Facial Wrinkles May Signal Bone Mineral Loss

BY KERRI WACHTER

THE ANNUAL MEETING OF THE ENDOCRINE SOCIETY

BOSTON – Skin wrinkling and rigidity could give physicians a clue to bone mineral density, at least among early postmenopausal women.

"In the women that we're talking about, skin wrinkling and skin rigidity – features that are easily appreciable across the table when you are looking at the patient – tie in with bone mineral density as assessed by clinical gold standards, such as dual x-ray absorptiometry," Dr. Lubna Pal said at the meeting.

The researchers explored possible relationships between skin wrinkling/rigidity and bone mineral density (BMD) in a cohort of early menopausal women who were enrolled in the Kronos Early Estrogen Prevention Study, a longitudinal trial of menopausal hormone therapy.

The skin ancillary study to the ongoing Kronos clinical trial included 114 women who had their last menstrual period within the past 3 years. Most of the participants were white, although 30% were not. Cross-sectional baseline data were used, said Dr. Pal, a reproductive endocrinologist at Yale University, New Haven, Conn.

Skin wrinkles were assessed at 11 sites on the face and neck using the validated Lemperle wrinkle scale. Skin rigidity was assessed at the forehead and cheek using a durometer. Participants also underwent BMD assessment by dual-energy x-ray absorptiometry at the lumbar spine, left hip, and total body. The patients also underwent quantitative heel ultrasound.

Stepwise multivariable linear regression analyses explored the relationship between skin parameters and BMD. Covariates included age, body mass, race/ethnicity, age at menopause, history of smoking, multivitamin intake, and enrollment site.

The researchers found that skin wrinkle severity correlates with BMD. In particular, when wrinkles are severe, BMD is low.

"Our hypothesis, I'm very pleased to say, was substantiated by these findings," said Dr. Pal. "But we are really seeing the tip of the iceberg here. This is a tantalizing association.

"The quest for all of us really is, can we pick out markers in a cost-effective manner that may translate into overall risk detection that would prevent [fractures]?" she added.

Why look at skin wrinkles and bone density? "Well, when you look at the architecture of the skeleton and the architecture of the skin, about 90% of shared properties within tissues exist, which are the protein building blocks," Dr. Pal said.

In the skeleton, bone mineral must be deposited on some struts, and proteins provide that infrastructure, she explained. So, loss of protein in the skeleton translates into increased skeletal fragility. That structural deterioration is also seen in the skin. "As we age, the protein texture in our dermis and the deeper layers of our skin also deteriorate," Dr. Pal noted. ■

VITALS

Major Finding: The worse the skin wrinkles were in terms of depth and number, the lower BMD was in that individual.

Data Source: A skin ancillary study of 114 women also enrolled in the Kronos Early Estrogen Prevention Study, a longitudinal trial of menopausal hormone therapy.

Disclosures: Dr. Pal and her coinvestigators reported that they have no relevant financial relationships.

No Increased Bone Risk Seen With HIV Treatments

BY JENNIE SMITH

FROM THE INTERNATIONAL AIDS SOCIETY CONFERENCE ON HIV PATHOGENESIS AND TREATMENT

ROME – Exposure to tenofovir and other antiretroviral agents over time is not independently associated with an increased risk of bone fracture in aging men living with HIV, investigators reported.

Complications of HIV and antiretroviral treatment are particularly important to identify – and separate from traditional risk factors – in aging HIV-positive populations. Several presenters at the meeting focused on complications of long-term infection and exposure to treatment agents. The antiretroviral drug tenofovir, for example, is known to be associated with decreased bone mineral density.

Dr. Roger Bedimo of the VA North Texas Health Care System and the University of Texas Southwestern Medical Center in Dallas told the conference that his group's retrospective cohort study looked at 56,660 people with HIV (mean age, 45), 98% of whom were male. Patients received different antiretroviral regimens during 1988-2009.

Antiretroviral therapy (ART) with tenofovir and ART with boosted protease inhibitors were regimens found to linked with a modest increased risk of osteoporotic fracture after a median 4.5 years of follow-up – but this risk was no longer significant after adjustment for the traditional risk factors of race, body mass index, age, tobacco use, and diabetes.

