FAILURE TO THRIVE: RETHINKING OUR TREATMENT GOALS

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Disclosures
• I have nothing to disclose.

Learning Objectives
• Recognize that most children with FTT do not have an underlying medical condition.
• Approach evaluation in a targeted, rational way, limiting excessive diagnostic tests and hospitalization.
• Discuss importance of observation of feeding behaviors and recording of nutritional intake over time in the evaluation of FTT.

Introduction
• FTT is not a diagnosis, but a sign describing an underlying problem.
• Describes combination of undernutrition and deficient growth over time.
• Typically refers to poor weight gain, but may impact length and HC in severe cases.
• Other terms include: poor growth, undernutrition, or growth deficiency.

Question: How is FTT defined?
1. Weight < 5th percentile
2. Crossing of two %ile lines on growth curve
3. Weight for length < 10th percentile
4. Rate of daily wt gain < than expected for age
5. All of the above
6. None of the above

Definition
• Several definitions based on anthropometric criteria, but none is uniformly accepted:
  • Weight < 5th percentile
  • Crossing of two percentile lines on growth curve
  • Weight for height < 10th percentile
  • BMI < 5th percentile
  • Rate of daily weight gain < than expected for age
• Most of these are flawed.
• Practical definition: Inadequate growth over time relative to standard growth charts after taking into account age, gender, ethnicity.
Question: Are you worried?
1. Yes
2. No
3. Not sure, want to see more growth points.

Question: How about now?
1. Yes
2. No
3. Still not sure

FTT Growth Curve Examples

Etiology
- Often multifactorial, resulting from a complex interplay between psychosocial, behavioral, and physiological factors.
- Old terms ‘organic’ and ‘non-organic’ FTT are oversimplified and are no longer used.
- Yet, an old paradigm continues to shape clinical care.

Pathophysiology
- 3 mechanisms lead to poor growth:
  - Inadequate caloric intake
  - Inadequate absorption of calories
  - Increased energy requirements

Question: Which of these 3 mechanisms most commonly leads to FTT?
1. Inadequate caloric intake
2. Inadequate absorption of calories
3. Increased energy requirements
Inadequate Intake

- Due to:
  - Abnormal suck/swallow
  - Aversion
  - Early satiety
  - Psychosocial factors (often considered dx of exclusion, but in reality it’s often immediately obvious from history)

- Common examples:
  - Anatomic or neurologic abnormalities can interfere with feeding
  - Cleft palate or other oropharyngeal anomaly
  - Brain injury
  - Delayed gastric emptying causing early satiety
  - GERD causing pain after eating (with secondary oral aversion or habitual early cessation of feeding)
  - Psychosocial problems or inadequate feeding

Inadequate Absorption

- Inherited or acquired GI conditions:
  - CF
  - Cow’s milk protein allergy
  - Post-infectious villous atrophy

- Malabsorption syndromes (typically cause abnormal stool):
  - Smelly bulky stools (cystic fibrosis)
  - Bloody or mucousy stools (cow’s milk allergy)
  - Persistent watery stools (villus atrophy)

Increased Metabolic Demand

- Cardiac disease (CHF)
- Pulmonary disease (BPD/CLD)
- Severe chronic anemia
- Chronic acidosis (RTA)
- Chronic inflammation (IBD)
- Endocrinopathy (hyperthyroidism)
- Malignancy
- Inborn error of metabolism
- Chronic infection (HIV)

Key Point

- The long list of causes of uncommon causes of FTT often triggers an exhaustive, expensive, and poorly-focused evaluation rather than a targeted, rational, limited work-up based on history, physical and common conditions.

Why Does This Happen?

- Flawed paradigm handed down over decades.
- Assumes all causes are equally likely.
- Teaches us to rule out the ‘bad stuff’ before evaluating common psychosocial and behavioral causes (‘diagnosis of exclusion’).
- Confuses having a problem with having a disease.
- Assumes FTT is a diagnosis rather than a symptom of a larger problem.

Rethinking Our Approach

- Approach FTT as a symptom of undernutrition.
- Most children with FTT are not sick, but some may have a problem that needs to be addressed.
- Those that are sick can usually be readily identified by their symptoms.
- For the tiny number of children who are sick, and who don’t have other symptoms, it is extremely rare that a delay in that diagnosis would affect outcome.
Rethinking Our Approach

• Furthermore…

• For the large majority of kids with poor growth due to social and behavioral factors, extensive diagnostic work-ups harm the patient and undermine efforts to focus on the real issues.

