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HIGHLIGHTS from SLEEP

Psychological And Behavioral Treatment Of Insomnia:Update Of The Recent Evidence (1998-2004)

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Background: Recognition that psychological and behavioral factors play an important role in insomnia has led to increased interest in therapies targeting these factors. A review paper published in 1999 summarized the evidence regarding the efficacy of psychological and behavioral treatments for persistent insomnia. The present review provides an update of the evidence published since the original paper. As with the original paper, this review was conducted by a task force commissioned by the American Academy of Sleep Medicine in order to update its practice parameters on psychological and behavioral therapies for insomnia.

Methods: A systematic review was conducted on 37 treatment studies (N = 2246 subjects/patients) published between 1998 and 2004 inclusively and identified through PsycInfo and Medline searches. Each study was systematically reviewed with a standard coding sheet and the following information was extracted: Study design, sample (number of participants, age, gender), diagnosis, type of treatments and controls, primary and secondary outcome measures, and main findings. Criteria for inclusion of a study were as follows: (a) the main sleep diagnosis was insomnia (primary or comorbid), (b) at least 1 treatment condition was psychological or behavioral in content, (c) the study design was a randomized controlled trial, a nonrandomized group design, a clinical case series or a single subject experimental design with a minimum of 10 subjects, and (d) the study included at least 1 of the following as dependent variables: sleep onset latency, number and/or duration of awakenings, total sleep time, sleep efficiency, or sleep quality.

Results: Psychological and behavioral therapies produced reliable changes in several sleep parameters of individuals with either primary insomnia or insomnia associated with medical and psychiatric disorders. Nine studies documented the benefits of insomnia treatment in older adults or for facilitating discontinuation of medication among chronic hypnotic users. Sleep improvements achieved with treatment were well sustained over time; however, with the exception of reduced psychological symptoms/distress, there was limited evidence that improved sleep led to clinically meaningful changes in other indices of morbidity (e.g., daytime fatigue). Five treatments met criteria for empirically-supported psychological treatments for insomnia: Stimulus control therapy, relaxation, paradoxical intention, sleep restriction, and cognitive-behavior therapy.

Discussion: These updated findings provide additional evidence in support of the original review's conclusions as to the efficacy and generalizability of psychological and behavioral therapies for persistent insomnia. Nonetheless, further research is needed to develop therapies that would optimize outcomes and reduce morbidity, as would studies of treatment mechanisms, mediators, and moderators of outcomes. Effectiveness studies are also needed to validate those therapies when implemented in clinical settings (primary care), by non-sleep specialists. There is also a need to disseminate more effectively the available evidence in support of psychological and behavioral interventions to health-care practitioners working on the front line.

Keywords: Insomnia, treatment, behavioral, psychological, non pharmacological

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Practice Parameters for the Psychological and Behavioral Treatment of Insomnia: An Update. An American Academy of Sleep Medicine Report

An American Academy of Sleep Medicine Report

Standards of Practice Committee of the American Academy of Sleep Medicine

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Abstract: Insomnia is highly prevalent, has associated daytime consequences which impair job performance and quality of life, and is associated with increased risk of comorbidities including depression. These practice parameters provide recommendations regarding behavioral and psychological treatment approaches, which are often effective in primary and secondary insomnia. These recommendations replace or modify those published in the 1999 practice parameter paper produced by the American Sleep Disorders Association. A Task Force of content experts was appointed by the American Academy of Sleep Medicine to perform a comprehensive review of the scientific literature since 1999 and to grade the evidence regarding non-pharmacological treatments of insomnia. Recommendations were developed based on this review using evidence-based methods. These recommendations were developed by the Standards of Practice Committee and reviewed and approved by the Board of Directors of the American Academy of Sleep Medicine. Psychological and behavioral interventions are effective in the treatment of both chronic primary insomnia (Standard) and secondary insomnia (Guideline). Stimulus control therapy, relaxation training, and cognitive behavior therapy are individually effective therapies in the treatment of chronic insomnia (Standard) and sleep restriction therapy, multicomponent therapy (without cognitive therapy), biofeedback and paradoxical intention are individually effective therapies in the treatment of chronic insomnia (Guideline). There was insufficient evidence to recommend sleep hygiene education, imagery training and cognitive therapy as single therapies or when added to other specific approaches. Psychological and behavioral interventions are effective in the treatment of insomnia in older adults and in the treatment of insomnia among chronic hypnotic users (Standard).

Keywords: Practice guidelines, practice parameters, insomnia primary, insomnia secondary, treatment, behavioral, psychological, non-pharmacological, stimulus control therapy, relaxation training, sleep restriction, cognitive behavior therapy, multicomponent therapy, paradoxical intention, sleep hygiene education.

Citation: Morgenthaler T; Kramer M; Alessi C et al. Practice parameters for the psychological and behavioral treatment of insomnia: an update. An American Academy of Sleep Medicine report. *SLEEP* 2006;29(11): 1415-1419.

