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The Rise of Vertebral Fractures: Incidence, Diagnosis, and Treatment Options

Narrator:
You're listening to ReachMD. The following program is sponsored by the National Osteoporosis Foundation. Your host is Family Medicine physician, Dr. Jennifer Caudle, and our guest expert is Dr. Michael Lewiecki, Director, New Mexico Clinical Research and Osteoporosis Center and Clinical Assistant Professor of Medicine, UNM School of Medicine in Albuquerque, New Mexico.

Dr. Caudle:

Spinal fractures can vary widely in severity. While some fractures are serious injuries that require emergency treatment, other fractures can be the result of bones weakened by osteoporosis. How can we, as clinicians, recognize the signs and symptoms of vertebral fractures and what are our treatment options? I'm your host, Dr. Jennifer Caudle, and with me is Dr. Lewiecki. Welcome to ReachMD.

Dr. Lewiecki:

Well thank you. It's good to be here.

Dr. Caudle:

It's great to have you. So let's get started. Can you talk to us a little bit about what the significance of vertebral fractures is?

Dr. Lewiecki:

First of all, vertebral fractures are by far the most common single type of osteoporotic fractures with more than 750,000 vertebral fractures each year in the United States. These contribute to a significant amount of morbidity and mortality. In fact, there is an excess mortality of about 20% in the first 5 years after a patient having a vertebral fracture. This is similar to the mortality rate associated with hip fractures; however, most vertebral fractures are not clinically recognized. In fact, only about one-third of vertebral fractures are recognized by the patient or the physician, so it is important that we consider looking for vertebral fractures with some type of vertebral imaging in patients who are at high risk to have these. Also, it's important to recognize that having a vertebral fracture greatly increases the risk of future fractures, not only of vertebral fractures, but the risk of other types of osteoporotic fractures as well.

Dr. Caudle:

Right. That makes a lot of sense. Something that's very important in the primary care office as well as any medical offices with our patients. Can you talk now about the signs and symptoms of vertebral fractures?

Dr. Lewiecki:

Well, most often there are no recognizable symptoms that are attributable to having a vertebral fracture. There may be some mild or modest back pain that causes temporary concern with the patient, but it may not be enough for the patient to see a doctor. If the doctor does see the patient for this, there may not be enough concern to order an x-ray to determine whether or not there is a vertebral fracture. And in fact, even when x-rays are done, it's fairly common for vertebral fractures not to be identified by the radiologist or reported in the summary of the report. Height loss is a very important tip-off to the possibility of a patient having a vertebral fracture. Many patients have lost height and don't recognize that they've lost height, so what is reasonable to do is to ask a patient what their historical maximum height is; and most patients, in fact, have an idea of what their height was on their original driver's license or some other document that they got when they were in their late teens or 20s. And if they get an accurate measurement of height in the physician's office, ideally with a wall-mounted stadiometer, and compare that with the historical maximum height, you can get an idea of

whether there is a significant loss of height. For example, a patient losing more than 1½ inches of height compared to their historical maximum, is considered to be at higher-than-average risk for having a vertebral fracture and may deserve further evaluation.

Dr. Caudle:

Now let's talk about that further evaluation. Are there certain tests that we should be utilizing to identify vertebral fractures?

Dr. Lewiecki:

Well, we diagnose a vertebral fracture by imaging the spine. This can be done in a number of ways. One of the very convenient ways to look for vertebral fractures is with something called VFA which stands for Vertebral Fracture Assessment with DEXA. When a patient comes in to have a bone density test with dual-energy x-ray absorptiometry, this methodology can not only diagnose osteoporosis by means of calculating a T-score, it can also do lateral imaging of the spine and identify any prevalent vertebral fractures. In fact, if a vertebral fracture is identified with VFA that has the potential to change the diagnostic classification from what might be called osteopenia based on a T-score, to a clinical diagnosis of osteoporosis based on the presence of vertebral fracture. It could also change the estimation of future fracture risk and alter treatment decisions, perhaps from not treating the patient with pharmacological therapy to treating the patient. Now, of course, we can always do standard x-rays of the spine, and CT and MRI as well can give additional information about the presence of a vertebral fracture. So, we have lots of ways, some fairly convenient and inexpensive and some more involved and expensive, but capable of giving us additional information about the fracture.

Dr. Caudle:

Now, who should have this type of imaging, the vertebral imaging studies?

Dr. Lewiecki:

Well, the National Osteoporosis Foundation as well as the International Society for Clinical Densitometry have come up with some standard guidelines for who should have vertebral imaging. And this recommendation includes all women age 70 and older and all men age 80 and older, if the T-score at the lumbar spine, total hip, or femoral neck is less than or equal to -1.0. Also, in women age 65 to 69 and men age 70 to 79, vertebral imaging should be done if the T-score is less than or equal to -1.5 at the lumbar spine, total hip, or femoral neck. Also, in postmenopausal women and men age 50 and older who have specific risk factors, for example, a low-trauma fracture during adulthood, that is from age 50 on, if there is historical height loss of 1½ inches or more, if there is prospective height loss of 0.8 inches or more, and prospective height loss represents the difference in height between documented previous height measured by the physician and a current height. Also, patients with recent or ongoing long-term glucocorticoid therapy should be considered for vertebral imaging

Dr. Caudle:

If you're just tuning in right now, you're listening to ReachMD and I'm your host, Dr. Jennifer Caudle. Today we're talking about vertebral fractures with Dr. Michael Lewiecki. So, Dr. Lewiecki, how are vertebral fractures treated?

