

MEETING ABSTRACT

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# Serum leptin and adiponectin levels correlate with mast cell activation during exercise-induced bronchospasm in asthmatic children

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From 3rd WAO International Scientific Conference (WISC) 2014  
Rio de Janeiro, Brazil. 6-9 December 2014

## Background

The aim of this study was to address the correlation between leptin, adiponectin and exercise induced bronchospasm (EIB) by measuring urinary metabolites of mast cell mediators such as  $9\alpha,11\beta$ -PGF<sub>2</sub>, LTE<sub>4</sub>.

## Methods

Seventy-two prepubertal children from the ages of 6 years to 10 years were recruited in the study. They comprised: asthmatic with EIB (n=24), asthmatic without EIB (n=21), and healthy controls (n=27). We measured exhaled nitric oxide (eNO) and serum eosinophilic cationic protein (ECP), leptin, adiponectin and cytokines. The urinary concentrations of LTE<sub>4</sub> and  $9\alpha,11\beta$ -PGF<sub>2</sub> were measured. The present study also performed pulmonary function tests: baseline, post-bronchodilator inhalation, methacholine inhalation and exercise. The area under the forced expiratory volume in one second (FEV<sub>1</sub>)-time curve quantified the severity of EIB over a 20-minute period after exercise (AUC<sub>20</sub>).

## Results

The post-exercise urinary excretion of  $9\alpha,11\beta$ -PGF<sub>2</sub> in the asthmatics with EIB increased significantly compared with asthmatics without EIB. The post-exercise urinary excretion of LTE<sub>4</sub> was not significantly difference between the two groups. The maximal decreases in % FEV<sub>1</sub> after exercise were positively correlated with leptin levels and negatively with serum adiponectin levels in asthmatic children. Leptin presented positive associations correlated with post-exercise urinary excretion of  $9\alpha,11\beta$ -PGF<sub>2</sub>, LTE<sub>4</sub> and adiponectin presented negative associations correlated with post-exercise urinary excretion of LTE<sub>4</sub>.

## Conclusions

Serum concentrations of the adipocyte-derived hormones leptin and adiponectin are correlated with EIB/BHR and urinary metabolites of mast cell mediators induced by exercise challenge in asthmatic children.

Published: 8 April 2015

doi:10.1186/1939-4551-8-S1-A26

**Cite this article as:** Oh et al.: Serum leptin and adiponectin levels correlate with mast cell activation during exercise-induced bronchospasm in asthmatic children. *World Allergy Organization Journal* 2015 **8**(Suppl 1):A26.

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