

Low Vitamin K Linked to Knee Osteoarthritis

BY MITCHEL L. ZOLER

FROM THE WORLD CONGRESS ON
OSTEOARTHRITIS

BRUSSELS – Vitamin K deficiency may increase the risk for developing knee osteoarthritis and for forming knee cartilage lesions, judging from the findings of a 30-month study of nearly 1,200 people at risk for knee osteoarthritis.

This apparent role of low vitamin K levels in susceptibility to knee pathology raised the question whether vitamin K supplementation for deficient individuals might be a “simple, effective preventive agent,” Dr. Tuhina Neogi said at the congress.

“The next step is an intervention trial,” said Dr. Neogi, a rheumatologist at Boston University. “Taken together, there is enough biological plausibility that vitamin K could play a role. Osteoarthritis is multifactorial, but this could be one component. If [dietary supplementation] proves effective, it would be something easy for people to do.”

Vitamin K works as a cofactor in the carboxylation of several proteins that are involved in bone and cartilage formation and maintenance. Prior studies have shown that low vitamin K intake and low blood levels are linked to prevalent radiographic features of hand and knee osteoarthritis.

The investigators examined data that were collected from people enrolled in the Multicenter Osteoarthritis (MOST) study who had an elevated risk for knee osteoarthritis at entry but had not yet developed the disease. MOST enrolled more than 3,000 people who had osteoarthritis or were at risk for it starting in 2003 at two U.S. sites. The 1,180 people who were included in the study averaged 62 years of age; 62% were women, and their average body mass index was about 30 kg/m².

Dr. Neogi and her associates defined vitamin K deficiency as a plasma level of phylloquinone less than 0.5 nmol/L. (Normal is 0.5-1.2 nmol/L.) At baseline, 9% of the study participants without osteoarthritis had vitamin K deficiency.

The researchers made incidence osteoarthritis the primary end point, defined as development of a knee Kellgren-Lawrence (KL) grade of 2 or higher (including knee replacement). All people included in the analysis had a KL grade less than 2 at baseline. During 30 months of follow-up, 15% of the participants developed osteoarthritis.

Analysis revealed that participants with vitamin K deficiency at baseline had a 43% increased risk, after adjustment for age, sex, BMI, bone mineral density, and vitamin D level at baseline. This increased risk just missed reaching significance. Dr. Neogi suggested that this may have been a power issue, with too few vitamin K-deficient participants in the database.

Analysis also showed a link between the extent of knee osteoarthritis and vitamin K deficiency. Those with osteoarthritis in both knees had a significant, nearly threefold increased risk of vitamin

K deficiency at baseline, compared with those who developed osteoarthritis in one knee during follow-up. Those who had both knees affected had a significant, twofold increased risk of vitamin deficiency, compared with people who did not develop any knee osteoarthritis, she reported

at the congress, which was organized by the Osteoarthritis Research Society International.

Vitamin K-deficient participants also had a significant, nearly threefold increased risk of new cartilage lesions on their knee MRI scans that were consistent with osteoarthritis. ■

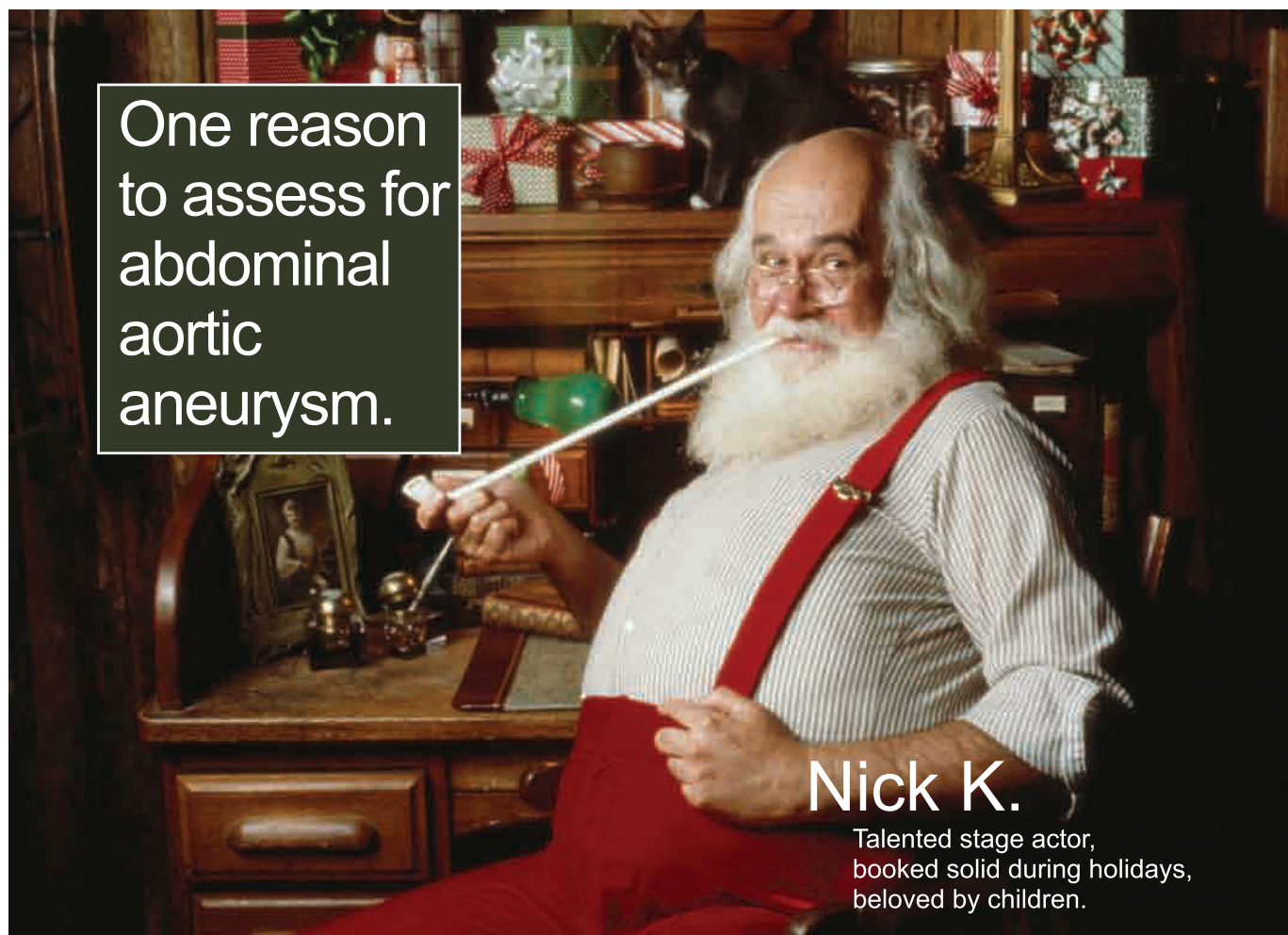
VITALS

Major Finding: People who developed osteoarthritis in both knees during 30 months of follow-up had a twofold increased rate of vitamin K deficiency at baseline, compared with people who did not develop osteoarthritis, and a nearly threefold increased risk of vitamin K deficiency compared with those who developed osteoarthritis in one knee.

Data Source: The 1,180 people enrolled in the MOST study who did not have osteoarthritis at baseline.

Disclosures: Dr. Neogi had no disclosures.

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