

# Lung Function Tied to Vitamin D

BY BRUCE JANCIN

KEYSTONE, COLO. — Low vitamin D levels in adults with asthma are associated with impaired lung function, increased airway hyperresponsiveness, and diminished in vitro response to glucocorticoids, according to a cross-sectional study.

The inference from this study is that vitamin D deficiency—a common finding in adults with asthma—may be one of the mechanisms underlying suboptimal clinical response to inhaled corticosteroids. This raises the testable hypothesis that vitamin D supplementation may improve asthma severity and treatment response, Dr. E. Rand Sutherland said at a meeting on allergy and respiratory diseases.

In light of the intriguing findings, a multicenter prospective clinical trial of vitamin D supplementation in asthma is being organized to see whether it improves asthma control. Results are probably 4 years away, said Dr. Sutherland, who is chief of the division of pulmonary and critical care medicine at National Jewish Health, Denver.

"I don't know that we have action-

able data here in terms of what to do with asthmatics, but there is probably very little harm in giving 1,000-4,000 IU/day of cholecalciferol. If you're up against the wall in terms of what to do with a patient, this is one thing that's cheap, relatively easy, and may not be harmful," he said in response to an audience question.

The cross-sectional study included 54 nonsmoking adults with persistent asthma. Their mean serum vitamin D concentration was 28 ng/mL; most experts consider levels below 30 ng/mL insufficient, he noted at the meeting, sponsored by the National Jewish Medical and Research Center.

The higher a participant's serum vitamin D concentration, the greater the lung function. In a multivariate regression analysis, there was a 22.7-mL increase in forced expiratory volume in 1 second (FEV<sub>1</sub>) for each 1-ng/mL increase in vitamin D (Am. J. Respir.



Crit. Care Med. 2010;181:699-704).

Airway hyperresponsiveness was also more pronounced in participants with reduced vitamin D levels. These patients required a 1.03-mg/mL provocative concentration of methacholine to induce a 20% fall in FEV<sub>1</sub>, whereas 1.92 mg/mL was required in participants who had a serum vitamin D level of 30 ng/mL or more.

"We feel pretty good about these data as a potential biologic underpinning to some of the population data that suggested higher vitamin D concentrations are a biomarker of steroid responsiveness," the pulmonologist observed.

**Disclosures:** The study was supported by the National Institutes of Health. Dr. Sutherland disclosed that he serves on advisory boards for Dey and GlaxoSmith-Kline and as a consultant to Schering-Plough.

**There was a 22.7-mL increase in FEV<sub>1</sub> for each 1-ng/mL increase in vitamin D.**

DR. SUTHERLAND

# COPD-Related Hospitalization Rate Lower With Tiotropium Than Other Regimens

BY BRUCE JANCIN

SAN DIEGO — Patients whose chronic obstructive pulmonary disease was treated with tiotropium monotherapy had significantly fewer disease-related hospitalizations during a 12-month window than those on other long-acting bronchodilator regimens, a large national study showed.

The retrospective study looked at COPD-related inpatient admissions in Thomson MarketScan, a large U.S. administrative claims database. The analysis involved 52,274 commercially insured patients with COPD who had one or more prescription claims for a long-acting bronchodilator (LABD) in 2004-2006, Emily D. Durden, Ph.D., reported at the annual meeting of the American College of Chest Physicians.

The COPD patients were categorized into five LABD regimens. Those on monotherapy with tiotropium (Spiriva) had significantly lower rates of disease-related hospital admissions during 12 months of follow-up than those on salmeterol (Serevent), formoterol fumarate (Foradil), salme-

terol/fluticasone propionate (Advair), or combination therapy with two or more LABDs, said Dr. Durden of Thomson Reuters. (See box.)

Patients in the tiotropium monotherapy group had significantly more comorbidities than those in the other study arms. They also were more likely to have been vaccinated against influenza. Mean health care costs in the 6-month prestudy period were lowest in the salmeterol group at \$12,885 and highest in patients on combination LABD therapy, at nearly \$17,100.

Dr. Durden noted that the retrospective, nonrandomized nature of her study means that it can't provide proof that tiotropium was the actual cause of the significantly lower hospitalization rate.

