Chronic Pain Linked to Low Vitamin D

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March 25, 2009 — Inadequate vitamin D may represent an underrecognized source of nociperception and impaired neuromuscular functioning, say researchers.

"Physicians who care for patients with chronic, diffuse pain that seems musculoskeletal — and involves many areas of tenderness to palpation — should strongly consider checking vitamin-D level," Michael Turner, MD, from the Mayo Clinic in Rochester, Minnesota, said in a news release issued Friday.

"For example," he added, "many patients who have been labeled with fibromyalgia are, in fact, suffering from symptomatic vitamin-D inadequacy. Vigilance is especially required when risk factors are present, such as obesity, darker pigmented skin, or limited exposure to sunlight."

Dr. Turner was lead investigator of a study published in the journal *Pain Medicine* in November 2008. The work suggests a correlation between inadequate vitamin-D levels and the amount of narcotic medication taken by chronic pain patients.

**Required Nearly Twice As Much Pain Medication**

The researchers found that patients who had inadequate vitamin-D levels and required narcotic pain medication were taking much higher doses — nearly twice as much — as those with adequate levels. These patients also reported worse physical function and worse overall health perception.

Dr. Turner told Medscape *Neurology & Neurosurgery* his group was surprised by the finding. "We didn't anticipate that the difference would be so high."

The investigators retrospectively studied 267 patients admitted to the Mayo Comprehensive Pain Rehabilitation Center. They compared serum 25-hydroxyvitamin-D levels at the time of admission with other parameters such as the amount and duration of narcotic pain medication used, self-reported levels of pain, emotional distress, physical functioning, health perception, and demographic information such as sex, age, diagnosis, and body-mass index.

Patients with vitamin-D levels below 20 ng/mL were considered to have inadequate amounts. The prevalence of low vitamin D was 26% (95% CI, 20.6% – 31.1%).

Among patients using opioids, the mean morphine-equivalent dose for the inadequate vitamin-D group was 133.5 mg/day compared with 70.0 mg/day for the adequate group (*P* = .001). The mean duration of opioid use for the inadequate and adequate groups was 71.1 months and 43.8 months, respectively (*P* = .023).

The researchers also observed a link between increasing body-mass index and decreasing levels of vitamin D.
Inadequate Vitamin D May Create or Sustain Pain

The preliminary results suggest that inadequate vitamin D may play a role in creating or sustaining chronic pain. During an interview, Dr. Turner suggested that patients with inadequate vitamin D may benefit from cholecalciferol 50,000 international units dosed according to the level of deficiency.

But he urged caution for patients with calcium- or phosphate-processing disorders. "Increasing vitamin-D levels could be problematic in patients with kidney failure or stones or primary hyperparathyroidism or sarcoidosis. This doesn't preclude increasing levels, but it might warrant discussion with an endocrinologist," he said.

For patients with adequate vitamin D looking to maintain levels, he recommends 10 to 15 minutes of sun exposure with no sunscreen on the trunk and arms and legs 3 times a week.

Sun Exposure or Diet and Supplements?

It is a recommendation often made by proponents of vitamin D but hotly contested by the American Academy of Dermatology. The academy recommends that vitamin D be obtained from a healthy diet and supplements and not from unprotected exposure to ultraviolet (UV) radiation.

"Unprotected UV exposure to the sun or indoor tanning devices is a known risk factor for the development of skin cancer," dermatologists write in the academy's position statement.

Dr. Turner and his team conclude: "Prospective trials utilizing a repeated-measures design are warranted to assess the effects of vitamin-D repletion on pain outcomes and physiological measures of neuromuscular functioning among patients with chronic pain and comorbid vitamin-D inadequacy."

The researchers have disclosed no relevant financial relationships.