Two Year Reduction In Sleep Apnea Symptoms and Associated Diabetes Incidence After Weight Loss In Severe Obesity

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Study Objectives: To evaluate the effect of bariatric surgery on sleep apnea symptoms and obesity-associated morbidity in patients with severe obesity.

Design: Prospective study.

Setting: University hospitals and community centers in Sweden.

Intervention: We investigated the influence of weight loss surgery (n=1729) on sleep apnea symptoms and obesity-related morbidity using a conservatively treated group (n=1748) as a control.

Measurements and Results: Baseline BMI in surgical group (42.2±4.4 kg/m²) and control group (40.1±4.6 kg/m²) changed –9.7±5 kg/m² and 0±3 kg/m², respectively, at 2-year follow-up. In the surgery group, there was a marked improvement in all obstructive sleep apnea (OSA) symptoms compared with the control group (P <0.001). Persistence of snoring (21.6 vs 65.5%, adjusted OR 0.14, 95% CI 0.10-0.19) and apnea (27.9 vs 71.3%, adjusted OR 0.16, 95% CI 0.10-0.23) were much less in the surgery group compared with controls. Compared with subjects with no observed apnea at follow-up (n=2453), subjects who continued to have or developed observed apnea (n=404) had a higher incidence of diabetes (adjusted OR 2.03, 95% CI 1.19-3.47) and hypertriglyceridemia (adjusted OR 1.86, 95% CI 1.07-3.25) but not hypertension (adjusted OR 1.09, 95% CI 0.65-1.83) or hypercholesterolemia (adjusted OR 0.91, 95% CI 0.53-1.58).

Conclusion: Bariatric surgery results in a marked improvement in sleep apnea symptoms at 2 years. Despite adjustment for weight change and baseline central obesity, subjects reporting loss of OSA symptoms had a lower 2-year incidence of diabetes and hypertriglyceridemia. Improvement in OSA in patients losing weight may provide health benefits in addition to weight loss alone.

Keywords: Sleep, snoring, sleep apnea, obesity, diabetes, bariatric surgery

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Long-Term Nightly Treatment with Indiplon in Adults with Primary Insomnia: Results of a Double-Blind, Placebo-Controlled, 3-Month Study

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Objectives: To evaluate the efficacy and safety of indiplon in primary insomnia.

Design: Randomized, double-blind, placebo-controlled, 3-month study.

Setting: Multi-center outpatient setting.

Patients: N=702 (61% female; mean age 46 years) who met DSM-IV criteria for primary insomnia of at least 3 months’ duration.

Interventions: Indiplon 10 mg (n=236), indiplon 20 mg (n=233), or placebo (n=233).

Measurements: Subjective assessment of each of the following: latency to sleep onset (sLSO), total sleep time (sTST), number of awakenings after sleep onset (sNAASO), wake time after sleep onset (sWASO), sleep quality, Insomnia Severity Index (ISI), and global improvement.

Results: Treatment with indiplon resulted in significant improvement relative to placebo at all time points for the primary endpoint, sLSO. Mean sLSO at Month 1 for each treatment group was: 10 mg (34.0±1.3 mins), 20 mg (33.0±1.3 mins), and placebo (48.7±1.9 mins; P<0.0001 for both comparisons); efficacy was sustained through Month 3. Both doses of indiplon resulted in significant improvement in sleep maintenance and duration endpoints, sTST and sWASO, as well as sleep quality, ISI, and global improvement at all assessment time points.

Conclusions: In patients with chronic insomnia, long-term nightly treatment with 10 mg and 20 mg doses of indiplon resulted in significant and sustained efficacy in sleep onset, maintenance, and duration, and significant associated improvement in both daytime functioning and quality of life.

