Reflux & CMPA

Less black and white than I thought….

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Disclosures

- None

Objectives

- Review an approach to reflux with a focus on infants
- Discuss the overlap between CMPA and GERD in infants
- Review my approach to treating gastrointestinal manifestations CMPA in infants

Case – Johnny

- Johnny is a 3 month old baby born at term after an uncomplicated pregnancy and delivery. His mother describes him as difficult to feed. He cries during and after feeds and arches his back. He does not like to be put down. He spits up large volumes routinely. His weight gain has been sub-optimal over time. His mother is teary and exhausted.

Reflux

Focus on Infants

Definitions

GER: the passage of gastric contents into the esophagus with or without regurgitation and vomiting.

GERD: when GER leads to troublesome symptoms and/or complications.

Refractory GERD: GERD not responding to optimal treatment after 8 weeks.

Red Flags

- Systemic symptoms (fever, weight loss, lethargy, irritability, GU symptoms, development delay)
- Onset > 6 months, persisting beyond 12-18 months
- Neurological symptoms (seizure, bulging fontanelle, macro/microcephaly)
- GI symptoms (forceful or nocturnal vomiting, hematemesis, bilious vomiting, rectal bleeding, abdominal distension)

Diagnostic tests

- **Diagnostic tests not typically warranted for primary diagnosis of GERD**
- Further work up in select cases only
  - Bariums study or ultrasound if concern for anatomic abnormality
  - Manometry reserved for motility disorders
  - Endoscopy (complications, mucosal disease suspected, escalation)
  - pH monitoring
- 4-8 week trial of PPI can be used for diagnostic purposes in children but less reliable in infants

Non-pharmacologic therapy

- **Avoid Overfeeding** (consider modifying volume/intervals)
- **Consider elimination of cow's milk in maternal diet OR 2-4 week trial of extensively hydrolyzed protein-based (or amino-acid based) formula** **since subset of patients with CMPA present with GERD symptoms*
- Other
  - Thickened feeds improve visible regurgitation (but uncertain if any effect on other symptoms and may be safety concerns)
  - Positioning (head elevation, lateral and prone positioning) can help children but NOT recommended in infants due to risk of SIDS
  - Massage therapy, lifestyle interventions and complementary medicines NOT recommended

Pharmacologic therapy

- **PPIs recommended first line** ** BC special access requires failure of H2RAs 1st*
- **H2RAs suggested if PPIs are not available or contra-indicated.**
- **Expectations**:
  - Response within 4-8 weeks
  - Able to discontinue within 6-12 months
- Treatment not recommended for isolated crying/distress or visible regurgitation in otherwise healthy infants
- Antacids, domperidone, metoclopramide and other prokinetics not typically used
- In select cases baclofen and surgery could be considered (typically neurologically impaired, life threatening complications, etc.)

My go to options

- Ranitidine
- Omeprazole
- Lansoprazole

- *Dosing is weight based*
- *References: www.pedmed.org (BCCH formulary freely accessible), Lexicomp (accessible through VIHA)*
- *Compounding pharmacies are very helpful!*

