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Amoxicillin With a Side of Aromatherapy: Holistic Therapies as a Complementary Approach to the Treatment of Pediatric Conditions

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1

Speaker Disclosure

- No financial relationships with commercial interests
- This presentation contains no references to unlabeled/unapproved uses of medications or products

2

Learning Objectives

- Define various complementary and integrative therapies that are utilized in the pediatric population.
- Describe which appropriate therapy can be utilized for conditions and symptoms that include otitis media, constipation, sore throat, eczema, cough, nausea and vomiting.
- Identify possible adverse reactions with conventional medication and the safety profile of therapies discussed.
- Recognize the need for additional history taking when discussing complementary and integrative therapies a family may be utilizing.

3

My Journey

GRADUATED PNP IN 2017

BEGAN WORKING IN PRIMARY CARE SETTING 2018

CARED FOR A NEWBORN WHO REQUIRED HOLISTIC CARE

4

2-Week-Old With Cold Symptoms

Colloidal Silver

Garlic

Chiropractor

Humidifier

5

Millennial Parents (1981-1999)

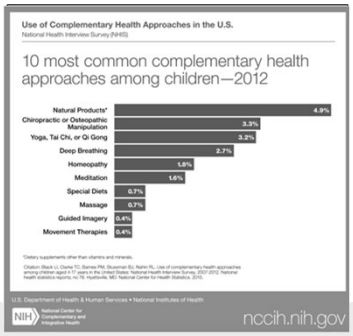
- 83.1 Million: Largest cohort in USA
- Tech-savvy: Information is instantly accessible (D'Onofrio, 2019)
- Vaccine hesitant: Under vaccinated 15-25% (Nguyen, 2022)
- Organic: Largest consumers of products
  - Concerns about pesticides, hormones, antibiotics
  - Avoid processed food
  - Avoid artificial ingredients (Jagiello, 2018)

6

Complementary Use

- US: 12%; European Countries: 52% (Anheyer, 2018)
- 1 in 10 children in US (McClafferty, 2017)
- Under reported
  - Part of culture
  - Language barriers
  - Ethnic populations less likely to disclose (McClafferty, 2017)

7



3 Most Common Dietary Supplements

- **Fish oil**
- **Melatonin**
- **Probiotics** (McClafferty, 2017)

8

Predictors

- Parental use
- Higher education
- Higher family income
- Living in Western US
- Higher provider visits in last year (McClafferty, 2017)
- Parental interest
  - Preventative health
  - Decrease prescription
  - Chronic illness

9

Who do Parents Listen to When Considering Other Therapies

- Study conducted in Austria discussed use of adjunct treatment
- 215 children ages 1-14 years
- Source of recommendation:
  - Friends and family: 74.3%
  - Pharmacist: 29.6%
  - Internet: 26.3%
  - Other (included literature and physician): 8.9% (Gerlitz, 2022)

10

Regulation and Labeling

- **FDA**: Not safe unless proven safe
- The Dietary Supplements Health and Education Act (1994)
  - 1 or more vitamin, mineral, herb, botanical, or amino acid
  - Intended for ingestion
  - Not used a food
  - Labeled
  - Third-party literature
  - Dosing (McClafferty, 2017)

11

Most Common Pediatric Visits

- Upper respiratory tract infection (URI)
  - Sore throat
  - Cough
  - Otitis media
- Constipation
- Atopic dermatitis
- Nausea/Vomiting

12

Upper Respiratory Tract Infections (URI)

- Average child experience 5-7 colds (URIs) a year
- Viral (rhinovirus)
- Guidelines: Symptomatic treatment and alleviate discomfort
- Overuse of antibiotics: Resistance
- World Health Organization (WHO) suggest alternate approaches (Fixsen, 2018)
- Patients who seek the care of a provider who is certified in homeopathy use less antibiotics/antipyretics/anti-inflammatory drugs for URI's then those providers who only prescribe western medications (Salatino, 2016)

13

Prevention and Complementary Treatment

	Echinacea	Pelargonium sidoides (EPs7630)
Efficacy	• No preventative effects • Limited evidence with URI treatment • Daily dosage varied based on age and concentration	• Also known as South African Geranium • Greater effect in minimizing URI symptoms • Daily dosage varied based on age and concentration
Safety	• Increase risk of Acute Otitis media within 6 month • Increase risk rash	• Various doses (30mg, 60mg, 90 mg) • Higher doses showed faster improvement and return to school • Moderately safe
		• Further research is needed (Anheyer, 2018)

