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Sydney enjoys: Spending time with his family, running, and surfing



Myths and Misconceptions in Asthma

## Myths and Misconceptions in Pediatric Asthma

Practical Pediatrics

4/16/16

Sydney Leibel MD

Allergy/Immunology

Rady Children's Hospital



## Myths and Misconceptions in Asthma

# Disclosures

- None

## Myths and Misconceptions in Asthma

# The Soup from a Fat Hen

- Asthma is a disease known since antiquity, Maimonides suggested “the soup from a fat hen” as a useful therapy in his 12<sup>th</sup> century *Treatise on Asthma*
- Asthma is now generally defined as recurrent and (somewhat) reversible airflow obstruction due airway inflammation, smooth muscle bronchospasm, and mucus hypersecretion



## Myths and Misconceptions in Asthma

### Outline

- Case Presentation
- RAD vs. Asthma
- Asthma Predictive Index
- Treatment
  - Nebulized vs MDI?
  - Montelukast vs ICS?
- Side effects
  - Inhaled Corticosteroids
  - Combination therapy-Long Acting Beta Agonists (LABA)



## Myths and Misconceptions in Asthma

### Case Presentation-Pediatrician's office

- HPI
  - 2 year old boy
  - Caught a cold from his sister
  - Mother has noticed increased cough especially at night and wheezing for the first time
- Family History
  - Mother with allergies and childhood asthma
- Exam
  - Wheeze at both lung bases
  - Prolonged expiratory phase
  - No retractions or tachypnea
  - O2 sats 99% on RA
- Flexural eczema



## Myths and Misconceptions in Asthma

### Case Presentation

- Give a nebulized albuterol treatment in clinic and wheeze resolves
- Sent home with nebulizer and albuterol nebs



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## Myths and Misconceptions in Asthma

### Advantages - 2 delivery systems

#### Nebulizer

- **Passive**
- **High dose**
- **Mixing possible**
- **Dose established with ICS (budesonide)**

#### Spacer with mask

- **Decreased time**
- **Quiet**
- **Portable**
- **More agents available**



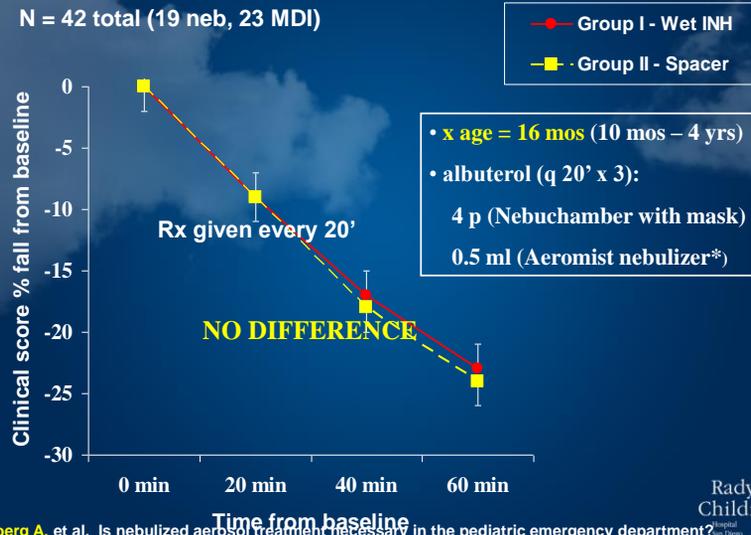
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## Myths and Misconceptions in Asthma

## Misconception: Nebulizer superior to inhaler/spacer in young children

N = 42 total (19 neb, 23 MDI)



## Myths and Misconceptions in Asthma

## Case Presentation

- Patient discharged home with spacer/mask and Albuterol
- Patient has two more episodes like this over the winter
- Coughing at night once per week
- Diagnosed with Reactive Airways Disease and scheduled to see asthma specialist



Myths and Misconceptions in Asthma

Question:

What age can asthma be diagnosed in a child?

