MEDPAGE TODAY®

Endocrinology > General Endocrinology

Vitamin D Highlights: A Bedroom Boost

— MedPage Today reviews this year's highlights in vitamin D research.

by Kristina Fiore, Staff Writer, MedPage Today
December 29, 2014

MedPage Today has been reviewing this year's highlights in vitamin D research in several articles. This installation acknowledges a link with erectile dysfunction, a lack of help in the ICU, and ties to schizophrenia.

A Bedroom Boost

Just when it seems the benefits-of-vitamin-D literature has topped out, Italian researchers have found yet another area where the vitamin/hormone may help out: the bedroom.

In a study of 143 men, Alessandra Barassi, MD, of University of Milan in Italy, and her colleagues found that those with severe erectile dysfunction (ED) had significantly lower vitamin D levels than those with mild ED, and that deficiency was worse in those with arteriogenic ED than in non-arteriogenic ED.

When they used penile echo-color-Doppler to assess vascular quality, the arteriogenic form of the disease was more common in men with vitamin D deficiency than in those who had levels of at least 20 ng/dL.

Reporting in the Journal of Sexual Medicine, Barassi and colleagues wrote that low levels of vitamin D "might increase the ED risk by promoting endothelial dysfunction" and that since low levels of vitamin D are common in all ED patients -- not just those with arteriogenic disease -- it "may be involved in the mechanism that promotes endothelial dysfunction causing ED."

They recommended routine measurement of vitamin D in ED patients, "with

Trying to correct vitamin D deficiency in the ICU won't improve outcomes, researchers found.

In the VITdAL-ICU study, high-dose vitamin D didn't reduce length of hospital stay, hospital mortality, or 6-month mortality, Karin Amrein, MD, of the Medical University of Graz in Austria, and colleagues reported online in the Journal of the American Medical Association.

The findings were simultaneously presented at the European Society of Intensive Care Medicine meeting.

Among the most severely vitamin D-deficient, supplementation did reduce hospital mortality -- but it didn't shorten hospital stay or decrease 6-month mortality.

Low levels of vitamin D in the ICU have been linked to worse outcomes, but it's been hard to tell if the association is causal, Amrein and colleagues wrote. So they conducted their randomized, double-blind, placebo-controlled study in five ICUs in their hospital system, enrolling 492 critically ill adult white patients with vitamin D deficiency (20 ng/dL or less).

Patients got either placebo or a loading dose of 540,000 IU vitamin D, followed by monthly maintenance doses of 90,000 IU for 5 months.

Amrein and colleagues found that the primary outcome of length of hospital stay wasn't different between those on vitamin D and those on placebo (20.1 days versus 19.3 days).

Nor was there any difference in hospital mortality or 6-month mortality.

They noted, though, that these patients had significantly better hand grip strength and physical performance after 6 months, which may suggest a potential benefit in the recovery and rehabilitation phase.

In a prespecified subgroup analysis of 200 patients with severe vitamin D deficiency, length of hospital stay was not significantly different between those supplemented and those on placebo (20.1 days versus 19 days).

But hospital mortality was significantly lower with vitamin D (28.6% versus 46.1%)

Still, 6-month mortality wasn't different between groups.

Amrein and colleagues noted that despite the high dose of vitamin D, only half of patients in the study hit levels above 30 ng/mL. This was likely related to the fact that many systems in critically ill patients are compromised -- including gastrointestinal function and the hepatic cytochrome P450 system involved in vitamin D metabolism.

Low D Levels in Schizophrenia

Vitamin D-deficient individuals are more than twice as likely to be diagnosed with schizophrenia compared with people with levels normally considered sufficient, a meta-analysis found.

The research, which analyzed 19 observational studies, is the first comprehensive systematic review and meta-analysis investigating vitamin D levels (usually the active compound 25-hydroxyvitamin D or 25-OH-D) and schizophrenia, the authors said.

"Although the role of vitamin D in schizophrenia has been investigated in several epidemiological studies, data are conflicting," according to Ahmad Esmaillzadeh, PhD, and colleagues from the Isfahan University of Medical Sciences in Iran, writing online in the Journal of Clinical Endocrinology & Metabolism.

