ORAL PRESENTATIONS

New Investigator Award

O001

REBOXETINE REDUCES OBSTRUCTIVE SLEEP APNEA SEVERITY: A RANDOMIZED TRIAL

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Introduction: Noradrenergic and muscarinic processes are crucial for pharyngeal muscle control during sleep. Selective norepinephrine reuptake inhibitors (SNRIs) such as reboxetine combined with an antimuscarinic reduce obstructive sleep apnea (OSA) severity. The effects of reboxetine alone on OSA severity are unknown.
Methods: Double-blind, placebo-controlled, three-way crossover trial in 16 people with OSA. Each participant completed three overnight polysomnograms (~1-week washout). Single doses of reboxetine 4mg, placebo, or reboxetine+oxybutynin 5mg were administered before sleep (randomized order). The primary outcome was apnea-hypopnea index (AHI). Secondary outcomes included other polysomnography parameters, next day sleepiness and alertness. Endotyping analysis was performed to determine the medications' effects on OSA pathophysiological mechanisms.
Results: Reboxetine reduced the AHI by 5.4 [95% CI -10.4 to -0.3] events/h, P=0.03 (men: -24±27%; women: -0.7±32%). The addition of oxybutynin did not further reduce AHI. Reboxetine alone and reboxetine+oxybutynin reduced overnight hypoxemia versus placebo (e.g. 4% oxygen desaturation index 10.4±12.8 vs. 10.6±12.8 vs. 15.7±14.7 events/h, P=0.02). Mechanistically, reboxetine and reboxetine+oxybutynin improved pharyngeal collapsibility and respiratory control stability. Men had higher baseline loop gain. Larger reductions in AHI with reboxetine occurred in those with high loop gain. Neither drug intervention changed next day sleepiness or alertness.
Discussion: A single 4mg dose of reboxetine modestly reduces OSA severity without further improvement with the addition of an antimuscarinic. Reboxetine increases breathing stability via improvements in pharyngeal collapsibility and respiratory control. These findings provide new insight into the role of SNRIs on upper airway stability during sleep and have important implications for pharmacotherapy development for OSA.

O002

MEDICAL THERAPY FOR SLEEP DISORDERED BREATHING IN CHILDREN: A RANDOMISED, DOUBLE-BLIND PLACEBO-CONTROLLED TRIAL

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Background: Sleep Disordered Breathing (SDB) in children is characterised by snoring and breathing difficulties during sleep. Small clinical trials suggest intranasal corticosteroids reduce SDB severity as defined by polysomnography. We assessed the efficacy of intranasal corticosteroid for improving symptoms and quality of life (QOL) in children with SDB.
Methods: This is a double-blind, randomised, placebo-controlled trial of healthy children 3-12y referred to a specialist with SDB symptoms. Exclusions were previous adenotonsillectomy, obesity or severe SDB. Participants received daily intranasal mometasone furoate 50micrograms or normal saline for 6 weeks. The primary outcome was resolution of symptoms measured by SDB score. Secondary outcomes were SDB symptom scores, QOL, behaviour, parent and surgeon perceived need for surgery, and parent satisfaction with treatment.
Results: 276 participants were recruited; 138 in each group. 127 and 123 participants had primary outcome data at 6 weeks in the mometasone and saline groups respectively. Baseline age, atopic history, symptom severity and QOL were similar between groups. Resolution of SDB symptoms occurred in 44% [95%CI 35–53] of the mometasone group and 40% [95%CI 32–49] of the saline group; risk difference 4% [95%CI -0.8–16] p=0.511. Secondary outcomes were not different between groups.
Discussion: This large RCT, using clinical rather than polysomnographic outcomes to investigate the efficacy of mometasone on symptoms of SDB, found substantial rates of symptom resolution after 6 weeks in both groups. However, we found no difference in treatment effect between 6 weeks of intranasal mometasone over saline, for management of SDB symptoms in childhood.

O003

THE IMPACT OF WIND FARM NOISE IN A LABORATORY SETTING ON OBJECTIVE AND SUBJECTIVE SLEEP EFFICIENCY

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Introduction: Well-controlled studies of wind farm noise (WFN) on sleep are lacking despite complaints and known effects of other