A Study of the Diagnostic Utility of HLA Typing, CSF Hypocretin-1 Measurements, and MSLT Testing for the Diagnosis of Narcolepsy in 163 Korean Patients With Unexplained Excessive Daytime Sleepiness

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Study Objective: To study DQB1*0602 status and hypocretin-1 levels in the cerebrospinal fluid (CSF) in a cohort of patients with hypersomnolence and to test International Classification of Sleep Disorders-2 (ICSD-2) criteria for hypersomnia of central origin.

Design: Retrospective case series.

Patients and Setting: One hundred sixty-three consecutive patients with unexplained sleepiness and 282 controls recruited at St. Vincent's Hospital, Korea. The gold standard for diagnosis was ICSD-2 criteria. Patients and controls completed the Stanford Sleep Inventory, and agreed to HLA typing. Polysomnography (87%), Multiple Sleep Latency Test (MSLT) (96%), and CSF hypocretin-1 measurements (53%) were conducted in patients.

Measurements and Results: Most patients (80%) could be classified using the ICSD-2. The 33 patients who could not be classified were without cataplexy (4 with low CSF hypocretin-1). These could not be included because of sleep apnea (apnea-hypopnea index ≥ 5/h, 84%) and/or because sleep prior to MSLT was less than 6 hours (27%). Narcolepsy with cataplexy cases were 92% HLA positive with low hypocretin-1. Cataplexy at interview was predicted by validated Stanford Sleep Inventory questions regarding cataplexy triggers. In contrast, cataplexy-like events were frequently reported in all groups, including controls. Cases with narcolepsy without cataplexy were frequently men (73%) and heterogeneous biologically (36% HLA positive, 40% with low CSF hypocretin-1). None of the controls had low CSF hypocretin-1, whereas 13% were HLA positive.

Conclusion: The ICSD-2 was easily applicable in cases with typical cataplexy. In these cases, the MSLT and further evaluations were almost always positive and may thus not always be needed. Many patients without cataplexy were difficult to classify because of difficulties in interpreting the MSLT in the presence of sleep apnea or reduced sleep.

Keywords: Narcolepsy, cataplexy, hypocretin, orexin, MSLT, HLA, DQB1*0602

Citation: Hong SC; Lin L; Jeong JH et al. A study of the diagnostic utility of HLA typing, CSF hypocretin-1 measurements, and MSLT testing for the diagnosis of narcolepsy in 163 korean patients with unexplained excessive daytime sleepiness. *SLEEP* 2006;29(11):1429-1438.

Comparison of CPAP Titration at Home or the Sleep Laboratory in the Sleep Apnea Hypopnea Syndrome

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Study Objectives: Continuous positive airway pressure (CPAP) for the treatment of obstructive sleep apnea hypopnea syndrome (OSAHS) is conventionally started after in-laboratory overnight titration. This use of sleep laboratory space is both costly and limits access for diagnostic studies. This study aimed to evaluate whether automated CPAP titration in the home produced patient outcomes equal to those following laboratory-based automated CPAP titration. The main outcomes were Epworth Sleepiness Scale score, objective daytime sleepiness (Oxford SLEep Resistance test or OSLER test), and CPAP use; we also performed quality-of-life questionnaires: Functional Outcomes of Sleep Questionnaire and SF-36®.

Design: Prospective, randomized, single-blind, parallel-group, controlled trial

Setting: Regional sleep center and patients' homes.

Patients: Two hundred CPAP-naïve patients with OSAHS requiring CPAP treatment.

Interventions: One hundred patients were randomly assigned to a standard 1-night in-hospital CPAP titration and 100 to 3 nights' home CPAP titration and then issued with fixed pressure CPAP. Data were analyzed on an intention-to-treat basis.

Measurements and Results: The patient groups did not differ at baseline. The CPAP pressures defined at titration (mean ± SEM: 10.6 ± 0.2, 10.4 ± 0.2 cm H_2O, p = .19), number of mask leaks, and initial acceptance rates were similar in the sleep-laboratory and home-titrated groups. At 3-month follow-up, there was no significant difference in CPAP use (mean ± SEM: 4.39 ± 0.25, 4.38 ± 0.25 h/night; p > .9), Epworth Sleepiness Scale score (9.5 ± 0.5, 8.5 ± 0.5, p = .14), OSLER, Functional Outcomes of Sleep Questionnaire, or SF-36® between the sleep-laboratory and home-titrated groups.

Conclusions: Home-based automated CPAP titration is as effective as automatic in-laboratory titrations in initiating treatment for OSAHS.

Keywords: Obstructive sleep apnea hypopnea syndrome, CPAP titration, automated CPAP, home titration

Citation: Cross MD; Vennelle M; Engleman HM et al. Comparison of CPAP titration at home or the sleep laboratory in the sleep apnea hypopnea syndrome. *SLEEP* 2006:29(11);1451-1455.

The Prognostic Value of Simulated Snoring in Awake Patients With Suspected Sleep-Disordered Breathing: Introduction of a New Technique of Examination

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Study Objective: A clinical examination of the upper airway in patients with suspected sleep-disordered breathing (SDB) is frequently performed before nighttime polysomnography. In recent years, the findings of "static" examinations, such as dorsalization of the tongue base, the Malampatti index, and Mueller maneuver, have been determined to be of low predictive value.

