Low Vitamin D Levels May Explain Pediatric Pain

BY JANE SALODOF MACNEIL
Senior Editor

ALBUQUERQUE — A prospective pilot study of 41 children with complaints of nonspecific musculoskeletal pain found their average levels of vitamin D were low even though the youngsters lived in the sunny southwest of the United States.

The mean level of serum 25-hydroxyvitamin D was lower in a group of 35 children with vague pain complaints than in 6 children found to have diagnosable conditions that explained their pain: 28 ng/mL vs. 38 ng/mL. While this difference was statistically significant, average vitamin D levels in both groups of children (aged 2-17 years) met the study's definition of hypovitaminosis D.

Moreover, when eight children were given vitamin D supplements, five had "marked subjective improvement or complete relief" from pain. Those making a recovery included one of two children with documented hip effusion as well as children with back pains and leg pains that had lasted, in some cases, for years.

"I am certainly not saying growing pains are caused by vitamin D deficiency, but it is something we are exploring," Dr. Elizabeth A. Szalay said in an interview after presenting the data at the annual meeting of the Pediatric Orthopaedic Society of North America.

What was, perhaps, most remarkable, was that the children lived in New Mexico at latitude 31 degrees north—an area not typically used in vitamin D studies because it has abundant sunshine year round. The National Health and Nutrition Examination Survey III suggests that 3% of healthy adolescents at a higher latitude have vitamin D levels below 25 ng/mL during summer, she said. In the New Mexico study, 30% of the youngsters in pain had vitamin D levels below 25 ng/mL.

Dr. Szalay, an orthopedic surgeon at the University of New Mexico and Carrie Tingley Hospital, both in Albuquerque, and her coinvestigator Elyce B. Tryon used a local laboratory's classification of vitamin D levels in their analysis. Ranges were presented as 0-5 ng/mL for deficiency, 5-20 ng/mL for insufficiency, 20-40 ng/mL for hypovitaminosis D, 40-100 ng/mL for sufficiency, and more than 100 ng/mL for toxicity.

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The highest level recorded was 47 ng/mL. It was seen in both subgroups: the children with vague complaints and those with objective explanations of their pain (Legg-Calvé-Perthes disease, arthrogryposis, and chondrolysis). The lowest level in the majority with vague complaints was less than half that of the children with diagnoses: 12 ng/mL vs. 25 ng/mL.

Dr. Szalay speculated that the low levels of vitamin D could be attributed to a convergence of factors. Sunlight is a prime source of vitamin D and 15 minutes of exposure a day is sufficient, she said, but many children do not play outside. They don't walk to school and may spend as much as 44 hours a week on electronic media such as video games.

Diet by itself is unlikely to provide enough vitamin D, she continued. Milk is fortified with vitamin D, but consumption is down, compared with years past. "In 1970, children drank twice as much milk as soda," she said. "In 2000, children drank twice as much soda as milk."

Children's multivitamins do not make up for vitamin D deficiency, according to Dr. Szalay. Some only contain 64 U a day, she said, recommending that children at risk take both a multivitamin and a chewy calcium-plus-D supplement plus two glasses of milk a day. For children without pain, she set the desired daily intake at 800-1,000 U of vitamin D, but added that she recommends 1,000-2,000 U for children with pain. ■

Joint Replacement Surgery Is Riskier In Type 1 Diabetes Than in Type 2

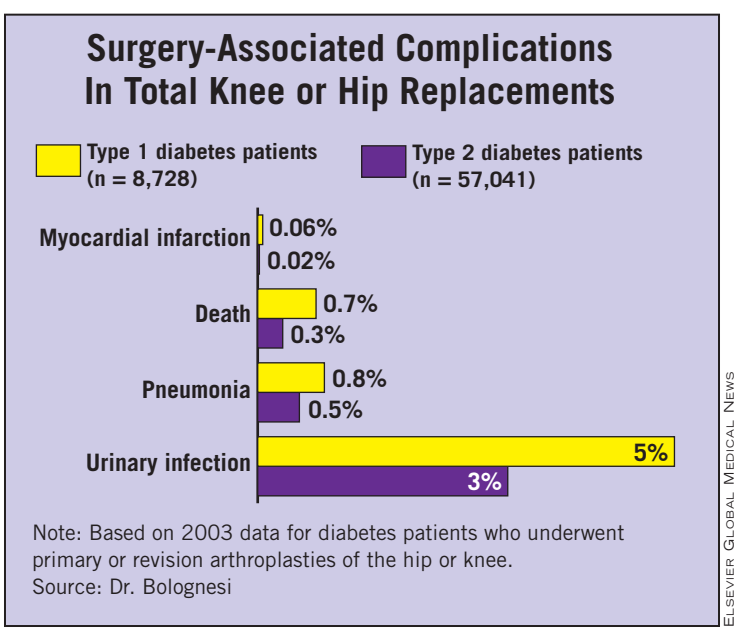
BY SHERRY BOSCHERT
San Francisco Bureau

SAN FRANCISCO — Patients with type 1 diabetes were more likely than those with type 2 diabetes to die or develop perioperative complications after undergoing total knee or hip arthroplasty, a review of 65,769 cases found.