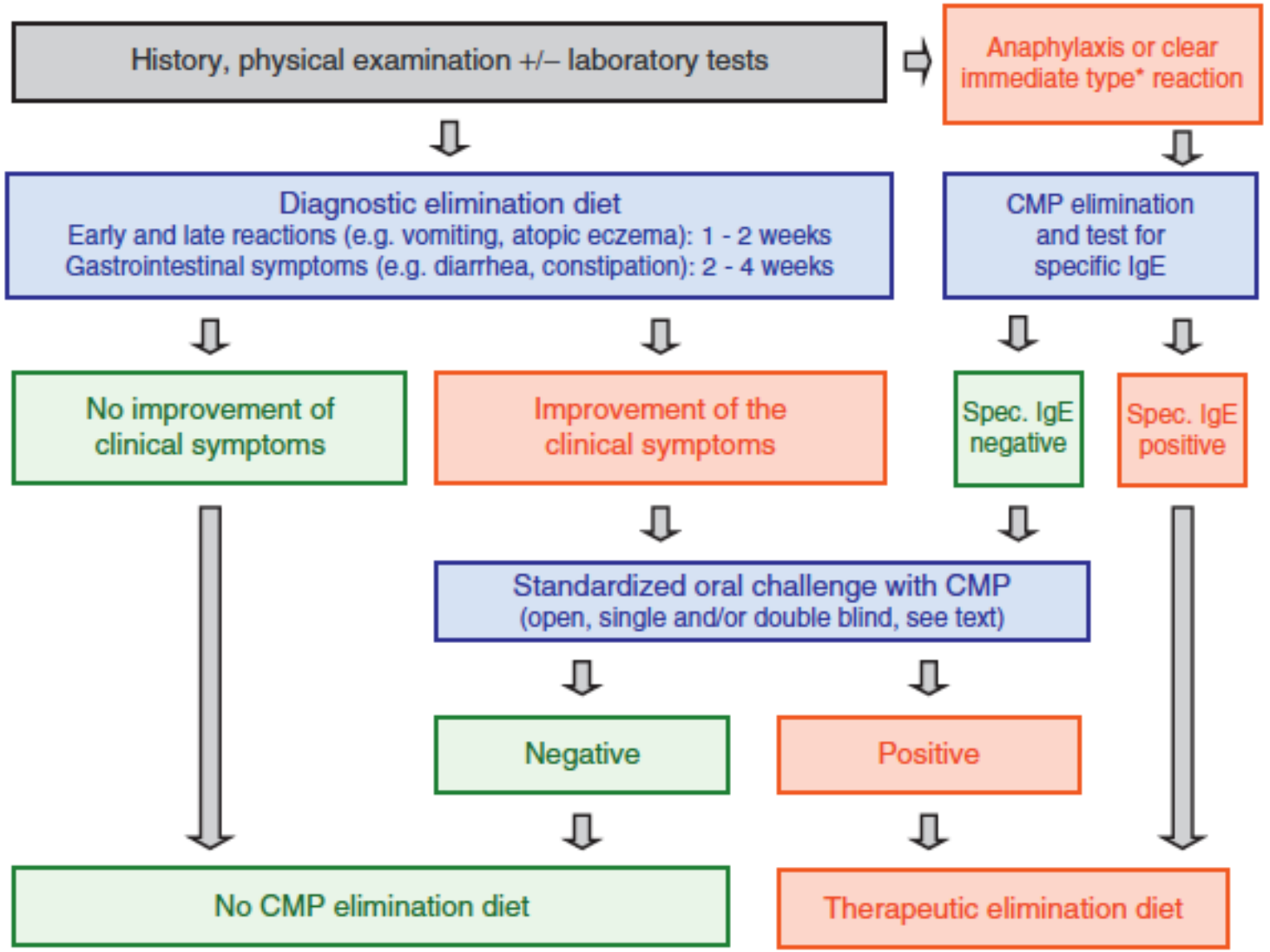
CMPA

Focus on GI symptoms in infants

Signs & Symptoms

- 2 pathways: IgE and non-IgE mediated (?over-simplification)
  - Important to differentiate
  - IgE mediated: present with typical allergic symptoms (cutaneous, respiratory)
  - Non-IgE mediated: present with GI symptoms (GERD, enteropathy, FTT)
- GI manifestations may include blood per rectum, diarrhea, colic, vomiting, regurgitation
- Symptoms may be non-specific
- In some cases iron deficiency anemia & failure to thrive
- **In infants it can be difficult to distinguish CMPA from GERD**

Diagnostic Algorithm – ESPGHAN/NASPHGAN Guidelines



My approach

- Full assessment including investigations if indicated considering broad DDx
- If CMPA suspected:
  - Stepwise elimination diet for breastfeeding moms with journal
    - Cow's milk (+ sheep + goat)
    - Beef/Eggs/Soy/Corn/other
    - 14 day washout
  - Handouts/support for mom to help with interpreting labels
  - Consider dietician referral
  - Consider calcium supplementation for mother
  - If formula feeding trial of extensively hydrolyzed formula (Nutramigen). If unsuccessful consider amino acid based formula (Neocate)
  - *In rare cases where baby is very sick formula (short or long term) may be a better option (breast milk can be pumped and frozen)*

Foods containing cow’s milk to avoid
Milk/cream (cow and other animals)
Butter/artificial butter/margarine
Cheese
Yogurt/sour cream
Whey
Casein/caseinate/lactose/lactalbumin/lactoglobulin/ghee/hydrosylates/lactoferrin
Powdered milk and cocoa
Commercially made bread products/crackers/cookies and processed meats
Processed meats
Salad dressings/mayonnaise

Treatment - formula

- Start with an **extensively** hydrolyzed formula first
- Typically 2 week trial
- Move to amino acid formula if ongoing symptoms
  - more expensive and taste worse!
- Soy formula not recommended due to cross reactivity
- Partially hydrolyzed not recommended
- Other commercially available “milks” should be avoided (coconut, oat, etc.)

Partially hydrolyzed	Extensively hydrolyzed	Amino acid based
Good start	Nutramigen A+	Neocate
	Alimentum	Puramino A+
	Pregestimil A+	

Notes:

- Growth should be monitored regularly
- Improvement may be noted within 1 week but can take 2-4 weeks in my experience
- Continue elimination diet for at least 6 months or until 9-12 months of age (could trial for as little as 3 months for babies with milder symptoms)
- Don’t delay starting solids or introducing other allergenic foods

Take home points

- GERD and CMPA can present similarly
- A thorough assessment is important
- Choose investigations on a case by case basis
- Consider eliminating cow's milk from maternal diet if breastfeeding (or trialing an extensively hydrolyzed formula for formula fed babies) prior to starting anti-reflux medication
- Keep in mind that cow's milk protein is "hidden" in many foods

References

- Pediatric Gastroesophageal Reflux Clinical Practice Guidelines: Joint Recommendations of the North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition and the European Society for Pediatric Gastroenterology, Hepatology, and Nutrition. JPGN 2018;66: 516–554
- Diagnostic Approach and Management of Cow's-Milk Protein Allergy in Infants and Children: ESPGHAN GI Committee Practical Guidelines. JPGN 2012;55: 221–229
- Brill H. Approach to milk protein allergy in infants. Can Fam Physician 2008;54:1258-64