

### 369 Allergy to Cow Milk Proteins Contaminating Lactose, Common Excipient of Dry Powder Inhalers for Asthma

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**RATIONALE:** Lactose intolerance and cow milk allergy are two distinct diseases, the first is due to a congenital or acquired lactase deficiency and the second is due to an immunologic disorder. Although disputed, the risk of anaphylaxis to cow's milk (CM) after ingestion or lactose inhalation really exists, as that is shown in the following clinical case.

**METHODS:** A woman allergic to milk presented several atopic dermatitis and asthma exacerbations after respiratory exposure to CM proteins traces. The symptoms began when bronchodilator (formoterol) was delivered with a dry powder inhaler, instead of a spray. The prick-tests and challenges were carried out with natural food and pharmaceutical lactose.

**RESULTS:** A sensitization to CM proteins was shown by positive skin prick-test and specific IgE to cow's milk, respectively 5 mm and 15.4 KU/l. The oral and bronchial challenges with CM were positive as well as the oral challenge with lactose. A bronchial challenge with lactose induced bronchospasm, rhinitis and an exacerbation of eczema. Stop of exposure to this excipient and diet avoidance, made it possible to note a clear improvement of eczema and asthma.

**CONCLUSIONS:** This clinical case is the second published observation (1st case in the adult) showing the risk of anaphylaxis in case of severe allergy to CM, at the time of the use of dry powder inhalers containing lactose (1).

**REFERENCES:** (1) Nowak-Wegrzyn A, Shapiro GG, Beyer K, Bardina L, Sampson HA. Contamination of dry powder inhalers for asthma with milk proteins containing lactose. *J Allergy Clin Immunol* 2004; 113(3): 558-60.

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### 370 Heliox in the Treatment of Patients Hospitalized for Asthma Exacerbations

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**RATIONALE:** The benefit of Heliox (mixture of helium and oxygen) in the treatment of asthma exacerbations is unclear. The objective of this study was to estimate the prevalence of Heliox use and compare demographic characteristics and clinical outcomes in patients who did vs. did not receive Heliox following hospitalization for asthma exacerbations.

**METHODS:** Using billing data at Johns Hopkins Hospital, we identified all hospitalizations for asthma exacerbations from January 1, 1997 to July 31, 2004. Chart review was used to confirm hospitalizations in which Heliox was used. Age, sex, race, hospital Length of Stay (LOS), and use of mechanical ventilation (invasive or non-invasive, yes vs. no) were compared between Heliox and non-Heliox groups.

**RESULTS:** N = 2,542 patients were hospitalized for asthma exacerbations during the 7.5 year period: Median (interquartile range, IQR) age was 10 years (4-36 years), 36% were  $\geq$  18 years old, 50% were female, 83% were African-American. The median (IQR) LOS was 2 days (1-3 days) and 4% underwent mechanical ventilation. N= 38 (1.5%) of patients received Heliox. Patients who received Heliox were, older (53% vs. 36% were  $\geq$  18 years old,  $p = 0.04$ ), more likely to undergo mechanical ventilation (34% vs. 3%,  $p < 0.001$ ), and have longer median LOS (4 days vs. 2 days,  $p < 0.001$ ).

**CONCLUSIONS:** Heliox is used infrequently in patients hospitalized for asthma exacerbation. Older patients with more severe exacerbation were more likely to receive Heliox.

### 371 Steroid Myopathy Masquerading as Restrictive Lung Disease in an Asthmatic Patient

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**RATIONALE:** Steroid myopathy is a well-known complication of systemic corticosteroid therapy, typically affecting the proximal musculature. We report a case of an asthmatic with new, superimposed restrictive lung disease due to steroid myopathy.

**METHODS:** A 48 y/o farmer with well-controlled, moderate-persistent asthma developed increasing asthma symptoms while on a harvesting trip. Previously, he had increased asthma symptoms during harvesting seasons; however, during the rest of the year, his symptoms were minimal. After this harvest, his symptoms did not abate despite high-dose prednisone for 8 weeks. Physical exam showed an obese man with decreased breath sounds without wheezing. He also had mild muscle weakness in his extremities.

**RESULTS:** Pulmonary function tests revealed FEV1/FVC=89%, FVC decreased from 98% on prior spirometry to 38%, and TLC=62% of predicted, indicating new restriction. Chest CT was poor quality due to the patient's obesity but showed ground glass versus atelectasis. Bronchoalveolar lavage revealed a normal cell count. Transbronchial biopsies were consistent with asthma and showed no evidence of hypersensitivity pneumonitis. Maximal inspiratory pressure was reduced to 34%, and a pressure-volume curve was consistent with neuromuscular disease. The patient was diagnosed with steroid myopathy, his steroids were discontinued, and over the course of several months, he had resolution of his dyspnea and normalization of his pulmonary function tests.

**CONCLUSIONS:** In the appropriate clinical setting, steroid myopathy should be considered in asthmatics whose symptoms do not improve with corticosteroids. This case highlights the variable manifestations of steroid myopathy.

### 372 Effect of Once-Daily Evening Dosing of Low-Dose Mometasone Furoate on Nocturnal Awakenings in Subjects with Mild-to-Moderate Persistent Asthma

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**RATIONALE:** Nocturnal awakenings are a common sign of poor asthma control. The ability of inhaled corticosteroid (ICS) therapy to prevent nocturnal awakenings is an important measure of clinical efficacy with these agents. Once daily evening (QD PM) dosing may provide the peak effect to prevent nocturnal awakenings at the time of greatest need.

**METHODS:** Two randomized, double blind studies evaluated treatment with mometasone furoate dry powder inhaler (MF-DPI) 220 mcg QD PM or placebo in 12 weeks of therapy for persistent asthma. Subjects in one study were ICS-naïve. Subjects in the other study were previously maintained on daily ICS therapy (75% were using fluticasone propionate), and completed an ICS reduction period prior to baseline. As a result, subjects in both studies were comparable at baseline with respect to lung function and were pooled for analysis. The analysis compared MF-DPI with placebo for changes from baseline in nocturnal awakenings per night requiring bronchodilator rescue at endpoint.

**RESULTS:** Average awakenings were 0.33/night and 0.36/night at baseline (approximately 10 awakenings per month) in the MF-DPI (n = 176) and placebo (n = 178) groups, respectively. Treatment with MF-DPI 220 mcg QD PM significantly reduced the frequency of nocturnal awakenings from baseline at endpoint (-0.17/night), to approximately 5 awakenings per month, compared with an increase (0.02/night) observed with placebo treatment ( $p = 0.0042$ ).

**CONCLUSIONS:** Treatment with MF-DPI 220 mcg administered once daily in the evening significantly reduced nocturnal awakenings requiring bronchodilator rescue in patients with persistent asthma.

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