Obstructive sleep apnoea in children with problematic severe asthma.

Grime C[1,2], Tan HL[1], Rosenthal MR[1], Saglani S[1,2], Lloyd CM[2]
1. Royal Brompton and Harefield NHS Foundation Trust, London
2. National Heart and Lung Institute, Imperial College London

Introduction

A relationship between obstructive sleep apnoea (OSA) and asthma has been reported, with up to 63% of asthmatics demonstrating polysomnography diagnosed OSA and a reduction in asthma exacerbations following OSA treatmen.

Children with problematic severe asthma have poor control despite high dose prescribed therapy at stage 4/5 of the BTS guideline. They undergo a staged assessment in which 'Difficult Asthmatics' (DA), those with modifiable factors impacting their asthma, are distinguished from those with Severe Therapy Resistant Asthma (STRA). Since 2013, a sleep study is included in stage 2 of our problematic severe asthma protocol. We hypothesized that there would be a high prevalence of OSA in these children.

Methods

Sleep studies undertaken in all children with problematic severe asthma between 2013-2015 were reviewed.

Results

31 children had a sleep study performed (6 full polysomnography, 26 multichannel respiratory polygraphy). Median age was 12.5 years (IQR 8.2-13years). Median daily dose of prescribed inhaled steroids (budesonide equivalent dose) was 1600 micrograms (IQR 1000-2000micrograms). 22 children were also on leukotriene receptor antagonists and 5 were receiving maintenance oral steroids.

Median oxygen saturations were 96% (IQR 96%-98%), median Apnoea Hypopnoea Index (AHI) was 1.1 events per hour (IQR 0.5-3.1) and obstructive AHI 0.1 events per hour (IQR 0-0.5). Three out of 31 children (9.6%) demonstrated mild OSA (AHI 4.1events/ hour, CI 3.7-4.4 and OAHI 2.3 events/hour, CI 1.5-3). None of the patients were diagnosed with moderate or severe OSA.

Discussion

Only mild cases of OSA were diagnosed compared to previously published data reporting higher OAHI scores (14.6 events/hour ±8.2[1]) among asthmatic subjects. This may reflect the high doses of steroids they were receiving and use of leukotriene antagonists, both recognised therapies for paediatric OSA. OSA is not over represented in our population of children with severe problematic asthma.