, Grade D)
- Routine use of narcotics & NSAIDs are not recommended
  - (Pediatric EL 5, Grade D / Adult EL 2b, Grade B)

*Turner D, et al., Am J Gastroenterol, 2011*
TOXIC MEGACOLON
PEDIATRIC CRITERIA

A. Radiographic evidence of transverse colon diameter $\geq 56$ mm (or $>40$ mm in those $<10$ years)

PLUS

B. Evidence of systemic toxicity:

1. Fever $>38$ °C
2. Tachycardia
3. Dehydration
4. Electrolyte disturbance
5. Altered level of consciousness or coma
6. Hypotension or shock

TOXIC MEGACOLON

Recommendations:

• Abdo x-ray in children with systemic toxicity
  • (EL4, Grade D)
• If Toxic Megacolon, immediate surgical consultation but may be managed conservatively if vitals stable and no sepsis
  • (EL 4, Grade C)
• Cyclosporine and anti-TNF not recommended
• Practice Points: IV antibiotics (amp, gent, flagyl), correct electrolytes, NPO

*Turner D, et al., Am J Gastroenterol, 2011*
CROHN’S – MAJOR HEMORRHAGE

• More likely from localized source
• >95% from bleeding ulcer
• Colonic vs. small bowel
• Search for other sources (e.g. duodenal ulcer)

• Treatment:
  • Surgical (20.5%)
  • Endoscopic (20.5%)
  • Medical (59%)

Cirocco et al., Dis Colon Rectum, 1995
Belaiche et al., Am J Gastroenterol, 1999
CROHN’S – INTRA-ABDOMINAL ABSCESSSES

- Abdominal, pelvic, iliopsoas
- Deep pelvic, groin or hip pain
- Antalgic posture
- Masked by corticosteroids
- Imaging:
  - Ultrasound usually sufficient
- Treatment:
  - IV antibiotics
  - Surgical drainage

Cellini et al., Inflamm Bowel Dis, 2010
CROHN’S – OBSTRUCTION

• Usually recurrent, partial SBO
• Symptoms:
  – Severe, cramping abdominal pain
  – Abdominal distention
  – Vomiting (bilious)
  – Early satiety
• Management:
  – NPO, IV
  – Place NG tube – LIS or SD
  – Trial of IV corticosteroids
  – Surgical resection
CONCLUSIONS

• IBD is an increasingly common chronic disease in children
• IBD in children optimally managed by pediatric gastroenterologists
• Important role for FP in recognition, referral, anticipatory guidance, and emergency care