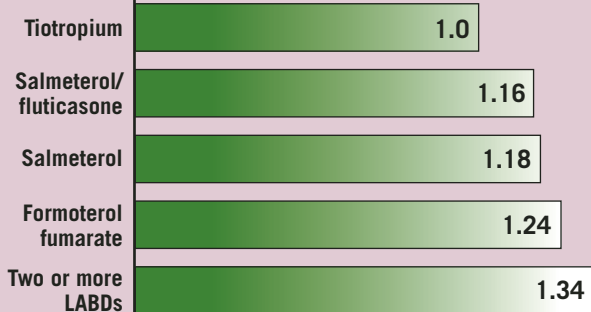
However, Dr. Donald P. Tashkin described a new meta-analysis he and his coworkers have conducted that incorporated data from 30 placebo-controlled clinical trials of tiotropium for COPD, including the massive 4-year Understanding Potential Long-Term Impacts on Function With Tiotropium (UPLIFT) trial (Chest 2010; 137:20-30).

The results of this meta-analysis indicate that tiotropium provided a 12% reduction in the risk of all-cause mortality relative to placebo and a 17% reduction in the risk of composite cardiovascular events, including stroke as well as MI, said Dr. Tashkin, professor emeritus of medicine at the University of California, Los Angeles.

The relative risks of acute MI and of heart failure were reduced by 23% and 17%, respectively, in this analysis based upon more than 13,000 patient-years of exposure to the LABD.

**Disclosures:** Dr. Tashkin's meta-analysis and Dr. Durden's study were both funded by Boehringer Ingelheim and Pfizer, which comarket tiotropium. Dr. Tashkin is a consultant to both companies. Dr. Durden reported having no financial conflicts.

## 12-Month Relative Risk of COPD-Related Hospitalization



Notes: Based on analysis of 52,274 patients. Admission rate in tiotropium group was significantly lower than other groups. Source: Dr. Durden

ELSEVIER GLOBAL MEDICAL NEWS

# Rhinosinusitis Surgery Helped Sleep and Sex

BY HEIDI SPLETE

ORLANDO — Surgical treatment of chronic rhinosinusitis can improve sleep and sexual function in adult patients who failed medical therapy, based on a study of 113 patients.

"It has been shown that rhinosinusitis has a significant quality of life impact even in comparison to chronic debilitating diseases such as diabetes and congestive heart failure," said Dr. Michael Benninger of the Cleveland Clinic, who presented the study findings at the annual meeting of the Triological Society.

## VITALS

**Major Finding:** Symptom scores related to sleep and sexual function improved significantly after adults with CRS underwent surgery.

**Data Source:** A prospective study of 113 adults with CRS who presented to a single tertiary care center.

**Disclosures:** Dr. Benninger is a consultant and has received research funding from ArthroCare Corp., and coauthor Dr. Timothy Smith is a consultant for Sinexus.

Previous studies have examined how treatment of chronic rhinosinusitis (CRS) affects quality of life, but the impact of CRS treatment on patients' sleep and sexual function has not been well studied, Dr. Benninger said.

In this study, Dr. Benninger and his colleagues prospectively enrolled English-speaking adults aged 18 years and older who presented to a tertiary care center with chronic rhinosinusitis. Prior to endoscopic sinus surgery, each patient completed the Rhinosinusitis Disability Index to show how they perceived the impact of CRS on their quality of life. Responses were measured using a 5-point Likert scale, with 0 being "never" and 5 being "always." The patients were followed for at least 9 months.

Before surgery, 41% of the patients said that their CRS "sometimes," "almost always," or "always" affected their sexual function, compared with a significantly lower 19% of patients following surgery.

The percentage of patients who reported that their CRS "never" or "almost never" affected their sleep improved significantly, from 15% before surgery to more than 50% after.

Many specific symptoms of CRS may have a negative impact both on sleep quality and sexual activity, Dr. Benninger said at the meeting. For example, CRS sufferers may not feel like kissing when they have a chronically runny nose and congestion.

The study results suggest that the surgery is effective in improving sleep and sexual function, although a longer follow-up period is needed to show whether the improvements persist. In addition, a more detailed analysis may be needed to better evaluate the relationships among particular CRS symptoms, such as nasal drainage or facial pain, on patients' overall perception of their sexual function, the researchers noted.