- A) Less than Two Years of age
- B) Two to Four Years of age
- C) Four to Six Years of age
- D) When they can do PFTs
- E) At any age

Myths and Misconceptions in Asthma

**Myth: Asthma can not be diagnosed in young children**

- Answer E - Asthma can be diagnosed at any age
- "Reactive Airways Disease" (RAD) - highly non-specific with no clinical meaning
- Reactive airways dysfunction syndrome (RADS) is a different diagnosis as well



JOHN V. FAHY and PAUL M. O'BYRNE "Reactive Airways Disease"  
American Journal of Respiratory and Critical Care Medicine, Vol. 163, No. 4 (2001), pp. 822-823.

## Myths and Misconceptions in Asthma

### Myth: Asthma commonly presents with sole symptom of chronic cough

#### Differential diagnosis of chronic cough

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>■ <b>Infants:</b> <ul style="list-style-type: none"> <li>□ <b>Infections</b> <ul style="list-style-type: none"> <li>■ Chlamydia</li> <li>■ Pertussis</li> <li>■ Bronchiolitis</li> </ul> </li> <li>□ <b>Non infectious</b> <ul style="list-style-type: none"> <li>■ Asthma</li> <li>■ Domestic smoke pollution/passive smoke</li> <li>■ Gastro-eso. Reflux</li> <li>■ Foreign body</li> </ul> </li> <li>□ <b>Congenital anomalies</b> <ul style="list-style-type: none"> <li>■ Tracheo-eso. fistula</li> </ul> </li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>■ <b>Children</b> <ul style="list-style-type: none"> <li>□ <b>Infectious</b> <ul style="list-style-type: none"> <li>■ Pneumonia</li> <li>■ Croup</li> <li>■ Post nasal drip/sinusitis</li> </ul> </li> <li>□ <b>Non infectious</b> <ul style="list-style-type: none"> <li>■ Asthma</li> <li>■ Foreign body</li> <li>■ Tropical eosinophilia</li> <li>■ Environmental irritants</li> </ul> </li> <li>□ <b>Psychogenic</b></li> </ul> </li> </ul> |
|---|--|

- How do we diagnose the likelihood asthma in young children that wheeze?

Modified Asthma Predictive Index (API)



J.M. Marchant, I.B. Masters, S.M. Taylor, N.C. Cox, G.J. Seymour, A.B. Chang Evaluation and outcome of young children with chronic cough Chest., 129 (2006), pp. 1132-1141



## Myths and Misconceptions in Asthma

### Question:

The 3 major criteria for a positive modified API:

- A) Parental asthma
- B) Eczema
- C) Allergic Sensitization to 1 aeroallergen
- D) Eosinophilia
- E) Change in FEV1 on Spirometry



## Myths and Misconceptions in Asthma

**Answer: A,B,C****Modified****Asthma Predictive Index (API)**

1 major criterion

2 minor criteria

Parental asthma

Eczema

1 + aeroallergen



Wheezing apart from a cold

Food allergy

Eosinophilia

Stringent:  $\geq 3$  episodes wheezing /yr

## Myths and Misconceptions in Asthma

**Case Presentation: Allergist office**

- Sent to allergist
- Skin testing positive to dust mite
- Positive API
  - > 3 episodes of wheezing with URIs
  - History of eczema
  - Maternal asthma
- 2 oral steroid courses in last 6 months
- Night time cough 2x/month
- Diagnosed with Mild persistent asthma



## Myths and Misconceptions in Asthma

Question:  
Should we start a Leukotriene Antagonist (LTA) or  
Inhaled Corticosteroid (ICS)?

1.



2.



