

**Conclusion:** This is the first systematic review of the literature on the role of systemic steroids in the first episode of acute preschool wheeze. Both short-term (hospital stay, escalation of management) and long-term (future relapses) outcomes will be assessed. Albeit the small number of studies, this meta-analysis can provide important guidance for future research studies design in this field.

#### 0986 | Reproducibility of the early asthmatic response to cat allergen in a Naturalistic Exposure Chamber: Methodology

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**Background:** The Naturalistic Exposure Chamber (NEC) mimics aspects and characteristics of a natural home environment occupied by cats. The NEC provides an exposure to cat allergen that is more controlled than in a traditional field study, but more natural than in an Environmental Exposure Unit (EEU) which uses aerosolization of cat dander extract. This observational study will determine the proportion of cat allergic patients with mild asthma who experience an early asthmatic response (EAR) defined as a reduction in FEV<sub>1</sub> ≥20% within 180 minutes in the cat allergen NEC and will evaluate the reproducibility of the EAR.

**Method:** Thirty patients will undergo two exposures at least 28 days apart. Each exposure session will stop when the patient has attained either a ≥ 20% drop from baseline FEV<sub>1</sub> or sustains 180 minutes of exposure. Spirometry will be measured every 10 minutes using hand-held device-linked spirometry (Nuvoair, Sweden). Rhinoconjunctivitis and respiratory symptoms will be captured every 20 minutes using the same mobile phone. A remotely-controlled, modified robotic vacuum cleaner with adjustable flow will disperse cat dander from the floor throughout the exposure session. The concentration of Fel d 1 in room air will be measured using 3 sampling pumps with cassettes containing filters to capture the antigen and measured by ELISA. Patients will have a personal pump to measure their personal Fel d 1 exposure.

**Results:** Fel d 1 levels measured in the NEC closely match median levels reported in homes with cats. Fel d 1 levels vary by approximately 25 ng/m<sup>3</sup> based on the average of four tests (120 minutes duration). Average distribution throughout the room is within 10% of the mean.

**Conclusion:** The results of this study should provide detailed information about the asthmatic response in cat-allergic patients exposed in the NEC and the effectiveness of aerosolizing Fel d 1 using a modified vacuum cleaner.

#### 0994 | Serum eosinophil derived neurotoxin (EDN) levels are elevated in asthma subjects as measured using a new EDN research assay

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**Background:** Allergic asthma is characterized by eosinophilic inflammation and the release of eosinophilic granular proteins. One of the proteins is the eosinophil derived neurotoxin (EDN) that has been proposed as a promising biomarker for asthma.

**Method:** The aim of the present study was to measure serum EDN using a new ImmunoCAP EDN assay for research use only (RUO) in 321 subjects (mean age with standard deviation: 54.3 ± 7.4 years, range: 40-67 years) from Uppsala included in the European Community Respiratory Health Survey part 3 (ECRHS III). The subjects were divided into asthma (n = 83), rhinitis (n = 77) or healthy subjects (n = 161) according to self-reported questionnaire data. The serum EDN levels were compared to other eosinophilic [eosinophil cationic protein (ECP)] and neutrophilic biomarkers [neutrophil gelatinase-associated lipocalin (NGAL) and myeloperoxidase (MPO)]. A screening test for atopy, ImmunoCAP Phadiatop, was used to assess sensitization to a mixture of common inhalant allergens.

**Results:** The serum EDN levels were significantly higher in subjects with an asthma diagnosis (median: 29.8 µg/l) in comparison with healthy subjects (21.9 µg/l, *P* < .01) or subjects with rhinitis but no asthma (22.6 µg/l, *P* < .01). Also the serum levels of ECP were significantly higher in the asthma group (*P* < .05). Serum NGAL or MPO was not higher in subjects with an asthma diagnosis compared to healthy subjects. Phadiatop-positive subjects had significantly higher EDN levels than Phadiatop-negative subjects (median: 27.6 µg/l vs. 22.1 µg/l, *P* < .05), but not higher ECP, NGAL or MPO levels.

**Conclusion:** The study confirms that serum EDN is a promising asthma marker and it indicates that the new EDN RUO assay may be a valuable tool in asthma research.

#### 1025 | Influenza seasonal vaccination decreased asthma and heart failure hospitalization rate in Georgia

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**Background:** We started to evaluate hospitalization rate in influenza vaccinated patients who had diagnosed Asthma (from age 20-35 y) and Heart failure (hfp<sub>ef</sub> vs hfp<sub>ref</sub>) for minimum 2 years. Study was