Dr. Lewiecki:

First I think it's important to recognize that the presence of a vertebral fracture, in the absence of a major traumatic episode, represents a clinical diagnosis of osteoporosis, independently of bone density, and is in itself an indication for pharmacological therapy according to guidelines of the National Osteoporosis Foundation. Now, if there is an acute painful fracture, the biggest concern of the patient is pain management, and this may consist sometimes of narcotic analgesics temporarily; sometimes back bracing temporarily can relief the symptoms. It's also very important to evaluate the patient for potential causes of osteoporosis and vertebral fractures. This includes some basic laboratory tests, and sometimes in older patients, additional tests such as screening for proteins looking for diseases such as multiple myeloma, perhaps considering the possibility of metastatic cancer in the spine. Once the evaluation has been completed, then pharmacological therapy to reduce the risk of future fractures of all types should be considered. Finally, in some patients who have persistent back pain that's attributed to the fracture, this is pain that is not resolved after 6 to 8 weeks, may potentially be candidates for vertebral augmentation. So, these are minimally invasive procedures such as vertebroplasty and kyphoplasty that involve injecting a material, most often polymethylmethacrylate, into the fractured vertebral body which in most cases is very effective at relieving the acute pain.

Dr. Caudle:

What FDA-approved therapies are effective for osteoporosis and spinal fractures?

Dr. Lewiecki:

Well, interestingly, every FDA-approved medication for the treatment of osteoporosis has demonstrated efficacy in reducing vertebral fractures and this is a requirement of the FDA for approval of medications. So, we now have many therapeutic medications that are available.

Dr. Caudle:

And can you also talk about the complications of vertebral fractures.

Dr. Lewiecki:

Well, the most obvious complication from a clinical standpoint is a kyphotic posture. So often people have come to believe that being stooped over is a normal consequence of aging, it can certainly happen from reasons other than vertebral fractures such as degenerative arthritis and degenerative disc disease in the spine, but a patient with kyphosis certainly is somebody who may have this as a result of vertebral fractures. As I mentioned earlier, the kyphotic posture can affect pulmonary function, it can cause GI problems as well. Also, it can be associated with loss of self-esteem, depression, and discomfort in a patient's body image. Now something else that's not often appreciated is that there can sometimes be retropulsion of fractured bone fragments that can result in spinal cord impingement and sometimes, in severe cases, require surgical intervention. Now many of these patients develop chronic pain even after the fracture is healed and that is because there are mechanical changes in the area around the spine. I tell patients that they sometimes have chronic pain because there's a misalignment of the muscular and ligamentous structures around the spine. So, even though the fracture might be well healed, these patients can continue to have pain and discomfort.

Dr. Caudle:

Can you also share a recent case that you've had?

Dr. Lewiecki:

Well, I'd be happy to. Here's an example of how imaging of the spine can be very helpful in making clinical decisions. So, I recently had a patient who had osteopenia according to the T-score with the DEXA, but because the patient had historical loss of height, VFA was done at the same time. VFA identified a fracture that was not previously recognized by me or by the patient. This changed the patient's diagnostic classification from osteopenia to osteoporosis. It certainly made me recognize that the risk of future fractures was higher than I had previously recognized, and because of the presence of that vertebral fracture the patient now met the National Osteoporosis Foundation guidelines for pharmacological therapy to reduce fracture risk. So, as a result of the vertebral imaging, I then decided to treat the patient pharmacologically and the patient was willing to accept treatment at this point because of concern regarding the presence of this fracture and the increased risk of future fractures. So, vertebral imaging and recognition of vertebral fractures, even those that are asymptomatic, can have very important clinical implications.

Dr. Caudle:

That's very helpful. So where can someone who is interested in learning more about the diagnosis and treatment of vertebral fractures in osteoporosis get more information?

Dr. Lewiecki:

One source of clinical information that I believe is tremendously helpful to clinicians is called *The Clinician's Guide to Prevention and Treatment of Osteoporosis*. This has been published in a journal called *Osteoporosis International* and is available online at the website of the National Osteoporosis Foundation at www.NOF.org.

Dr. Caudle:

Wonderful. Well Dr. Lewiecki, thank you so much for being with us today and sharing your insights and experience on the significance of vertebral fractures.

Dr. Lewiecki:

Thank you very much. It was a pleasure to be here with you.

Dr. Caudle:

I'm your host, Dr. Jennifer Caudle, and thank you for listening.

Narrator:
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