The meta-analysis included eight cross-sectional studies, 10 case-control studies, and one nested case-control study. Sample sizes of the studies ranged from 17 to 848 people, with a total of 2,804 participants 18 to 65 years old. Papers were published between 1988 and 2013, and 11 of them were reported from European countries.

Although most studies reported lower serum vitamin D levels in schizophrenic patients, the associations did not reach statistical significance in some cases.

Meta-analysis findings on means of serum levels of vitamin D between schizophrenic patients and controls revealed an overall mean difference of -5.91 ng/mL (95% CI minus 10.68-minus 1.14).

Significant mean differences were seen in case-control studies, European and non-European studies, and studies that included inpatients.

The overall prevalence of vitamin D deficiency in schizophrenic patients was 65.3% (95% CI 46.4-84.2). Prevalence of vitamin D deficiency in healthy individuals around the world is upwards of 30% to 50%.

Meta-analysis on odd ratios showed that vitamin D-deficient individuals were 2.16 times (95% CI 1.32-3.56) more likely to be diagnosed with schizophrenia than those who were vitamin D sufficient.

However, a major limitation of the analysis was that the individual studies used different definitions of "deficiency" and "insufficiency"; some reported mean values for 25-OH-D levels whereas others merely gave prevalences of deficiency and insufficiency, according to the individual studies' criteria. "Normal" was typically defined as a 25-OH-D level of 30 ng/mL.

Why vitamin D deficiency might be associated with schizophrenia is unclear, write the study's authors.

Earlier ecological findings have reported the higher prevalence of schizophrenia in higher latitudes, colder climates, and dark-skinned people, Esmaillzadeh told MedPage Today. These populations may have reduced cutaneous synthesis of vitamin D from sun exposure.

The findings do not imply causation, warned Esmaillzadeh.

Indeed, there appear to be relevant variables for which the group did not control.

They included comorbidities, psychiatric medications, and overall nutritional status. Schizophrenic patients tend to gain substantial weight from antipsychotic medications, which can lead to decreased vitamin D levels. Many anti-seizure medications are also associated with vitamin D deficiencies, the authors wrote.

It is also possible that inpatients were vitamin D-deficient from lack of exposure to sunlight.

Other limitations came from significant between-study heterogeneity. Results were from subgroup analyses and based on study design, location, type of biomarker assessed, patient hospitalization status, and study quality.

The control groups were different: in case-control studies controls were healthy subjects with no history of psychiatric disorders, but in cross-sectional studies, controls were psychiatric patients other than those with schizophrenia.

Also, researchers were unable to access some studies' full text so they used abstracts instead, the researchers noted.

It seems there's at least one new study of the vitamin published every day, and in the Vitamin D Blog, MedPage Today will monitor that steady stream, offering our take on clinical implications -- or limitations.

Have a tip on a vitamin D study? Email Kristina Fiore at k.fiore@medpagetoday.com. You can also catch our vitamin D feed on Twitter, @vitaminDblog.

The authors of all three papers disclosed no conflicts of interest.

Reviewed by Robert Jasmer, MD *Associate Clinical Professor of Medicine, University of California, San Francisco and Dorothy Caputo, MA, BSN, RN, Nurse Planner*

LAST UPDATED 12.30.2014

Primary Source
Journal of Clinical Endocrinology & Metabolism
Source Reference: *Valipour G, et al "Serum vitamin D levels in relation to schizophrenia: A systematic review and meta-analysis of observational studies" J Clin Endocrinol Metab 2014; DOI: 10.1210/jc.2014-1887.*

Secondary Source
Journal of Sexual Medicine
Source Reference: *Barassi A, et al "Vitamin D and erectile dysfunction" J Sexual Med 2014; DOI: 10.1111/jsm.12661.*

Additional Source
Journal of the American Medical Association
Source Reference: *Amrein K, et al "Effect of high-dose vitamin D3 on hospital length of stay in critically ill patients with vitamin D deficiency" JAMA 2014; DOI: 10.1001/jama.2014.13204.*