Transcript Details

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Treating Osteoporosis in Older Adults: The Limitations of BMD Measurements

Annnoucer:
You're listening to *On the Frontlines of Osteoporosis* on ReachMD. On this episode, we'll hear from Dr. Cathleen Colón-Emeric, who's not only the Associate Dean for Research Mentoring, a Professor of Medicine, and the Chief of the Division of Geriatrics at the Duke Center for the Study of Aging and Human Development, but she's also a research physician at the Geriatric Research Education and Clinical Center at the Durham Veterans Administration. She'll be discussing the key limitations of bone mineral density measurements in older adults with osteoporosis. Here's Dr. Colón-Emeric now.

Dr. Colón-Emeric:
Bone mineral density is a measure of the amount of calcium and other minerals in the bone. And so it's one of a number of pieces of information we use to decide whether a patient is at high enough risk of fracture to warrant treatment to try to prevent those fractures. Currently, the guidelines in the U.S. set that threshold as a 10-year fracture risk for major osteoporotic fracture of 20 percent or a hip fracture of over 3 percent. The bone mineral density helps us identify whether patients meet that guideline. If their T score, which is the number of standard deviations above or below the mean for a young, healthy woman, is below negative 2.5 or if their T score is between negative 1 and negative 2.5 and they have other clinical risk factors that push that fracture risk over the threshold, that's currently how we use bone mineral density to select people for treatment.

One other thing to keep in mind is previously, we'd only label people with a diagnosis of osteoporosis based on that T score level of less than negative 2.5, but the trend in the field now is really moving to a diagnosis of osteoporosis that corresponds to elevated fracture risk. So now we're labeling them with osteoporosis if they have that intermediate level of T score, negative 1 to negative 2.5, and other clinical risk factors that put them at elevated risk, or if they've previously had a low trauma fragility fracture of the hip or spine.

The limitations really fall into three categories. The first is measurement issues. Bone mineral density is good at measuring mineral content. But it doesn't directly measure bone strength or quality. And so, for example, in people with type 2 diabetes, they tend to have higher bone mineral density than the average population, but also a higher fracture rate because of poor bone quality. So bone mineral density is actually a poor surrogate in those folks. Similarly, for folks who've had a fragility fracture, a hip fracture, or a vertebral fracture and have already proven to us that they have a poor bone quality and are at high fracture risk, they can sometimes have normal or only mildly decreased bone mineral density. So it's an imperfect measure.

The other limitation is a machine-related issue. Different brands of machines will give us very different values of bone mineral density, which is why we need to standardize it with a T score and not look at the bone mineral density directly. But even within the same machine, it's very difficult to use bone mineral density to follow changes over time because the change you see within two years in the machine is really within the measurement error of the instrument. So it's not particularly great for following response to therapy.

And then for our frail older adults, there are really a number of practical issues with bone mineral density. It may not be available in all areas, particularly for rural dwelling folks. Older adults often have transportation issues or mobility issues that make it hard for them to transfer on to the table to get their bone density measured. And all of this is exacerbated if folks have had a recent fracture, particularly a hip fracture, so sometimes getting that bone mineral density measurement is just difficult for our patients.

Announcer:
That was Dr. Cathleen Colón-Emeric talking about the challenges associated with bone mineral density measurements in older adults

with osteoporosis. To access this and other episodes in our series, visit *On the Frontlines of Osteoporosis* on ReachMD.com, where you can Be Part of the Knowledge. Thanks for listening!