# Blood Lead Levels Linked to Osteoarthritis Severity

BY KATE JOHNSON
*Montreal Bureau*

PRAGUE — Blood lead levels significantly below those that are defined as toxic by the Centers for Disease Control and Prevention are associated with increased rates of moderate to severe knee osteoarthritis, reported Dr. Joanne M. Jordan, associate director of the Thurston Arthritis Research Center at the University of North Carolina, Chapel Hill.

"Essentially this is subclinical lead toxicity," she said in an interview at the 2006 World Congress on Osteoarthritis. "This may be a new, potentially modifiable risk factor for osteoarthritis."

In a cohort of 790 subjects, mean age 60 years, taken from the Johnston County Osteoarthritis Project Metals Exposure study, Dr. Jordan found that blood lead levels were not associated with the presence of osteoarthritis (OA), but they were associated with severity of the condition.

The subjects had a mean lead level of 2.0 mcg/dL, with most being well below the level of 10.0 mcg/dL that the CDC considers toxic, she said. After adjustment for age, gender, race, education, body mass index, current alcohol use, and current smoking status, the study found that subjects with blood lead levels in the highest quintile had a significant 30% greater chance of having moderate to severe knee OA, compared with subjects in the lowest quintile, she reported at the congress, which was sponsored by the Osteoarthritis Research Society International. Additionally, those in the highest quintile also had a 60% greater chance of having bilateral knee OA—although this difference did not reach statistical significance.

In general, blood lead levels were higher in older subjects, and in African Americans compared with whites. Additionally,

**'This may be a new, potentially modifiable risk factor for osteoarthritis.'**

**DR. JORDAN**

there were higher lead levels in men compared with women, in subjects with less education compared with those who had more education, and in current alcohol users and smokers compared with abstainers.

Roughly 95% of the body's lead burden is stored in bone, and this store contributes 65% to blood lead levels, said Dr. Jordan. With a half-life of decades, bone and blood lead interfere with the uptake of dietary calcium and vitamin D. ■



# Vitamin D Intake In Women Tied To Knee Arthritis

PRAGUE — Low dietary vitamin D intake is linked to an increased rate of knee osteoarthritis, Dr. Nigel K. Arden reported at the 2006 World Congress on Osteoarthritis.

The association was seen in tibiofemoral but not patellofemoral disease, and in women but not in men, Dr. Arden said at the meeting, which was sponsored by the Osteoarthritis Research Society International.

"This effect was driven by dietary intake, not supplementation," he added, noting that the mean dietary vitamin D intake in the 957 British patients, measured by food frequency questionnaires, was 3.2 mcg per day. A total of 39% of the cohort took vitamin D supplements, boosting their daily intake to 4.3 mcg per day, which is still "woefully below what's recommended," said Dr. Arden of the University of Southampton (England).

The study randomized patients from the larger Hertfordshire Cohort Study, a multiple outcome study which included patients born in Hertfordshire, England, from 1931 to 1939 and still living there. It noted a 10.5% rate of symptomatic, radiographic tibiofemoral OA in the cohort at baseline; this was negatively associated with dietary vitamin D intake.

While vitamin D insufficiency is known to increase with age, it is expected to increase more significantly with the growing emphasis on sun avoidance and the use of sunscreen, Dr. Arden said.

**—Kate Johnson**