Obtaining Pentosidine Levels as an Adjunct to Determine a Patient's Candidacy for Vertebral Stabilization for a Vertebral Compression Fracture

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We read the clinical study by Choi et al. [1], "Feasibility of serum pentosidine level as a potential risk factor for osteoporotic vertebral compression fracture," with great interest.

"There was a statistically significant difference in the mean serum pentosidine level ($p=0.04$) of the vertebral fracture group (110.8 ng/mL) and the non-fracture group (64.3 ng/mL). Logistic regression analyses showed that serum pentosidine was significantly associated with osteoporotic vertebral compression fracture. These results suggest that increased serum pentosidine level could be a potential marker for osteoporotic vertebral compression fracture." [1]

Pentosidine is a well-known advanced glycation end product that was discovered from aging human extracellular matrix [2]. Pentosidine deteriorates the osteoblastic function in the bone [3]. "Our results suggest that increased serum pentosidine level could be a potential risk factor for osteoporotic vertebral compression fracture [1]."

The authors' study conclusion brings to the light that pentosidine may also a valuable adjunct lab test in the workup for patients with acute osteoporotic vertebral

compression fracture to see if they are candidates for a percutaneous vertebral stabilization procedure such as a vertebroplasty or kyphoplasty. The objective of these procedures are to consolidate the fracture and restore the height of the vertebral body to reduce vertebral and regional kyphosis. Stabilization of the acute vertebral body fracture leads to a reduction in pain and thus restores the spinal support function as quickly as possible, which is particularly important in the elderly population [4].

In the workup for patients with osteoporotic vertebral compression fracture, magnetic resonance imaging (MRI) is the study of choice. MRI can demonstrate marrow edema, accentuated on short-TI inversion recovery or fat-saturated T2-weighted sequences, and can thus distinguish acute and unhealed fractures from healed fractures. Fractures with little height loss or kyphosis may become apparent only on MRI [5].

Obtaining a serum pentosidine that shows an elevated level can provide an additional confirmation that substantiates the history, physical exam, and MRI. In addition there are a certain subset of patients where it may be difficult to determine the chronicity of the fracture on MRI

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and it is hard to determine strictly based off of imaging. In these particular situations, obtaining a pentosidine serum level that shows increased levels may provide more evidence towards possibly doing the procedure.

Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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