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## **Osteoporosis Risk with Asthma and COPD Therapies Needs More Vigilance**

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December 9, 2010 (Dubai, United Arab Emirates) — For patients with asthma and chronic obstructive pulmonary disease (COPD) who are receiving therapies that pose a risk for osteoporosis, particularly corticosteroids, screening might help prevent irreversible bone loss, which can occur even with low doses of prednisone.

If they are required, inhaled corticosteroids (ICS) are safer than systemic corticosteroids, researchers reported here at the World Allergy Organization 2010 International Scientific Conference.

Dennis Ledford, MD, from the University of South Florida College of Medicine and James A. Haley Veterans Hospital and All Children's Hospital in Tampa, Florida, presented the latest data and his strategy for managing patients who are likely to be at risk.

"Asthma is a lifetime disease, so . . . screen [patients] for conditions that you can do something about to make a difference to their life," he told Medscape Medical News.

He added that the literature is inconclusive about the degree of risk for osteoporosis. Prevention is the key, he said. "Once the damage is done, it is difficult to reverse. Therapies prevent bone loss more than they replace bone, so waiting for a problem to occur is ill-advised."

Dr. Ledford explained that osteoporosis is getting more common in our aging population, and effective asthma and COPD treatments increase this risk. Consequently, morbidity and mortality risk increases with risk for osteoporosis. "If a patient fractures a hip, there is a significant chance they will die in the next few years, and quality of life will decrease significantly. It can make a patient's life miserable."

He described the risk factors for osteoporosis. Being a woman increases risk, but 15% of men older than 50 years also have the disease. Women have a lower body mass and the drop in estrogen with menopause facilitates bone loss. "Asians and Caucasians are at greater risk. A lack of weight-bearing exercise and vitamin D deficiency both contribute to the problem. Asthmatics tend to be less active and spend less time outside," Dr. Ledford noted.

He advised clinicians to use the T score on a bone scan to assess osteoporosis. This score compares a patient's bone density with that of a 25-year-old (considered the ideal). As the T score decreases by 1, the fracture rate doubles.

Dr. Ledford discussed some myths and truths about asthma therapies and bone loss.

The myths are that "low-dose" systemic treatment is safe; that every-other-day systemic treatment is safe; that bone effects require long-term treatment; and that topical corticosteroids have no systemic adverse effects.

The truths are that ICS are safer than systemic corticosteroids; that some people are at greater risk than others (risk factors for osteoporosis might help identify some subjects at risk); and that ICS differ in their effects on bone, but the safest is unknown.

Dr. Ledford cited a study published in the *Lancet* (2000;335:1399-1403) that examined ICS use and loss of bone density. The study found that cumulative dosing of ICS negatively correlated with bone mineral density (BMD); T score decreased 0.16 standard deviations (SD) with a doubling of ICS dose. One in 3 asthmatics in the United Kingdom receives ICS, with around 30% receiving more than 800 µg/day. The study showed that 2000 µg/day for 7 years or 1000 µg/day for 14 years would result in a decrease of 1 SD in BMD, or a doubling of fracture risk, Dr. Ledford noted.

"The real risk is in fractures, and this evidence suggests effects on bone density [with ICS treatment]. I would suggest that we be cautious," he pointed out.

Stratifying asthma patients into low, medium, and high risk with respect to bone density loss would help focus us on the most susceptible patients, he explained.

Dr. Ledford reported that low risk is defined as ICS use below 800 to 1000 µg/day for adults and below 400 to 500 µg/day for children, but no other risk factors. Moderate risk is defined as ICS use above 800 to 1000 µg/day for at least 6 weeks in adults, above 400 to 500 µg/day for at least 6 weeks in children, and the presence of 1 other risk factor. High risk applies to patients receiving chronic systemic corticosteroids (daily or every other day), systemic corticosteroids for more than 4 weeks continuously, systemic corticosteroid bursts of more than 4 per year, or more than 2 other risk factors with chronic moderate- to high-dose ICS use.

For patients at low risk, he encourages adequate calcium and vitamin D intake and weight-bearing exercise, and discourages smoking and significant drinking. In addition, he advises clinicians to check thyroid function (thyroid-stimulating hormone) in patients taking thyroid medication, and to "ask the referring physician to lower the dose if necessary."

For moderate-risk patients, he advises the same approach, but adds that clinicians might also want to consider estrogen replacement or an estrogen-receptor modulator if the patient is peri- or postmenopausal. Bone density and thyroid-stimulating hormone might also need to be measured, Dr. Ledford advised.

For high-risk patients, he recommends the same approach as in moderate-risk patients, plus 24-hour urine tests for calcium levels and creatinine clearance in patients receiving systemic corticosteroid therapy, regular bone densitometry scans, and possible referral to an orthopedist.

Commenting on the presentation, John J. Condemi, MD, from the University of Rochester, New York, said osteoporosis is a big issue in patients with asthma or COPD. "There's a need for recognition that inhaled steroids are absorbed and may have an impact. Along with vitamin D deficiency, they should be considered in the total equation. High-dose systemic steroids, like 500 µg of fluticasone, are clearly absorbed."

He pointed out that people with asthma and COPD have a number of risk factors. "They are often postmenopausal, with long-term [disease] duration (starting in childhood). Considering a possible lack of vitamin D and calcium and no exercise, we should pay more attention to this."

In response to being asked whether clinicians take the risk seriously enough, he stressed that all allergists should be aware of the risk factors for systemic steroids. "I don't think allergists pay enough attention to this. I think they depend on primary care physicians, and most of them don't treat asthma as a chronic disease. They don't see the patients like we do. Since we are seeing them, we should pay more attention to their comorbidities," he concluded.

Dr. Ledford reports financial relationships with AstraZeneca, ImmunoGen, Forest, Boehringer Ingelheim, Genentech, and Merck. Dr. Condemni has disclosed no relevant financial relationships.

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