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CORR Insights®: Undiagnosed Vertebral Fractures Influence Quality of Life in Postmenopausal Women With Reduced Ultrasound Parameters

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Where Are We Now?

The work by Nuti et al. is of interest on several levels. In this potentially seminal work, the authors reviewed the results of

quantitative ultrasound screening of the calcaneus in a cohort of 2350 women older than 60 years of age. The final study group was limited to 885 individuals. Of those individuals, 23.1% had previously undiagnosed osteoporotic vertebral fractures. The authors found that severe vertebral fractures were associated with a worsening of health-related quality of life as defined by the Quality of Life Questionnaire of the European Foundation for Osteoporosis (QUALEFFO). This is the key to understanding the significance of these data. Of the five major domains of the QUALEFFO (Pain, Physical Function, Social Function, General Health Perception, and Mental Function), lower

scores were associated with severe osteoporotic vertebral fractures in two of five domains (Physical Function, General Health Perception) with Mental Function bordering on statistical significance. The total score also was lower ($p < 0.024$). The clear implication is that undiagnosed osteoporotic vertebral fractures have an important impact on quality of life, and that an efficient, safe screening mechanism would be of potential value.

As the authors note, radiological screening for vertebral fractures is not possible on a routine basis. They conclude that quantitative ultrasound of the calcaneus would help identify high-risk individuals and initiate treatment more promptly. They also correctly note that further studies are necessary in order to find age criteria for screening and the cost effectiveness of such screening. Safety is obviously not an issue as there is no exposure to ionizing radiation or other known imaging techniques which carry any significant risk of morbidity or mortality.

This *CORR Insights*® is a commentary on the article “Undiagnosed Vertebral Fractures Influence Quality of Life in Postmenopausal Women With Reduced Ultrasound Parameters” by Nuti and colleagues available at: DOI: [10.1007/s11999-014-3588-8](https://doi.org/10.1007/s11999-014-3588-8).

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Where Do We Need To Go?

This study raises two questions. The first, from the point of view of the spine, relates to how much an undiagnosed compression fracture specifically relates to the decreased QUALEFFO scores. Specifically, generalized pain is not significantly different in patients with and without fractures. How much of this pain is axial pain, which could be attributed to the fracture? Likewise, how much were the significant differences in Physical Function and General Health Perception, which combined to decrease the total score, related to axial pain per se?

The second question, regarding treatment, is a practical one. In a patient who is asymptomatic or minimally symptomatic from an osteoporotic compression fracture, as presumably the members of this cohort were, exactly what treatment is indicated? Even in the case of a symptomatic compression fracture, surgical treatment is vanishingly rare and the use of minimally invasive treatments such as cement augmentation remains controversial. Additionally, the outcomes of orthotic management of asymptomatic fractures is unknown. Even if early orthotic intervention does preserve vertebral height and decrease the

incidence of postfracture kyphosis, the clinical impact of these radiographic findings is unclear.

How Do We Get There?

While I commend the authors for an extremely thorough review of the literature and well-designed study, based on these data, I am unclear as to whether the early identification of an asymptomatic fracture would have any practical clinical significance. Again, as the authors rightly note, additional studies and data collection — particularly cost data in the context of value — are required.