14

Prevention and Complementary Treatment

	Elderberry (Sambucus nigra)
Efficacy	• Popular home remedy • Antiviral, antibacterial, and antioxidant • Use: Common cold and influenza • Reduces symptoms and duration of illness • 50% Reduction in disease duration if started in first two days (Zwolinska, 2022)
Safety	• Contains cyanogenic glycosides: Uncooked ingestion can cause poisoning • Need to apply heat to the berries • Risk for home remedy (Hawkins, 2018)

www.nccih.nih.gov/health/elderberry

15

Cough-Honey

- Antibacterial, antimicrobial, topically soothing
- For acute cough as effective
  - Equally effective with dextromethorphan
  - More effective than diphenhydramine
- Reduced cough time (Mancak, 2023)
- 3 Days of honey has better than only 1 day
- Improves quality of sleep
- Dark Honey
- Adverse effects: Stomachache, nausea, and vomiting (Oduwole, 2018)

16

Sore Throat

- Tonsillitis, tonsillopharyngitis, pharyngitis
- Guidelines: non-steroidal anti-inflammatory drugs (NSAIDS)
- Used as supportive care for non-strep
- Honey and a sore throat
- Herbal Medication
  - Eps 7630: Pelargonuim sidoides reduced severity of symptoms; safe and effective
  - BNO 1030:made of 8 herbal extracts and not sold in the United States; reduced symptoms with no adverse effects (Buttner, 2023)

17

Acute Otitis Media

- 709 Million cases worldwide annually
- Significant developmental sequelae
- Guideline: Watchful waiting and antibiotics; Vaccines
- Probiotic nasal spray: (various species of *Streptococcus*) OM prone children 2 X/day for 20 days with antibiotics (10 days)
- Reduced recurrence rate: 42%
- Formulation of nasal spray needs to be niche-specific organisms (Coleman, 2019)

18

Acute Otitis Media

Symptom Relief

- Naturopathic ear drops compared to efficacy of anesthetic ear drops

Homeopathy

- Belladonna
- Chamomilla
- Hepar sulphuricum for 5 days
- Three times a day with a decrease in symptoms in 12 hours
- 230 children with AOM: 72% pain control within 12 hour of homeopathic drop;28% needed antibiotic therapy (Nathan, 2022)

19

Acute Otitis Media

- Used of therapies discussed in URI: echinacea and probiotics can decrease chance of AOM (Marom, 2016)
- **Osteopathy**(OMT): assist in removing "areas of restriction" antibiotics with OMT for 6 months; OMT group had fever AOM a month; no difference in antibiotic use
- **Chiropractic**: correcting "misalignments" not much evidence and high risk of injury
- **Acupuncture**: limited and children would be difficult to tolerate
- **Aromatherapy**: not been well studied (Nathan, 2022)

20

Acute Otitis Media

- Ear Candling: also known ear coning or thermal-auricular therapy
- Root in traditional healing practices of China, Greece, Egypt, Tibet, and North America
- Said to "purify the blood" by creating a negative pressure
- No scientific facts
- Safety: harmful
  - Burns
  - Ear occlusions
  - Tympanic membrane perforation
  - Otitis externa (Marom, 2016)

21

Functional Constipation

- **Prevalence**:
  - Up to 29.6% of children
  - Accounts 3% primary care/ 25% Gastroenterologist visits (Alcantara, 2014)
- About 40-60% symptoms continue to adolescents/adulthood
- Significant impact on quality of life
  - Symptoms continue into adulthood leads negative social impact
- Parents fear dependence on laxatives and perceived side-effects (Santucci, 2021)

22

Probiotics, Prebiotics, Synbiotics

- Goal: To alter microbiome that can impact motility
- Lack of efficacy due to non-standardized strains and doses
- Limited studies/Low risk of harm
- Parents perceive to be safe (Santucci, 2021)

Probiotics	Probiotics	Prebiotics	Synbiotics
How they differ	Live microorganisms	Substrate of microorganisms	Mixture of live and substrate
Adverse Effects	Abdominal pain and transient diarrhea	Abdominal distention, diarrhea, flatulence and vomiting	Similar as prebiotics and probiotics

23

Botanicals and Supplements

- Most not studied in pediatric population
  - Slippery elm
  - Rhubarb
  - Fenugreek
  - Aloe vera
  - Dandelion root
  - Elderberry
- Adverse effects: Nausea, vomiting, abdominal cramps, diarrhea, headache (Santucci, 2021)

24

Sources of Fiber

Green Banana	Black Strap Molasses	Cocoa Husk
• 50 ml of water to 200 g of unrip green banana cooked for 20 min in pressure cooker-Eat softened pulp • No standard dosing • Very fibrous • Improved straining and painful defecation	• Also called Sugar Cane Extract • Minimal evidence that supports effectiveness	• 4g BID age 3-6 years • 8g BID age 7-10 years • Improved symptoms

Similar adverse effects: Transient abdominal pain (Santucci, 2021)

25

Mind-Body Interventions

Show promise; Have low risk
- Diaphragmatic breathing
- Biofeedback: Pelvic floor muscle training
- Cognitive behavioral therapy (CBT)

Show promise; Need further study
- Abdominal massage
- Foot reflexology
- Dry cupping
- Acupuncture
- Chiropractic (Wegh, 2022)

