Welcome to the latest issue of Sleep Medicine Research Review.

In this issue we review a Spanish study of the benefits of CPAP in women with OSA, and report findings that upper airway surgery can improve adherence in patients using CPAP. A timely review highlights key clinical issues in mild OSA diagnosis and management, and an interesting study in adolescent Karate athletes shows how sleep deprivation can adversely affect sporting performance. A potent and selective orexin receptor agonist offers hope for patients with narcolepsy, and CBTi improves sleep in primary care patients and cancer survivors alike.

We hope you find these and the other selected studies interesting, and welcome your feedback.

Kind regards,
Associate Professor Alister Neill
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Effect of continuous positive airway pressure on quality of life in women with obstructive sleep apnea

Authors: Campos-Rodriguez F et al.

Summary: This Spanish study investigated the effects of CPAP on quality of life in women with moderate to severe OSA. 307 consecutive women diagnosed with moderate to severe OSA were randomised to receive CPAP or conservative treatment for 3 months. At follow-up, the CPAP group had greater improvements in quality of life (assessed using the Quebec Sleep Questionnaire), daytime somnolence, mood state, anxiety and depression compared with controls.

Comment: “Sisters are doing it for themselves” – studies of the effects of OSA therapy have a strong male bias. It’s great to see this preliminary study of Spanish women showing improved quality of life, sleepiness, mood and anxiety after 3 months of CPAP therapy. The message from this study is that even though women are less likely to present with OSA symptoms to clinics they do just as well as men on CPAP.

Reference: Am J Respir Crit Care Med 2016;193(meeting abstracts):A110

Abstract

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The effect of upper airway surgery on continuous positive airway pressure levels and adherence

Authors: Ayers C et al.

Summary: Upper airway surgery may have a role as an adjunct to CPAP use in some patients, especially those who have difficulty tolerating high CPAPs. This systematic review and meta-analysis examined the effect of upper airway surgery on CPAP levels and adherence. A search of electronic databases identified 11 studies of patients with OSA (n=323) who had a CPAP titration performed both before and after upper airway surgery. Surgical interventions included nasal valve repair, radiofrequency ablation to the palate, turbinate reduction, Pillar implants, tonsillectomy, and uvulopalatopharyngoplasty. Meta-analysis of the data showed that there was a mean reduction in CPAP of 1.40 cm H₂O after surgery (mean presurgical CPAP was 10.8 cm H₂O and postsurgical CPAP was 9.4 cm H₂O). Four of the papers evaluated CPAP adherence and found a mean 0.62% improvement after surgical intervention.

Comment: Nasally delivered CPAP therapy is generally more comfortable and easier to tolerate than full-face masks. High nasal resistance toughens life for the OSA patient and CPAP therapist. This meta-analysis of nasal surgery showed a modest reduction in the average CPAP level but important improvements in adherence. The studies included in the analysis were uncontrolled and non-randomised trials but the conclusions were sound.


Mild obstructive sleep apnoea: clinical relevance and approaches to management

Authors: McNicholas W et al.

Summary: This review discussed the diagnosis and management of mild OSA. Diagnosis of mild OSA can be complicated and full polysomnography might be more accurate than AHI for assessing suspected cases. Treatment options include positional therapy and weight reduction (where appropriate), plus CPAP and oral appliance therapy if needed. The superior efficacy of CPAP is offset by greater tolerance of oral appliances, especially in patients with mild disease. Reports differ regarding the clinical relevance of mild OSA, and it is unclear whether it has the same association with adverse health consequences (including cardiometabolic comorbidities) as severe OSA.

Comment: This timely review highlights key clinical issues in mild OSA diagnosis and management. The greatest OSA prevalence is in the mild OSA subgroup. Simplified testing devices are more accessible but less accurate. In-lab polysomnography is too expensive to recommend. Level 2 home polysomnography is probably the best test. Generally speaking, CPAP is not the treatment of choice for mild OSA as it’s often poorly tolerated with lower overall acceptance. Further research is clearly needed.

