Food and Fire: Diet in IBD

Joel R. Rosh, MD
Director, Pediatric Gastroenterology
Goryeb Children's Hospital/Atlantic Health
Professor of Pediatrics
Icahn School of Medicine at Mount Sinai

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I would like to be more successful “selling” EEN

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  – My Vitamin D tutor

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• My Jewish Mother
  – “There is nothing that food cannot cure”!

Objectives

• Review the emerging importance of the gut microbiome
• Review the evidence regarding exclusive enteral nutrition as a therapy in IBD
• Common nutritional concerns raised by patients and families with IBD will be reviewed.
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Multi-factorial Pathogenesis of IBD

The Treatment Naïve Microbiome in New – Onset Crohn’s Disease

- Microbiota co-occur in two groups/axes of organisms which are changed in children with CD
- Fecal samples collected at onset of disease do not reflect alterations of intestinal lining bacterial communities
- Antibiotics contribute to an imbalance of intestinal bacteria (dysbiosis)
- *Rectal biopsies are a strong disease predictor, independent of disease location

"But doctor—can’t we treat this with diet, all my friends say so..”

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Exclusive Enteral Nutrition (EEN): Primary Treatment of Active CD

- Therapeutic efficacy
- Effect of disease location?
- Elemental vs. polymeric formula?
- Mucosal healing?
- QOL?

Glasgow Prospective: Effect of Disease Phenotype

- 114 patients over 3 year period (2004-2007)
- 8 weeks of EEN for active disease
- 52% oral; 48% NG (polymeric vs. elemental)
- Disease Location and Behavior (Vienna)
  - 73% inflammatory
  - 45% upper (L4)
  - 26% ileocolon (L3)
  - 17% colon (L2)

EEN vs Prednisone: Clinical Proof of Dietary Therapy

- Relative Risk (95% CI)
- Study Date
  - Sanderson 1987
  - Seidman 1991
  - Seidman 1993
  - Thomas 1994
  - Ruuska 1994
  - Combined

Glasgow Prospective: Effect of Disease Phenotype

- 80% remission at 8 weeks
- Significant improvement of BMI
- No Difference by:
  - Type of EEN
  - Disease behavior or location

Exclusive Enteral Nutrition (EEN): Primary Treatment of Active CD

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Cochrane Review: Effect of Protein Type

- 7 trial meta-analysis
- 113 patients elemental
- 109 patients polymeric
- No difference between groups
  (OR 1.37; 95% CI 0.80—2.35; p = 0.24)

Exclusive Enteral Nutrition (EEN): Primary Treatment of Active CD

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Polymeric formula did not effect adherence but was associated with significantly reduced need for nasogastric tube administration of formula.

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Polymeric Diet vs. Steroids for Induction

QOL and EEN
Clinical progress in the two years following a course of exclusive enteral nutrition in 109 paediatric patients with Crohn’s disease

- N = 109
- After 8 weeks EEN, remission 59%, improved 29% and no change 11%
- 58% relapsed during two year follow-up.
- A second course of EEN had a similar response rate.
- Height z-score did not improve over the 24 months despite addition of AZA.

Conclusions:

- EN is a valid treatment option
- Polymeric as effective as elemental
- Seems independent of disease location
- Partial EN may be a valid adjunct
- Mechanism still to be fully established
- Altered gut microbiota?

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Why is Diet Important?

- 15.6% of patients feel that diet causes IBD
- Nearly one-half reported decreased pleasure of eating
- About two-thirds reported not eating certain foods they usually like to eat to prevent relapse

Diet Research: Food and Symptoms

- CCFA Partners (Internet based survey)
- Foods that more frequently improved symptoms
  - Yogurt, rice, bananas
- Foods that worsened symptoms
  - Non-leafy vegetables, spicy foods, fruit, nuts, leafy vegetables, fried foods, milk, red meat, soda, popcorn, dairy, alcohol, high-fiber foods, corn, fatty foods, seeds, coffee, and beans
- Limitations: self-reported, likely related to intolerances, no measures of inflammation

The Specific Carbohydrate Diet

- Excludes
  - Any processed sugar
  - Canned vegetables
  - All grains
  - Potatoes, yams, and other starchy foods
  - Chickpeas, bean sprouts, and soybeans
  - Canned/processed meats
  - All milk, high-lactose cheeses, commercial yogurt
  - Multiple other common condiments and food ingredients

Diet Research

- Studies on the relationship between diet, nutrition, and IBD are limited
- Most studies are small with anecdotal outcomes
- Diet may have an impact on disease, but research has been inadequate to show how this takes place
  - Effects on immune system?
  - Changes in gut bacteria?

The Low FODMAP Diet

- Dietary approach to minimizing symptoms associated with irritable bowel syndrome (IBS)
  - F = Fermentable
  - O = Oligosaccharides
  - D = Disaccharides
  - M = Monosaccharide; A = and
  - P = Polyols
- May be helpful in reducing gas and bloating
- Requires careful label reading
- Planning with an RD can result in a nutritionally complete diet

SCD Open Label Trial in Peds CD

- 38% screen failure
- 50% “diet too stringent”
- 9/10 completed 52 weeks SCD
- VCE used for mucosal healing

Cohen SA, et al. JPGN 2014
Diet Research: Diet and IBD Development

- 2011 systematic review of diet and IBD

  - Fats and meats
    - High intake associated with increased risk of IBD
  
  - Fiber and fruits
    - High intake associated with reduced risk of CD
  
  - Vegetables
    - High intake associated with reduced risk of UC


Enteral nutrition with a formula-defined feed is effective treatment for CD.

There is no direct evidence of benefit from any other specific dietary modification in CD, but indirect evidence supports recommendation of a low intake of animal fat, insoluble fibre and processed fatty foods containing emulsifiers.

Some evidence supports vitamin D supplementation.

In ulcerative colitis (UC), evidence is weaker, but high intakes of meat and margarine correlate with increased UC incidence and high meat intake also correlates with increased likelihood of relapse.

CDED: CROHN’S DISEASE EXCLUSION DIET

CDED excludes:
- Gluten
- Dairy
- Animal fat
- Processed meats
- Emulsifiers
- Canned goods

we found that children who consumed a higher dietary ratio of u6/u3 were susceptible for CD if they were also carriers of specific variants of CYP4F3 and FADS2 genes.

Our findings implicate diet–gene interactions in the pathogenesis of CD.
Results

Enteral nutrition with a formula-defined feed is effective treatment for CD. There is no direct evidence of benefit from any other specific dietary modification in CD, but indirect evidence supports recommendation of a low intake of animal fat, insoluble fibre and processed fatty foods containing emulsifiers.

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Vitamin D and IBD

Higher Predicted Vitamin D Status Is Associated With Reduced Risk of Crohn’s Disease

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High Residential Sun Exposure Is Associated With a Low Risk of Incident Crohn’s Disease in the Prospective EJP Cohort

Bottom Line on Popular Diets

- There is a difference between symptom control and disease control (corticosteroids)
- Popular diets are supported by testimonials more than well-controlled scientific studies
- Some diets may be worth a try BUT....
  - Discuss it with your physician or a diettian to make sure that the diet is safe and nutritionally complete
  - Do not abandon conventional treatment!

THANK YOU!