The risk of death related to total joint arthroplasty in type 2 diabetes patients was 56% lower than that in type 1 diabetes patients, Dr. Michael P. Bolognesi and his associates reported in a poster presentation at the annual meeting of the American Academy of Orthopaedic Surgeons.

The investigators used federal data from the 2003 National Inpatient Sample to compare rates of complications between 8,728 patients with type 1 diabetes and 57,041 patients with type 2 diabetes who underwent primary and revision arthroplasties of the hip or knee from 1998 to 2003. Their analysis was based on regression modeling to control for the potential confounding effects of age, race, gender, and median household income by zip code.

Type 2 diabetes patients were about 30% less likely than type 1 diabetics to develop a urinary tract infection, pneumonia, or postoperative hemorrhage; they were about 50% less likely to develop an infection related to the surgery. The rate of myocardial infarction also was lower in type 2 diabetics, said Dr. Bolognesi of Duke University, Durham, N.C.



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Each of the differences they found between groups was statistically significant.

A bivariate analysis that directly compared complications in the two diabetes groups without adjusting for confounders showed that 0.7% with type 1 diabetes and 0.3% with type 2 diabetes died in association with the total joint replacement surgery, he reported. Rates of surgery-associated myocardial infarction were 0.06% with type 1 diabetes and 0.02% with type 2 diabetes. Perioperative urinary infections occurred in 5% of patients with type 1 diabetes and in 3% with type 2 diabetes. Pneumonia developed in 0.8% of the type 1 diabetes group and in 0.5% of the type 2 diabetes group.

Postoperative hemorrhage after total knee or hip arthroplasty was seen in 2% of the type 1 diabetes group and in 1% of the type 2 diabetes group. Infection occurred in 0.8% of patients with type 1 diabetes and in 0.4% with type 2 diabetes.

Each of these differences between groups in the bivariate analysis was statistically significant. Dr. Bolognesi is a consultant to four companies that market orthopedic products, instruments, or implants: ORTHOsoft Inc., DePuy Orthopaedics Inc., Zimmer Inc., and AMEDICA Corp. He owns stock or has stock options in two of those companies. ■

Smoking Alters Response To Biologic Therapy for RA

BY NANCY WALSH
New York Bureau

LIVERPOOL, ENGLAND — Patients with rheumatoid arthritis who have a history of cigarette smoking are more likely to have a poor response to anti–tumor necrosis factor therapy than are those who have never smoked.

Recent studies have provided strong evidence that cigarette smoking is a risk factor in susceptibility to rheumatoid arthritis (RA) and more severe disease. Smokers with RA appear to have increased production of cytokines such as tumor necrosis factor, and autoantibodies such as rheumatoid factor. A recent study from the British Society for Rheumatology's biologics register found that patients who were current smokers had a low response rate to infliximab (Rheumatology [Oxford] 2006;45:1558-65).

"To see if smoking affects the response to therapy in our patients and to determine if there is a relationship between response and pack-year history, we collected demographic data and smoking histories for all patients at our hospital who were started on anti-TNF drugs since 2002," reported Dr. Derek L. Mattey of Staffordshire Rheumatology Centre, University Hospital of North Staffordshire, Stoke-on-Trent, England.

A total of 154 patients whose mean age was 65 years were included. Infliximab was the agent used by 83 patients, etanercept by 55, and adalimumab by 16.

Two-thirds of the patients reported ever having smoked, but only 25% were still current smokers at the time they initiated treatment. The extent of previous smoking was quantified, with one pack-year being equivalent to 20 cigarettes per day for 1 year, and intensity of smoking stratified as never (0 pack-years), light (1-15 pack-years), moderate (16-30 pack-years), and heavy (more than 30 pack-years).

At baseline, smokers were more likely to be rheumatoid factor positive and have nodular disease, but smokers and nonsmokers did not differ in baseline Disease Activity Score (DAS) 28, Health Assessment Questionnaire (HAQ) scores, pain scores, or C-reactive protein level, Dr. Mattey said.

Response was defined according to the EULAR improvement criteria, based on 3-month DAS28.

At 3 months, there were significant differences between the groups, with patients whose smoking history exceeded 30 pack-years having an odds ratio of 7.4 for nonresponse compared with patients who had never smoked. The odds ratios for those in the light and moderate groups were 1.9 and 1.8, respectively.

Multivariate logistic regression analysis showed that the association of pack-year history with nonresponse was independent of age, sex, disease duration, baseline DAS28, and HAQ scores. ■