Evaluation

• Begins with thoughtful H&P.

• Meticulous diet, feeding, and social history.

• Judicious use of diagnostic tests.

• Laboratory investigation is unlikely to reveal an organic cause in the absence of evidence from the initial H&P.

Question:

2,607 lab tests on 185 patients with FTT. How many test results helped establish a diagnosis? (Sills, JAMA, 1974)

1. 0.4%
2. 4%
3. 14%
4. 24%
5. 54%

Newer Evidence?

• No

• Today, there still is no evidence to support the extensive, systematic use of screening laboratory evaluations in diagnosing FTT.

Exam

• The goals of PE include identification of signs of genetic disorders or medical diseases contributing to undernutrition and child abuse or neglect.

• Observe feeding
  • Suck/swallow
  • Caretaker response to hunger/satiety
  • Tone of the feeding interaction
  • Is the caretaker irritable, punitive, disengaged, intrusive?
  • Is child apathetic, irritable, noncompliant, provocative?

Systematic Approach

• Consider whether or not there is actually a problem:

  • Is child symptomatic?
  • Is growth pattern a variation of normal?
  • What’s the child’s behavior and development like?
  • Who is worried: parent or you?
Systematic Approach

• Is the child presenting with dysmorphic features or constitutional, respiratory, GI, or neurological symptoms?

• If so, evaluate for those diseases, and refrain from calling it FTT.

• If not…

Systematic Approach

• Meticulous evaluation of the feeding and psychosocial environment first.

• Re-focus the parents and providers on this goal.

• Limit revisiting of organic possibilities.

• Limit lab testing, hospitalization and medicalization.

Question: You are giving a lecture to a group of medical students about management of FTT. One asks whether hospitalization is always indicated. Which of the following is the strongest reason for hospitalization in FTT?

1. To efficiently send a vast array of laboratory tests.
2. To document 3 days in a row of weight gain.
3. To have the child seen by an array of consultants to ensure organic disease is not being overlooked.
4. To have repetitive, objective assessments of the child’s feeding behaviors.
5. To emphasize to parents that FTT is a serious problem.

Treatment Goals

• Multiple experienced people observe feedings.
• Initiate caloric supplements.
• Involve an experienced social worker, feeding specialist, nutritionist, RN, MD.
• Monitor weight gain closely over time (weeks to months, not days).
• Arrange home-based support (visiting RN).
• Involve CPS if necessary.

Indications for Hospitalization

• Severe malnutrition requiring inpatient monitoring for re-feeding syndrome.
• Dehydration.
• Serious intercurrent medical problem.
• Psychosocial circumstances putting child at risk for immediate harm.
• Failure to respond to several months of outpatient mgmt.
• Extreme parental impairment or anxiety.
• Sometimes, initiation of NG feeds.

Hospitalization Often Unnecessary To…

…document caloric intake.
…document short-term weight gain.
…expedite diagnostic work-up in a stable child.
…obtain sub-specialty consultation in a stable child.
…evaluate problematic parent-child interaction.
Catch-Up Growth

- Children with FTT need ~150% of recommended daily caloric intake based on their expected (not actual) weight.

- Caloric needs for catch up growth:

<table>
<thead>
<tr>
<th>Age</th>
<th>DRI</th>
<th>FTT</th>
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<tbody>
<tr>
<td>0-6 mo</td>
<td>108 kcal/kg/d</td>
<td>158 kcal/kg/d</td>
</tr>
<tr>
<td>6-12 mo</td>
<td>98 kcal/kg/d</td>
<td>147 kcal/kg/d</td>
</tr>
<tr>
<td>12-36 mo</td>
<td>102 kcal/kg/d</td>
<td>153 kcal/kg/d</td>
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</tbody>
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- Aim to achieve target over ~7 days.

Response to Therapy

- Expect catch-up growth to start within 1-2 wks.
- Often takes 6-12 months to restore weight.
- Intake and growth spontaneously decelerate toward normal levels.
- Mild refeeding syndrome can occur.
- Supplemental NG feeds have a role after failed trial of 1-2 months of adequate oral intake.

Summary

- FTT is a sign describing an underlying problem.
- Decreased intake is the typical cause of FTT in most cases.
- Diagnostic testing can be wasteful, expensive, and time consuming and often detracts from addressing the real issues resulting in poor intake.
- Detailed feeding and psychosocial history are high yield in approaching FTT.
- Hospitalization may have a limited role in a small subset of cases of FTT.