



POSTER PRESENTATION

Open Access

# Anxiety, depression and hyperventilation symptoms in treatment-resistant severe asthma

Tan Li Leng karen\*, Tay Chee Kiang, Yii Anthony, Chan Kwok Wai Adrian, Lapperre Therese Sophie, Koh Mariko Siyue

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

## Background

Psychological morbidity is associated with frequent asthma exacerbations, higher health care utilization, as well as near-fatal and fatal asthma. The prevalence of psychological comorbidities in patients with severe asthma is not well-studied. The aim of our study was to evaluate the prevalence of anxiety, depression and hyperventilation, and correlate these symptoms with asthma control, exacerbation frequency and lung function in severe asthmatics.

## Methods

Patients who fulfilled the WHO definition of “treatment-resistant severe asthma” (at least combination high-dose inhaled corticosteroids and long-acting beta agonists) were included. Patients literate in English completed the Hospital Anxiety and Depression Scale (HADS) and Nijmegen Questionnaire during a regular doctor’s visit at our Severe Asthma clinic. The HADS questionnaire comprises 7 anxiety and 7 depression questions. A cut-off score of  $\geq 8$  indicates a probable case of anxiety or depression. Nijmegen Questionnaire is a screening instrument for hyperventilation. A score of  $\geq 23$  suggests hyperventilation. Relation between these scores and Asthma Control Test, exacerbation frequency, health care utilization and lung function test results were analyzed.

## Results

52 patients were included in the analysis: 24 (46.2%) male, mean age  $37.5 \pm 16.6$  years, mean ACT score  $16.8 \pm 4.5$ . The prevalence of anxiety was 44.2%, depression was 19.2% and hyperventilation was 28.8%. Patients with anxiety were more likely to have uncontrolled asthma (defined

as Asthma Control Test score of 19 or less) compared to those without (87.0% vs. 51.7%,  $p=0.009$ ). Similarly, patients with hyperventilation were more likely to have uncontrolled asthma compared to those without (93.3% vs. 56.8%,  $p=0.011$ ). There was no association between depression and asthma control. Patients with anxiety had lower FEV<sub>1</sub> % predicted compared to those without ( $69.4 \pm 17.2\%$  vs.  $81.2 \pm 21.2\%$ ,  $p=0.036$ ). There was no association between depression or hyperventilation and FEV<sub>1</sub>. No association was found between anxiety, depression or hyperventilation and frequency of asthma exacerbations.

## Conclusion

A high prevalence of anxiety, hyperventilation and depression exists amongst our severe asthmatics. Hyperventilation and anxiety were associated with uncontrolled asthma, and presence of anxiety was associated with a lower FEV<sub>1</sub> % predicted. This suggests that there is an objective association between anxiety and uncontrolled asthma, although the causal link remains unclear.

Published: 23 March 2015

doi:10.1186/2045-7022-5-S2-P7

Cite this article as: Li Leng karen et al: Anxiety, depression and hyperventilation symptoms in treatment-resistant severe asthma. *Clinical and Translational Allergy* 2015 **5**(Suppl 2):P7.

Singapore General Hospital, Department of Respiratory Medicine, Singapore, Singapore