

of asthma exacerbations. The present work addresses this notion with three separate but interrelated components.

**Methods:** Using the electronic medical record, HR of children admitted with asthma exacerbation between 2014 and 2015 was interrogated from admission through discharge. The accuracy of a passive HR monitor, which measures HR of sleeping children from beneath the mattress, was validated by comparison with HR recording from the polysomnography laboratory. To assess feasibility, an observational study was undertaken in a 12 year old male subject with moderate persistent asthma. The HR monitor was placed under the mattress in the subject's home. Asthma Control Test (ACT) was collected at baseline and every two weeks. IRB approval and written informed consent were obtained for all relevant portions.

**Results:** In asthmatic children, HR decreased by  $30.8 \pm 10.6$  % over the hospital course. In pilot studies conducted in the polysomnography laboratory, HR measurement by passive and ECG monitoring correlated well,  $r^2=0.96$ . In the feasibility study, HR was stable for the month prior to hospitalization but demonstrated a significant increase in the 3 days immediately preceding exacerbation. HR was stable after exacerbation resolution.

**Conclusion:** These data support the notion that increases in HR may be a sensitive and early sign of asthma exacerbation. Passive monitoring may offer an opportunity for early detection and intervention that might attenuate disease severity, hospitalization frequency and cost.

## P136

### OCCUPATIONAL ASTHMA CAUSED BY INHALABLE ROYAL JELLY IN A CHINESE WOMAN

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**Introduction:** Royal jelly is essential for the development of the queen bees. Ingestion of the royal jelly has been reported to trigger rhinitis, asthma, or anaphylaxis, but occupational asthma occurring after inhaling royal jelly is infrequent.

**Methods:** In this case report, clinical history was collected. Skin prick test, spirometry, and workplace challenge test were conducted. Finally, immunoblot inhibition assays were performed to clarify the cross-reactivity between royal jelly and honeybee venom. Informed consent was obtained from the patient.

**Results:** We present a rare case of occupational asthma in a 43-year-old Chinese woman caused by aerosolized royal jelly. The lady is a senior manager of a royal jelly processing factory, and suffered from wheezing attacks for ten years. Her symptoms appeared each time she entered the processing workshop and improved following departure from it. Also she had a large local allergic reaction while being stung by a honeybee. Skin prick test to the royal jelly was positive. The workplace challenge test showed dramatic decline of peak expiratory flow after she entered the workshop, indicating that the uniquely high level of inhalable royal jelly in the workshop must be the cause of her asthma. Then in the immunoblot inhibition assay, royal jelly showed complete inhibition of specific IgE reactivity to honeybee venom, suggesting the presence of cross-reactive allergens.

**Conclusion:** This case indicates that occupational exposure to the aerosolized royal jelly could induce asthma. There might be allergenic cross-reactivity between the royal jelly and honeybee venom.

## P137

### BRONCHOMALACIA MASQUERADING AS THERAPY RESISTANT ASTHMA

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**Background:** Bronchomalacia, a softening of the bronchial cartilage leading to dynamic narrowing and airway obstruction, is rare in adults. Patients may present with treatment resistant dyspnea, cough and wheezing. We describe a case of refractory respiratory symptoms attributed to asthma, found to have bronchomalacia.

**Case Description:** 59-year-old female with a history of allergic rhinoconjunctivitis, recurrent sinusitis, reflux and asthma was evaluated for refractory dyspnea and cough. Asthma, diagnosed in her 30's, was triggered by infections and allergens and she remained symptomatic despite aggressive therapy with inhaled corticosteroid and long acting beta agonist, bronchodilators, systemic steroids, antihistamines, proton pump inhibitor and allergy immunotherapy. Evaluation was normal including a chest radiograph and CT, echocardiogram, cardiac catheterization, pulmonary function studies and methacholine challenge. Physical exam was normal. Otolaryngology ruled out vocal cord dysfunction. Bronchoscopy revealed near collapse of the right main-stem bronchus during expiration, confirming the diagnosis of bronchomalacia. Bronchoalveolar lavage was normal and endobronchial biopsy revealed features of aspiration. She had a mildly abnormal swallow study. Patient was referred for bronchial stenting and bronchoplasty with resolution of her symptoms.

**Discussion:** Bronchomalacia, caused by damage to the bronchial tree, leads to asthma-like symptoms and is diagnosed via bronchoscopic visualization of the dynamic bronchial collapse. This patient had no evidence of asthma on proper evaluation, and a clear diagnosis was made on bronchoscopy.

**Conclusion:** Bronchomalacia, a rare condition in adults, can cause significant respiratory symptoms and should be considered in the differential of treatment resistant asthma, cough, shortness of breath, wheezing and recurrent respiratory infections.

## P138

### EVALUATION OF FUNCTIONAL CAPACITY BY SIX-MINUTE WALK TEST IN PEDIATRIC ASTHMA PATIENTS

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**Introduction:** Asthma patients show lower exercise tolerance. The 6 minutes walk test (6MWD) assesses the functional capacity (CF). Physical activity elevates scores on the Physical Self-Perception Questionnaire (PSPQ).

**Method:** Patients 6 to 17 years old, asthmatics and a healthy control group. Vital signs and flowmetry (FEM) were measured; the beginning and end of 6MWD and PSPQ was applied.

**Results:** There was a total of 58 patients, 55.2% were male. Mean age was  $10.6 \pm 3.1$  years. In the asthmatic group:  $456.31 \pm 48.73$  meters were traveled for boys; and  $455.74 \pm 61.9$  for girls,  $p=0.280$ . The control group was crossed meters: for male,  $465.98 \pm 58,036$ , female  $471.43 \pm 51,953$ ,  $p = 0.346$ . The correlation of meters traveled comparing asthma group vs control group was  $p = 0.230$ . By comparing BMI with the traveled distance a  $x^2 p = 0.531$  was obtained, the Pearson correlation and  $p = -0.445$ . In boys, the FC was positively associated with general physical self-perception and the PSPQ variables: fitness, physical attractiveness, strength ( $p=0.02$  and  $p=0.04$  respectively).

**Conclusions:** There was no significant difference in the distance covered between the two groups. The main impact factor was the BMI with an inverse relationship to the distance traveled. Boys have a best physical self-perception that is positively associated with FC.

## P139

### FLUTICASONE PROPIONATE AND FLUTICASONE/SALMETEROL MULTIDOSE DRY POWDER INHALERS COMPARED WITH PLACEBO FOR PERSISTENT ASTHMA

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