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## Myths and Misconceptions in Asthma

### LTAs vs ICS

- LTA's reasonable option for mild asthma  
(convenient, easy to take)
- Efficacy data in young children limited
  - never studied for indication < age 6 yrs
- ICS still "best return on your money"



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## Myths and Misconceptions in Asthma

### Our patient: Back in Pediatrician's Office

- Pediatrician would like to start daily ICS dosing
- Parents worried about side effects of daily ICS therapy- adult height loss



## Myths and Misconceptions in Asthma

### Mother expresses concerns about steroid side effects

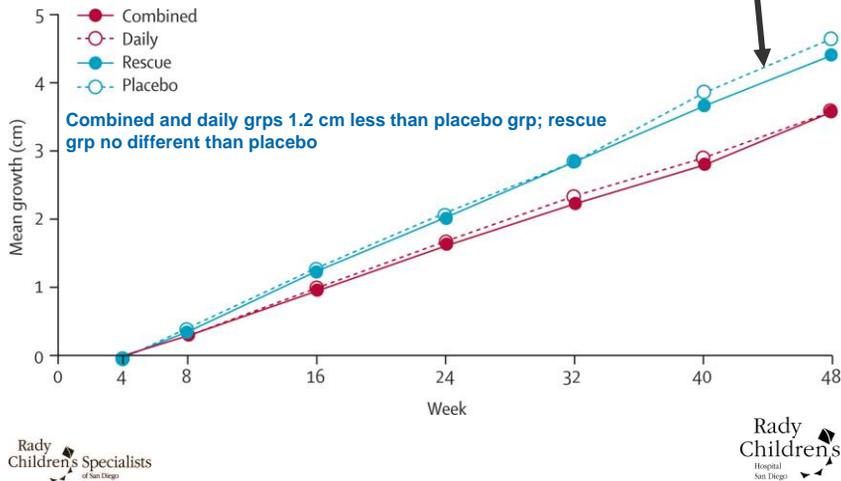
On average how much linear growth loss is seen in patients who are on long term daily ICS?

- A) 0.55 cm
- B) 1.2 cm
- C) 2.1 cm
- D) 3.4 cm
- E) 4.3 cm

### Myths and Misconceptions in Asthma

**Answer: B = 1.2 cm is correct**

#### Linear growth by treatment group



### Myths and Misconceptions in Asthma

Our patient- Fast forward 10 years

- PT is now 12 years old
- Has continued to need daily ICS and on medium dose for age
- Still needing 2 oral steroid courses per year
- Having daily symptoms
- Allergist considering Advair



Myths and Misconceptions in Asthma

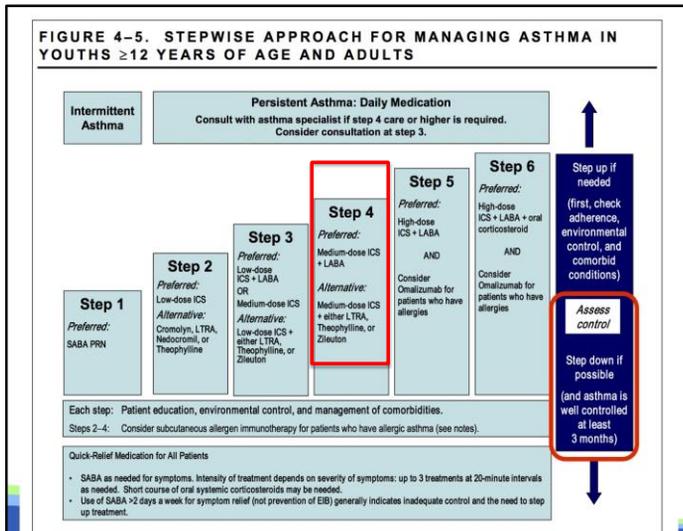
LABA Safety Question

- Is it safe to step up to Combination therapy ICS +LABA?
  - Mother is worried about “black box” warning



Myths and Misconceptions in Asthma

At step 3, considering step 4



NHLBI 2007



## Myths and Misconceptions in Asthma

### Summary

- Reactive Airways Disease is not a helpful diagnosis
- Spacer/Mask has higher adherence than nebulizer
- Inhaled Corticosteroids are generally “better bang for buck” than LTAs
- Inhaled Corticosteroid benefits outweigh risks
- Long Acting Beta Agonist (LABA) concerns are overstated



## Myths and Misconceptions in Asthma

# Thank you!

Please feel free to contact me with any questions you may have:

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