26

Nausea and Vomiting

- Many studies related to surgery or cancer (Arruda, 2019)
- Vitamin B6: No benefit for children

Supplement	Dosage	Use	Adverse Effects
Ginger	• Antispasmodic • 10 mg oral daily	• Acute gastroenteritis (AGE) • Decreased symptoms and school missed	• Heartburn • Can prolong bleeding time
Peppermint	• Antispasmodic • 0.2 ml 3 X daily with meals	• Study: Decreased IBS symptoms and nausea	• Heartburn, abdominal pain, and anal burning • Enteric-coated capsules available

27

Nausea and Vomiting

Aromatherapy
- Lemon, ginger, peppermint
  - Show promise in adult studies
- Inhaled ginger essential oil in child study
  - No benefit although low risk
- Caused increased nausea and emesis (Sanchez, 2022)

Acupuncture and Acupressure
- No studies found related to nausea/vomiting
- Studies for post-operative nausea vomiting showed promise with low rigor
- Has promise (Arruda, 2019)

28

Think About the Location of a "Sea Band"

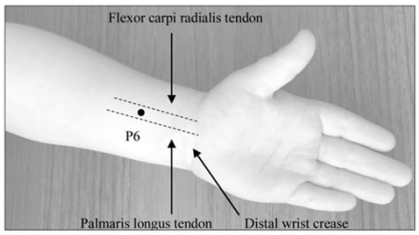


Figure 1. Pericardium6 acupuncture and acupressure point for nausea relief. The point is found approximately three finger-widths (patient's fingers) proximal to the distal wrist crease between the palmaris longus and flexor carpi radialis tendons.

(Arruda, 2019)

29

Nausea and Vomiting

Possible Benefit and Low Risk

- Hypnotherapy
- Biofeedback
- Cognitive-Behavioral therapy (Arruda, 2019)

Marijuana and Derivatives

https://www.cdc.gov/marijuana/

30

Gastrointestinal Side-effects of Chemotherapy in Children

- Ginger vs Acupressure: Ginger group improved by day 3
- Acupressure improved, but not as significant as ginger
- Anti-inflammatory and antispasmodic
- Decreased vomiting and nausea
- Gingers lozenges: 3 X daily
  - 20-40 kg = 1 gm total
  - Over 40 kg = 2 gm total (Essawy,2021)

31

Atopic Dermatitis: "Natural Oils"

- Chronic, relapsing-remitting with difficult to manage flare-up
- "Steroid Phobia"
- Studies used trans epidermal water loss (TEWL)
- **Olive oil**
  - Not many studies
  - Can induce inflammation (oleic acid)
  - No antibacterial effect
  - Cause contact dermatitis (Karagounis, 2019)

32

Natural Oils

Coconut Oil

- Lauric acid
- Antimicrobial
- Anti-inflammatory
- 2 X daily X 8 weeks
- Preferred: Virgin coconut oil

Sunflower Seed Oil (SSO)

- Linoleic acid
- Most investigated
- Potential benefit
- Neonatal studies
- Preferred: High-linoleate SSO (Karagounis, 2019)

Atopic Dermatitis: Vitamin Supplements

- Previous studies show vitamins may be useful in treatment
- Used **SCOR**ing Atopic Dermatitis (SCORAD)/Eczema Area and Severity Index (**EASI)**
- **Vitamin D3**: 1600-2000 IU daily X 3 months
- **Vitamin E**: 400 IU daily X 4 months
- **Vitamin B12**: 0.07% topical cream 2 X daily X 4 weeks
- No correlation between serum levels of vitamin D and severity
- Adverse effects: Irritation with topical applications (Zhu, 2019)

8-year-old

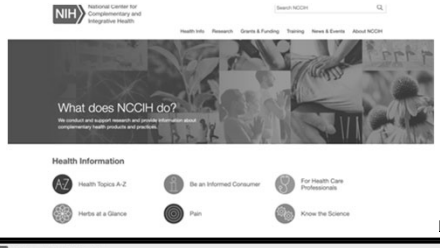
Fall

Arnica

Vaginal bleeding

Resources

- The National Center for Complementary and Integrative Health (NCCIH) of the National Institutes of Health (NIH)



https://www.nccih.nih.gov/

Importance of History taking

- Parents will discuss if patient-centered communication
- NCCIH created a toolkit to aid patients and providers talk about the use of complementary health practices
- Help health care providers feel "ARMED" (McClafferty, 2017)

37

A: Asked about the different therapies used by patients

R: Respect the family's perspectives, values, and cultural beliefs in open ongoing communication centered on the patient's well-being

M: Monitors the patient's response to treatment and establish measurable outcomes for evaluation

E: Educate yourself and the patient and/or family by identifying creditable, evidence-based resources on complementary therapies

D: Distribute evidence-based information about relevant therapies available from NCCIH and increasing number of publications in peer-reviewed journals (McClafferty, 2017)

38

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41

Questions?

42