## 25 Exhaled Breath Temperature Measurement in Allergic Respiratory Disease

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**RATIONALE:** Asthma is characterized by airway inflammation and remodeling of the airway walls, both of which contribute to the pathology of the disease.

In recent years, it has been hypothesized that level of exhaled breath temperatura (EBT) is related to the degree of airway inflammation/remodeling. The purpose of this study was to evaluate the EBT in patients with allergic respiratory disease (asthma and/or allergic rhinitis) and healthy controls.

**METHODS:** Observational retrospective study on 245 patients aged 6-75 years (32.1 years) with asthma, alllergic rhinitis and healthy volunteers which performed the measurement of EBT, attending an Allergy and Immunology Center in Norheast of Mexico. We also evaluate the ambient conditions (laboratory temperature, humidity, atmospheric pressure), and physiological characteristics of the tested subjects (heart rate, respiratory rate, blood pressure, otic and axillary temperature).

**RESULTS:** Patients with allergic respiratory disease (ARD) 188, of whom 75 (30.6%) had asthma (53% controlled, 47% uncontrolled), 113 (46.1%) allergic rhinitis, and 57 (23.3%) healthy volunteers.

Patients with ARD had significantly increased EBT compared with healthy controls (29.49 vs. 28.94 $p=0.044$), particularly those with uncontrolled asthma (29.11 vs. 28.26 $p=0.026$) compared with controlled asthma. In general population 167 (65.5%) was female, with EBT measurement 28.83 vs. 29.65 in male ($p=0.002$). There were no significant differences between environmental and personal conditions.

**CONCLUSIONS:** We observed a higher temperatura on exhaled breath in subjects with ARD, uncontrolled asthma and male gender. Exhaled breath temperatura (EBT) is proposed as a noninvasive marker of bronquial inflamation in patients with allergic respiratory disease.

## 26 Levels of *Chlamydia pneumoniae* Immunoglobulin E antibody in patients with asthma compared with non-asthma.

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**RATIONALE:** *Chlamydia pneumoniae* is an obligate intracellular bacterium that causes respiratory infection in adults and children. There is evidence for an association between atypical bacterial pathogens (*C. pneumoniae, M. pneumoniae*) and asthma pathogenesis, as well as production of immunoglobulin (Ig) E responses *in vitro*. Previous studies in our laboratory demonstrated the presence of anti-*C. pneumoniae* IgE antibodies (Abs) by immunoblotting in children with culture confirmed *C. pneumoniae* infection (pneumonia and asthma) who were wheezing. We sought to determine whether past *C. pneumoniae* infection triggers production of *C. pneumoniae*-specific IgE Abs in adult subjects with and without asthma, who had positive *C. pneumoniae*-IgG titers.

**METHODS:** Total serum IgE levels and *C. pneumoniae* IgE Ab responses were studied in adult asthmatic (N=22) and non-asthmatic (N=22) subjects by ELISA. Blood was obtained from subjects in a primary care setting. Data are reported as IU/mL, and mean antibody index values, respectively. Inclusion criteria included positive *C. pneumoniae* IgG titers.

**RESULTS:** Total serum IgE levels were similar in asthmatics compared with non-asthmatic subjects (186± 159 vs. 170 ± 142; $P=0.720$). However, *C. pneumoniae* IgE Ab levels were significantly higher in asthmatic patients compared with non-asthmatic subjects (1.015 ± 0.305 vs. 0.39 ± 0.340; $P<0.001$). No significant association was found between total serum IgE levels and *C. pneumoniae* IgE Ab levels (R= -0.004, $P=0.981$).

**CONCLUSIONS:** These findings indicate that *C. pneumoniae* infection may trigger IgE-specific responses in asthmatics. *C. pneumoniae* IgE Abs produced by chronic infection may also contribute to asthma pathogenesis.

## 27 Changes in forced oscillation technique (FOT) parameters during 4-year-follow-up in children and adolescents with asthma: possible indices for lung function decline.

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**RATIONALE:** Forced oscillation technique (FOT) has a potential to evaluate respiratory pathophysiology in asthma that spirometry does not detect. Since lung function decline in children with asthma has been reported to have significant impact on development of COPD in later life, we investigated changes in FOT parameters in children/adolescents with asthma in relation with changes in maximal expiratory flow at 50 % of the forced vital capacity (MEF50), an index for the small airways.

**METHODS:** Subjects were children/adolescents with asthma who were followed for 4 years at our institution. Clinical data, spirometry and FOT (MostGraph®) measurements were retrospectively reviewed. The subjects were divided into 3 groups based on changes in MEF50 over the 4-year-period; PLUS group were those in whom average data of MEF50 in the 4th year were larger than the 1st year, NC group had no changes and MINUS group had decline in MEF50 from the 1st to 4th year.

**RESULTS:** 542 paired data sets (PLUS:134, NC:154, MINUS:254) were analyzed. In accordance with changes in MEF50, R5 and R20 significantly decreased (improved) in PLUS group and those in MINUS group significantly increased (deteriorated). However, R5 and R20 increased (deteriorated) in NC group. The tendency was more evident in subjects in whom initial MEF50 <60% of predicted values.

**CONCLUSIONS:** The results suggest that 'no change' in the small airway index of spirometry in childhood may not mean 'stable' but indicate loss of lung function development, which may lead to further decline in later life.

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