Joint Session ACOFP and AOASM: Exercise Induced Asthma

Bruce Dubin, DO, JD, FCLM, FACOI
ACOFP FULL DISCLOSURE FOR CME ACTIVITIES

Please check where applicable and sign below. Provide additional pages as necessary.
Name of CME Activity: 2015 AOA/ACOFP Osteopathic Medical Conference & Exposition (OMED)

Dates and Location of CME Activity: October 17 - October 21, 2015 Orange County Convention Center Orlando, Florida

Topic: Joint Session ACOFP/AOASM: Exercise Induced Asthma, Sunday, October 18, 2015 8:00-8:30am

Name of Speaker/Moderator: Bruce Dubin, DO, JD, FCLM, FACOI

DISCLOSURE OF FINANCIAL RELATIONSHIPS WITHIN 12 MONTHS OF DATE OF THIS FORM

A. Neither I nor any member of my immediate family has a financial relationship or interest with any proprietary entity producing health care goods or services.

B. I have, or an immediate family member has, a financial relationship or interest with a proprietary entity producing health care goods or services. Please check the relationship(s) that applies.

- Research Grants
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- Speakers' Bureaus*
- Employment
- Ownership
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- Others, please list:

Please indicate the name(s) of the organization(s) with which you have a financial relationship or interest, and the specific clinical area(s) that correspond to the relationship(s). If more than four relationships, please list on separate piece of paper:

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<th>Clinical Area Involved</th>
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*If you checked “Speakers’ Bureaus” in item B, please continue:

- Did you participate in company-provided speaker training related to your proposed topic? Yes: No:
- Did you travel to participate in this training? Yes: No:
- Did the company provide you with slides of the presentation in which you were trained as a speaker? Yes: No:
- Did the company pay the travel/lodging/other expenses? Yes: No:
- Did you receive an honorarium or consulting fee for participating in this training? Yes: No:
- Have you received any other type of compensation from the company? Please specify: Yes: No:
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Signature: __________________________ Date: 9/24/15

Bruce Dubin, DO, JD, FCLM, FACOI

Please fax this form to ACOFP at 866-328-1835, or e-mail to joank@acofp.org as soon as possible.
Deadline: Wednesday, September 23, 2015
Pre - Participation Evaluation
Exercise Induced Asthma

Bruce Dubin, DO
Kansas City University
College of Osteopathic Medicine

What is Asthma

Reversible Airways Dx
(Twitchy Lungs)

Basic functional component present in all asthmatics

Airway secretion
Inflammation
Bronchoconstriction.
Asthma

1. **Variable Airway Obstruction**
   Improvement of FEV1 >12% post - bronchodilator, ideally 15% - 20%

2. >20% over time or after corticosteroid treatment.

3. Improvement in PEF 20% post - bronchodilator or over time

4. **Airway Hyper responsiveness**
   Positive bronchial provocation test (e.g., with methacholine)

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**Common Asthma Triggers**

1. Allergic
2. Dust Mites
3. Strong Smells or Odors
4. Smoke
5. Infections
6. Emotions
7. Irritants
8. Weather
9. Certain types of physical exercise
Exercise-Induced Asthma

**Definition**

1. Bronchoconstriction related to mediator release.
2. Triggered by aerobic exercise
3. Lasts several minutes

**Symptoms**

Chest tightness
Cough
Shortness of Breath
Wheezing
Underperformance
Fatigue

**Contributing Factors for EIA**

1. Cool temperatures
2. Low humidity
3. Poor air quality
4. High pollen counts
5. Coincident respiratory infection
6. Poor physical conditioning
Proposed Physiology of EIA

1. Alterations in the temperature of the airways
2. Alterations of the osmolarity in the epithelial lining fluid
3. Release of mediators

Phases of EIA

Immediate Phase

Transient airflow obstruction 5 – 15 minutes after beginning or cessation of physical exertion.
Phases of EIA

**Refractory Phase**
1. 40 – 50%. Diminished bronchoconstriction due to exercise.
2. Begins with initial aerobic exercise and lasts up to 3 hours.
3. Unpredictable & Intermittent
4. Depletion of mast cell mediators, release of endogenous catecholamine’s and protective prostaglandins

**Late-Phase**
1. 3 – 9 hours after initial exercise.
2. Increase in symptoms with cough, wheezing, and SOB.

Spirometry Simplified

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The Allergic History

1. Look for trigger factors
2. Elicit factors that improve breathing
3. Total history including work, hobbies, travel, environmental
4. What types of exercise
5. Family history

Testing

1. Broncho - provocation testing
2. Treadmill / Bicycle exercise with pre and post PFT’s
3. Informal exercise testing
4. Eucapnic voluntary hyperventilation (EVH)
Broncho - Provocation Testing

Methacholine
Histamine
Specific Allergens

Informal Testing

Duplicating the exercise and measuring pre and post spirometry.
Treadmill / Bicycle Exercise

In Lab, so different environment.

Pre and Post spirometry

Eucapnic Voluntary Hyperventilation

1. EVH - potent challenge for provoking tightness in recognized asthmatics.
2. Symptoms are the same (cough, wheeze).
3. Ventilation rates similar to exercise.
4. Similar mediators in response to EVH
Eucapnic Voluntary Hyperventilation

1. Standardized by U.S. Army.
2. Hyperventilate at room air.
3. 5% Carbon Dioxide, 21% Oxygen, 74% Nitrogen.
4. 30 X FEV1 or 85% of MVV
5. Duration is six minutes.
6. FEV1 measured X3 before challenge.
7. FEV1 measured X 2 immediately after challenge, and five, 10, 15, and 20 minutes after.
8. A reduction in FEV1 of 10% or more of the value before the test is considered positive.
Nonpharmacological Treatment

1. Select the right sport in the right place at the right time.

2. Warm-up so competition coincides with refractory phase.

Pharmacologic Therapy

1. Beta2 Agonists
2. Mast Cell Stabilizers
3. Steroids
4. Theophylline
5. Leukotriene Receptor Antagonist
6. 5-Lipoxygenase Inhibitor