Reference: Lancet Respir Med 2016; published online May 27

Effects of one night sleep deprivation on selective attention and isometric force in adolescent Karate athletes

Authors: Ben Cheikh R et al.

Summary: This study determined the effects of sleep deprivation on selective attention and isometric force in adolescent Karate athletes. 12 participants (mean age 16.9 years) underwent 2 successive sessions: a normal-night-sleep and a total one-night sleep deprivation. After each night, the athletes performed selective-attention and muscle-strength-tests during three periods of the day: 8–9am; 12am–1pm; 4–5pm. Total one-night sleep deprivation was found to impair both selective attention and maximal isometric strength in the athletes.

Comment: For the elite sportsman, small increases in performance can be the difference between winning and losing. In this study of sleep deprived Karate exponents, only 3 subjects managed to complete the sleep deprivation protocol, thus limiting study power. Sleep deprivation affected both reaction times and biceps strength.

Reference: J Sports Med Phys Fitness 2016; published online May 31

Design and synthesis of non-peptide, selective orexin receptor 2 agonists

Authors: Nagahara T et al.

Summary: Orexins are a family of neuropeptides that act on two G-protein-coupled receptors, orexin receptor 1 (OX1R) and orexin receptor 2 (OX2R), to regulate sleep/wakefulness. Pharmacological evidence suggests that OX2R agonists might be useful for the treatment of narcolepsy/cataplexy. This report described the discovery of a potent OX2R-selective agonist.

Comment: Worth waking up to this news – we have known for the last 15 years that orexins (hypocretins) are deficient in type 1 narcolepsy leading to excessive sleepiness and cataplexy. Orexins (A and B) are 28–33 amino acid peptides that are unable to cross the blood brain barrier, thus limiting their therapeutic potential. This group has discovered a potent and selective orexin receptor agonist that, if successful in future trials, offers real hope for patients with narcolepsy.


CONGRATULATIONS TO

Anne Brinkman
Professional Nursing Advisor at NZNO.

Anne won an iPad mini 3 by taking part in our recent Subscriptions Update promotion.
Residual sleep disturbances following PTSD treatment in active duty military personnel

Authors: Pruiksma K et al., for the STRONG STAR Consortium

Summary: This study examined sleep disturbances in active duty military personnel before and after treatment for PTSD. 108 active duty US Army soldiers who had participated in a randomised clinical trial comparing Group Cognitive Processing Therapy-Cognitive Only Version with Group Present-Centered Therapy had their sleep parameters assessed before and after treatment. Insomnia was the most frequently reported symptom before (92%) and after treatment (74–80%). Nightmares were reported by 69% of participants at baseline and by 49–55% at follow-up. Among participants who no longer met criteria for PTSD after treatment, 57% and 13% continued to report insomnia and nightmares, respectively, at follow-up.

Comment: Disturbances to sleep and nightmares are understandable consequences of trauma experienced by soldiers returning from armed deployment in conflict zones — if persistent these symptoms form part of the criteria used to diagnose PTSD. In this study, insomnia was frequently reported (92% at baseline). Despite specialised therapy for PTSD, insomnia persisted in the majority. Nightmares seemed to be more responsive to treatment. The authors concluded that their programmes should include management directed at insomnia.

Reference: Psychol Trauma 2016; published online May 30

Not only sleepwalking but NREM parasomnia irrespective of the type is associated with HLA DQB1*05:01

Authors: Heidbreder A et al.

Summary: This study evaluated a genetic marker for NREM parasomnia. The clinical, polysomnographic, and human leucocyte antigen (HLA) findings of 74 adults with NREM parasomnia were retrospectively analysed. Parasomniac events were documented during video-polysomnography in 70% of participants (71.4% confusional arousals, 8.2% sleep terrors, 4.1% sleepwalking, and 16.3% ≥2 NREM parasomnia types). The HLA DQB1*05:01 allele was present in 41% of participants compared with 24.2% of a matched reference allele group (p<0.05). The haplotype prevalence did not differ according to type of NREM parasomnia.

