



ORAL PRESENTATION

Open Access

# Sputum interleukin (IL)-13 as a biomarker for the evaluation of asthma control

Zoi Tsilogianni<sup>1\*</sup>, Petros Bakakos<sup>1</sup>, Andriana I. Papaioannou<sup>2</sup>, Anastasia Papaporfyriou<sup>1</sup>, Georgios Hillas<sup>1</sup>, Spyros Papis<sup>2</sup>, Nikolaos Koulouris<sup>1</sup>, Stelios Loukides<sup>2</sup>, Konstantinos Kostikas<sup>2</sup>

From 2nd International Severe Asthma Forum (ISAF)  
Athens, Greece. 13-15 November 2014

## Background

The management of patients with severe refractory asthma (SRA) is a difficult task that may benefit from the use of non-invasive assessment by biomarkers. Interleukin (IL)-13 is a cytokine with a central role in the TH2 response. The object of this study was the assessment of IL-13 as a biomarker of asthma control in patients with SRA.

## Method

We recruited 170 patients (47 with SRA) from two University asthma clinics. Patients were submitted to pulmonary function testing, measurement of fractional exhaled nitric oxide (FeNO), and sputum induction with calculation of inflammatory cells and measurement of IL-13 in the supernatant. Asthma control test (ACT) was used for evaluation of asthma control (ACT values >19 identified well-controlled asthma). Severe refractory asthma was defined by the ATS criteria.

## Results

IL-13 in sputum supernatant was increased in patients with SRA compared to patients with mild-to-moderate asthma [median (IQR): 156 (80-245) pg/mL vs. 78 (66-103) pg/mL,  $p < 0.001$ ], as well as in patients with persistent airflow obstruction [99 (71-199) pg/mL vs. 80 (66-105) pg/mL,  $p = 0.0081$ ]. IL-13 presented good diagnostic accuracy for the detection of not-well-controlled asthma in the whole group [specificity 94.2%, sensitivity 80.6% for a cut-off point of  $\leq 156$  pg/mL; area under the curve (AUC) 0.920]. The diagnostic accuracy of IL-13 was superior to FeNO or sputum eosinophils in patients

with SRA (AUC 0.981 vs. 0.688 vs. 0.645 respectively;  $p < 0.001$ ).

## Conclusion

IL-13 in induced sputum may represent a useful index of disease control in patients with SRA. The better diagnostic accuracy of IL-13, compared to FeNO and sputum eosinophils, indicates a central role of this mediator in SRA.

## Authors' details

<sup>1</sup>Sotiria, General Hospital of Chest Diseases, 1st Respiratory University Medicine Department, Athens, Greece. <sup>2</sup>Attikon General University Hospital, 2nd Respiratory University Medicine Department, Athens, Greece.

Published: 23 March 2015

doi:10.1186/2045-7022-5-S2-O9

**Cite this article as:** Tsilogianni *et al.*: Sputum interleukin (IL)-13 as a biomarker for the evaluation of asthma control. *Clinical and Translational Allergy* 2015 **5**(Suppl 2):O9.

Submit your next manuscript to BioMed Central  
and take full advantage of:

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

Submit your manuscript at  
[www.biomedcentral.com/submit](http://www.biomedcentral.com/submit)



<sup>1</sup>Sotiria, General Hospital of Chest Diseases, 1st Respiratory University Medicine Department, Athens, Greece  
Full list of author information is available at the end of the article