



POSTER PRESENTATION

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Sputum and serum hydrogen sulfide (H₂S) as novel biomarker of asthma

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From EAACI International Severe Asthma Forum (ISAF 2012)
Gothenburg, Sweden. 11-13 October 2012

Background

Hydrogen sulfide (H₂S) is a gas produced by respiratory cells including smooth muscle cells and may play a role as a gasotransmitter. We determined whether H₂S levels in serum or sputum supernatants could represent a biomarker of asthma.

Methods

We measured H₂S in induced sputum and serum samples of patients with severe and non-severe asthma and of healthy subjects. H₂S concentrations were measured using a sulfide-sensitive electrode.

Results

H₂S levels in induced sputum from severe and non-severe asthmatic patients were significantly higher than those from healthy subjects but there was no difference between the severe and non-severe group. Serum H₂S levels were 10 times higher than in sputum and these were also higher in severe and non-severe asthmatic subjects compared to healthy subjects. There was a positive correlation between sputum and blood H₂S levels ($r=0.42$, $p<0.05$). Sputum H₂S levels were negatively correlated with FEV₁ %predicted ($r=-0.42$, $p=0.003$), and with reversibility to salbutamol ($r=-0.54$, $p<0.01$). There was a correlation between sputum H₂S and sputum neutrophils and macrophages, and a negative correlation between sputum H₂S and FeNO levels.

Conclusions

Endogenous H₂S, measured in induced sputum, may be a marker of neutrophilic inflammation and bronchial narrowing.

Published: 3 May 2013

doi:10.1186/2045-7022-3-S1-P3

Cite this article as: Saito et al.: Sputum and serum hydrogen sulfide (H₂S) as novel biomarker of asthma. *Clinical and Translational Allergy* 2013 3(Suppl 1):P3.

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