Keywords: Insomnia, indiplon, hypnotics, sleep latency, sleep maintenance, quality of life, functioning

Citation: Scharf MB; Black J; Hull S et al. Long-term nightly treatment with indiplon in adults with primary insomnia: Results of a double-blind, placebo-controlled, 3-month study. SLEEP 2007;30(6):743-752.
Relationship Between Hours of CPAP Use and Achieving Normal Levels of Sleepiness and Daily Functioning

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Study Objectives: Evidence suggests that, to maintain treatment effects, nasal continuous positive airway pressure (CPAP) therapy for obstructive sleep apnea (OSA) needs to be used every night. What remains unknown is the nightly duration of use required to normalize functioning. This study, employing probit analyses and piecewise regression to estimate dose-response functions, estimated likelihoods of return to normal levels of sleepiness and daily functioning relative to nightly duration of CPAP.

Design: Multicenter, quasi-experimental study.

Setting: Seven sleep centers in the United States and Canada.

Participants: Patients with severe OSA (total cohort n = 149; the numbers of included participants from 85 - 120, depending on outcome analyzed.)

Interventions: CPAP

Measurements and Results: Before treatment and again after 3 months of therapy, participants completed a day of testing that included measures of objective and subjective daytime sleepiness and functional status. There were significant differences in mean nightly CPAP duration between treatment responders and nonresponders across outcomes. Thresholds above which further improvements were less likely relative to nightly duration of CPAP were identified for Epworth Sleepiness Scale score (4 hours), Multiple Sleep Latency Test (6 hours), and Functional Outcomes associated with Sleepiness Questionnaire (7.5 hours). A linear dose-response relationship (P < 0.01) between increased use and achieving normal levels was shown for objective and subjective daytime sleepiness, but only up to 7 hours use for functional status.

Conclusions: Our analyses suggest that a greater percentage of patients will achieve normal functioning with longer nightly CPAP durations, but what constitutes adequate use varies between different outcomes.

Keywords: Obstructive sleep apnea, dose response, nightly duration, daytime sleepiness, quality of life, CPAP, adherence, daily functioning, alertness

Citation: Weaver TE; Maislin G; Dinges DF et al. Relationship between hours of CPAP use and achieving normal levels of sleepiness and daily functioning. SLEEP 2007;30(6):711-719.

Association of Restless Legs Syndrome in Type 2 Diabetes: A Case-Control Study

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Study Objective: To look for an association between restless legs syndrome (RLS) and type 2 diabetes in a case-control study; to analyze the characteristics of RLS in diabetic patients; and to identify possible risk factors for the development of RLS in diabetic patients.

Design: A case-control study.

Setting: Diabetic outpatient clinic of a major university hospital.

Participants: One hundred twenty-four consecutive outpatients with diabetes and 87 consecutive controls with a previous diagnosis of other endocrine disease.

Interventions: RLS was diagnosed using the criteria of the International RLS Study Group, and severity of RLS was assessed using the International RLS Study Group Rating Scale. Characteristics of RLS and several laboratory parameters were investigated in diabetic patients and controls affected by the sleep disorder. A clinical diagnosis of polyneuropathy was assessed to evaluate its role as a risk factor for RLS in diabetic patients.

Measurement and Results: RLS was diagnosed in 22 diabetic patients (17.7%) and in only 5 controls (5.5%). 3 of whom had pituitary and 2 had adrenal gland disorders, and RLS was independently associated with type 2 diabetes (P < 0.04). Even if a clinical diagnosis of polyneuropathy was made in only 27% of diabetic patients affected by RLS, after multivariate logistic regression, the presence of polyneuropathy was the only variable associated with RLS in diabetics (odds ratio, 7.88; 95% confidence interval, 1.34-46.28; P < 0.02). RLS in diabetics showed a frequency of positive family history lower than that known for primary RLS, showed a late age of onset, and manifested itself after the diagnosis of diabetes was made.

Conclusions: This is the first controlled study confirming a significant association between RLS and type 2 diabetes. In diabetic patients, polyneuropathy represents the main risk factor for RLS. However, polyneuropathy only partially explains the increased prevalence of RLS in type 2 diabetics. Clinical characteristics of RLS in diabetic patients are those of a secondary form.

Keywords: RLS, type 2 diabetes, epidemiology, polyneuropathy, case-control study

Citation: Merlino G; Fratticci L; Valente M et al. Association of restless legs syndrome in type 2 diabetes: a case-control study. SLEEP 2007;30(7):866-871.