Design: We developed a new method of "dynamic" examination of the upper airway during simulated snoring in awake patients and analyzed the method in terms of the predictive value for suspected SDB.

Setting: N/A

Patients: One hundred thirty-one patients were examined prior to nighttime polysomnography, and the results were correlated with the apnea-hypopnea-index (AHI).

Interventions: N/A

Results: A significant correlation was detected between an increased dorsal movement of the tongue base, as well as with pharyngeal collapse at the level of the tongue base and the AHI. Pharyngeal collapse at the level of the velum did not correlate with the AHI. The patient's body position during simulated snoring did not influence the results. The "static" examinations, such as the dorsalization of the tongue base, tonsil size, Malampatti index, and Mueller maneuver, did not correlate with the AHI. Patients with a high degree of pharyngeal collapse at the level of the tongue base, in combination with dorsal movement of the tongue base during simulated snoring, revealed a probability of 75% to have an AHI more than 10 and of 92% for an AHI more than 5.

Conclusion: The "dynamic" examination of the upper airway under simulated snoring in awake patients is an easy-to-perform method to predict the probability of SDB prior to nighttime polysomnography.

Keywords: OSAS, sleep-disordered breathing, AHI, snoring, tongue base, pharyngeal collapse

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The Epidemiology of Narcolepsy

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Abstract: Much has been learned about the pathophysiology of narcolepsy over the last several decades. It is likely that hypocretin-producing cells in the lateral hypothalamus are selectively destroyed in genetically susceptible individuals carrying 1 or more alleles of HLA DQB1*0602. Despite advances, the causes of narcolepsy and how to prevent it remain elusive. Classic epidemiology aims not only to enumerate occurrence of disease in populations, but also to identify etiologic risk factors. This review details what the application of classic epidemiology has taught us so far about narcolepsy and suggests directions for future studies to clarify its etiology. The prevalence of narcolepsy with cataplexy has been examined in many studies and falls between 25 and 50 per 100,000 people. Information on incidence is limited, with 1 study finding the incidence of narcolepsy with cataplexy to be 0.74 per 100,000 person-years. The search for etiologic risk factors has yet to yield important associations. Factors most thoroughly examined include body mass index, immune responses, and stressful life events. Such associations may reflect a consequence rather than a cause of disease. As with other diseases characterized by selective cell loss, such as Parkinson disease or type 1 diabetes mellitus, narcolepsy is likely caused by environmental exposures before the age of onset in genetically susceptible individuals. Matching efforts in these other diseases and using large well-designed epidemiologic studies of narcolepsy, investigators must intensify the search for these exposures, focusing on the first 2 decades of life. Identification of modifiable risk factors will help to prevent this disease.

Keywords: Narcolepsy, epidemiology, prevalence, incidence, epidemiologic factors, risk factors

Citation: Longstreth WTJr; Koepsell TD; Ton TG et al. The epidemiology of narcolepsy. *SLEEP* 2007;30(1):13-26.

C-reactive Protein is Associated With Sleep Disordered Breathing Independent of Adiposity

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Study Objectives: It is well established that medical conditions such as obesity and cardiovascular disease are associated with increased levels of inflammatory biomarkers such as C-reactive protein (CRP). Prior studies have produced inconsistent results regarding the association between sleep disordered breathing (SDB) and CRP, possibly due to the confounding effects of obesity or medical comorbidity. The present study examined the association between degree of SDB and level of CRP independent of prevalent medical conditions and obesity.

Design: Cross-sectional study.

Subjects and Setting: University-based clinical sample referred for diagnostic polysomnography.

Measurements and Results: The study sample consisted of 69 men (mean age 40 years; mean BMI of 31.2 kg/m^2) free of prevalent medical conditions including hypertension, diabetes mellitus, and cardiovascular disease. Measurements of morning and evening CRP levels were performed along with full-montage polysomnography. Confounding due to obesity was assessed by adjustments for body mass index, waist circumference, and percent body fat. A strong association was found between degree of SDB and serum levels of CRP, with or without adjustment for age and several measures of adiposity. Between the lowest and highest quartiles of apnea-hypopnea index (AHI) the mean difference in adjusted level of CRP was 3.88 µg/ml ($P < 0.001$). Moreover, an independent association between serum CRP levels and nocturnal hypoxia was also observed, whereas no association was noted with parameters of sleep architecture.

Conclusions: While more research is needed to elucidate causal pathways involving the effects of sleep-related hypoxia on low-grade systemic inflammation, the results of this study suggest that mechanisms other than adiposity per se could contribute to the inflammatory state seen in adults with SDB.

Keywords: Sleep disordered breathing, obstructive sleep apnea, inflammation, C-reactive protein

Citation: Punjabi NM; Beamer BA. C-reactive protein is associated with sleep disordered breathing independent of adiposity. *SLEEP* 2007;30(1):29-34.