Though an increased risk of fracture was seen in the cohort as a whole after the introduction of highly active antiretroviral therapy in 1996, this was believed to be attributable to aging and longer survival of subjects. Bone mineral density was not measured in the study.

Separately, Italian researchers, led by Dr. Giovanni Guaraldi of the University of Modena, presented findings from a smaller study designed to test interactions between bone density and elevated coronary artery calcium – a known risk factor for cardiovascular disease – in a group of 681 HIV-infected patients. They found elevated coronary artery calcium to be significantly associated with low femoral BMD (OR, 2.24) but not low lumbar BMD.

Dr. Guaraldi said that further studies were needed to determine "how heart and bone disease talk to each other" in aging HIV-positive populations, and that he felt that nondrug interventions might be able to simultaneously mediate bone density and cardiovascular risks in this patient group. ■

VITALS

Major Finding: Neither antiretroviral therapy with tenofovir nor ART with boosted protease inhibitors was significantly associated with an increased risk of osteoporotic fracture in HIV-infected patients after a median 4.5 years of follow-up and adjustment for possibly confounding variables.

Data Source: A retrospective cohort study of 56,660 people with HIV (mean age, 45), 98% of whom were male. Patients received different antiretroviral regimens between 1988 and 2009.

Disclosures: The investigators did not report whether they had any relevant financial disclosures.

Vitamin D Prevents Bone Loss Due to Breast Cancer Therapy

BY RICHARD HYER

FROM THE ANNUAL MEETING OF THE AMERICAN SOCIETY OF CLINICAL ONCOLOGY

CHICAGO – The bone loss associated with aromatase inhibitors was significantly slowed with increasing supplements of vitamin D in a prospective cohort study of 156 postmenopausal women.

"The bone loss was less, the higher your vitamin D level was maintained," said session chair Dr. Thomas J. Smith of Massey Cancer Center of Virginia Commonwealth University. "This is one of the first intervention studies," he said. "And the results are pretty striking."

Dr. Sonia Servitja of Hospital del Mar in Barcelona, and colleagues, assessed the association between 25-hydroxy-vitamin D [25(OH)D] concentrations and bone loss at baseline, after 3 months of supplementation, and after 1 year, in patients receiving aromatase inhibitor therapy for early-stage breast cancer.

The 156 women in the prospective cohort had hormone-positive breast cancer and had initiated aromatase inhibitors during January 2006–June 2009.

All patients received daily oral calcium (1 g) and vitamin D_3 (800 IU). Patients with a baseline level of 25(OH)D less than 30 ng/mL received additional oral vitamin D_3. The women were a mean age of 62 years with a mean age of menopause onset of 50 years.

The magnitude of the bone-loss prevention correlated with incremental increases in 25(OH)D concentrations.

Each 10-ng/mL increase in 25(OH)D concentration at 3 months appeared to be associated with a 0.55% decrease in bone loss, which was almost a third of the average bone loss experienced by these patients, according to the study findings, presented as a poster at the meeting.

The findings suggest that vitamin D supplementation at doses higher than the standard of 400 to 800 IU/day might be useful to minimize bone loss in women starting out on aromatase inhibitors and who are not eligible for bisphosphonate therapy according to current guidelines.

Patients who achieved 25(OH)D concentrations of at leaset 40 ng/mL at 3 months experienced significantly reduced bone loss. In addition, 25(OH)D increases at 3 months were protective for relative bone loss. ■

VITALS

Major Finding: 25(OH)D concentration increments caused by supplementation prevented aromatase inhibitor–associated bone loss, independently of baseline 25(OH)D concentrations. Increasing levels of 25(OH)D at 3 months were inversely correlated to absolute bone loss (–0.004 g/cm^2, $P = .003$) at 1 year.

Data Source: Prospective cohort study of 156 postmenopausal nonosteoporotic women using adjuvant aromatase inhibitors in early breast cancer.

Disclosures: Dr. Sonia Servitja disclosed no relevant relationships. Chair and invited discussant Dr. Thomas J. Smith disclosed receiving research funding from the American Cancer Society and the National Cancer Institute.