

Gastrointestinal, Liver and Nutritional Problems in Fanconi Anemia

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August 10, 2009



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GI problems in FA

- 7% have gastrointestinal tract abnormalities
- GI symptoms common
- Liver adenomas associated with androgen treatment



Common GI symptoms in FA

- Poor oral intake
- Nausea
- Abdominal pain
- Diarrhea



Evaluation of gastrointestinal symptoms

- Good history and physical exam
- Blood for CRP, ESR, zinc level
- Stool for ova and parasites, giardia, cryptosporidium
- Urine culture
- Hydrogen breath tests
- Endoscopy with biopsy
- Avoid radiographic imaging, if possible



Some conditions causing GI symptoms

- Complications of anatomic gastrointestinal abnormalities
 - Strictures
 - Obstructions
- Chronic inflammation/infection
 - Diarrheal disease
 - Small bowel overgrowth
- Medication side effects
- Neurologic/behavioral problems



Gastroesophageal reflux

- Commonly associated with esophageal atresia
- Reflux may become more common with age
- Medical management is essential to reduce complications
- Many require anti-reflux surgery



Suggested treatment options

- Acid suppression: Proton pump inhibitor
- Gastric motility-promoting agents
 - Metoclopramide (Reglan), erythromycin
- Antinausea agents
 - Ondansetron (Zofran)
- Treatment of small bowel overgrowth
 - Metronidazole (Flagyl)
- Supplemental nutrition



Poor growth in FA

- Short stature associated with genetic defect: >50% have shorter than average height
- Multiple endocrine abnormalities
- Inflammatory disease
- Poor oral intake



Malnutrition

- 22% children underweight for height
- Measure height and weight at each visit
- Failure to thrive
 - Weight for height persistently less than 85%
 - BMI persistently < 3 d percentile for age
 - Persistent decline in either measurement



Appetite stimulants

- None tested in FA patients
- Must evaluate first for treatable causes of poor intake
- Weight gained is usually lost when drug is stopped



Appetite Stimulants

- Cyproheptadine (Periactin)
 - Minimal weight gain
 - Well tolerated
 - Initial sleepiness
- Megestrol acetate (Megace)
 - Minimal weight gain
 - Adrenal insufficiency, glucose intolerance



Plan for supplemental feeds

- Nutritional goals
 - Normal growth for genetic potential
 - Energy to meet demands of daily living
 - Adequate reserve to face short-term malnourishment during acute illness
- Lasting benefits may require long-term therapy.
- Supplementation through GI tract is preferable to supplementation by IV



Overweight

- 27% FA patients overweight or obese
- Associated with abnormal lipids
- Associated with diabetes
- Although failure to thrive has been a significant problem in FA, over-nutrition and metabolic syndrome are now being seen.

Giri, et al. J Clin Endocrinol Metab 2007



Managing OW/OB

- 6-day diet diary to initiate dietary intervention
- Explore potential for exercise
- Try to explore the family eating habits



GI conditions to consider before HSCT

- Previous use of androgens: US/CT/MRI liver
- Chronic abdominal pain: consider endoscopy to detect potential bleeding or infectious risks
- Chronic diarrhea: screen for infections
- Established liver disease



Long-term concerns after HSCT

- Liver
 - Chronic GVHD
 - Chronic viral hepatitis
 - Iron overload
- Intestine
 - Chronic GVHD with diarrhea and weight loss



Gastrointestinal graft-versus-host disease

- Complication of HSCT
- Mild to very severe damage to lining of GI tract
- Severe, watery diarrhea and/or nausea and vomiting
- Liver may also be involved with jaundice and reduced function



Gastrointestinal GVHD in FA patients

- Incidence
 - Early data suggested increased incidence of GVHD in FA patients
 - Risk and severity have decreased as HCT has improved
- May increase risk of squamous cell carcinoma



Hepatic complications of androgens

- Hepatic adenoma 6-7%
- Peliosis
- Potential complications
 - Intrahepatic bleeding
 - Hepatoma
- Screening/Management



Screening for androgen-related liver disease

- Liver enzymes every 3 months
- Ultrasound every 6 months



Secondary iron overload

- May lead to organ damage: liver, heart, pancreas
- Screening
 - Serum iron
 - Transferrin saturation
 - Ferritin
- Must confirm iron overload with liver biopsy or MRI



Vitamins for cancer prevention

- Speculation that FA is an oxidant stress disease
- Diets high in vegetables and fruits may reduce the risk of some cancers
- Individual vitamin preparations do not show similar results
- Some vitamins are toxic in excess
 - Vitamin A
 - Vitamin D
 - Vitamin C
 - Niacin
- Controlled clinical trials are essential to avoid unnecessary toxicity