Comment: Sleepwalking/night terrors and confusional arousals usually resolve by mid-teens but can persist to adulthood and run in families. This study builds on previous research showing the presence of a common genetic background for NREM parasomnia. Similar to narcolepsy the HLA marker is also common in the general population so lacks diagnostic utility.


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Independent commentary by Associate Professor Alister Neil

Alister Neil is Associate Professor at the Department of Respiratory Medicine, University of Otago, Wellington School of Medicine; and Respiratory and Sleep Physician at the Department of Respiratory Medicine, Capital and Coast Health. His research interests include the epidemiology and ethnic distribution of obstructive sleep apnoea in New Zealanders and its relationship to cardiovascular disease, new treatment technologies, sleep assessment pathways and the provision of home non-invasive ventilation for respiratory failure. He directs the University of Otago’s WellSleep Laboratory and Research Group and is an Associated Investigator of the Australasian Sleep Trials Network.

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Sleep-wake disorders persist 18 months after traumatic brain injury but remain underrecognized

Authors: Imbach L et al.

Summary: This study examined the chronic course of posttraumatic sleep-wake disturbances (SWD). 60 patients with an acute, first-ever traumatic brain injury of any severity were included. Detailed sleep assessment was performed 18 months after the trauma in 31 participants. Healthy, matched individuals without prior brain trauma served as a control group. At follow-up, sleep need was persistently elevated in trauma patients compared with controls (8.1 vs 7.1 h/24h). 67% of patients with brain trauma had chronic excessive daytime sleepiness compared with 19% of controls. Self-assessments showed that brain trauma patients significantly underestimated their excessive daytime sleepiness and sleep need.

Comment: This important prospective study found that, following traumatic brain injury, sleep need remains greater by an average of 1 hour/night and that many patients were objectively sleepy despite having a normal Epworth Sleepiness Score. Sufferers appear to be misperceiving their own sleepiness – this may have important clinical and safety implications.


Abstract

Group cognitive behavioural treatment for insomnia in primary care

Authors: Cape J et al.

Summary: This study evaluated the effectiveness of group CBTi in patients with insomnia in primary care. 239 participants were randomised to either a 5-session CBTi group or to treatment as usual, delivered by mental health practitioners in a primary-care mental health service. Participants were assessed for sleep outcomes at baseline, post-treatment, and at 20 weeks. Group CBTi participants had better sleep outcomes post-treatment than those receiving usual treatment, with a smaller difference at 20 weeks. There were no important differences between groups at follow-up in symptoms of anxiety or depression.

Comment: Group CBTi offers the prospect of providing an effective insomnia therapy tailored to the needs of the population. In this study participants were identified from primary care – “difficulty with sleep could be the only problem or, more commonly, was co-morbid with other common mental health problems for which they wanted treatment”. The practitioners were wellbeing practitioners, with recent psychology undergraduate degrees, who had undertaken a 1-year 1 day per week certificate course in low-intensity psychological interventions.


Abstract

A systematic review and meta-analysis of randomized controlled trials of cognitive behavior therapy for insomnia (CBT-I) in cancer survivors

Authors: Johnson J et al.

Summary: This systematic review examined the efficacy of CBTi in cancer survivors with insomnia. A search of multiple databases, clinical trial records, and bibliographies identified 8 randomised controlled trials of CBTi in a total of 752 cancer patients with insomnia. The primary outcome was sleep efficiency, measured using a sleep diary. Sleep efficiency improved by 15.5% in CBTi recipients compared with 6.1% in controls. Overall, CBTi decreased sleep latency by 22 min (compared with 8 min in controls) and reduced wake after sleep onset by 30 min (compared with 13 min in controls). Large effect sizes were observed for self-reported insomnia severity in patients who received CBTi and effects were durable for up to 6 months.

Comment: Sleep problems in the setting of cancer are common and have a significant negative impact on quality of life in cancer survivors. The findings of this study strongly recommend the use of CBTi.


Abstract