



Commentary



Commentary on “Utilization of Vertebroplasty/Kyphoplasty in the Management of Compression Fractures: National Trends and Predictors of Vertebroplasty/Kyphoplasty”

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See the article “Utilization of Vertebroplasty/Kyphoplasty in the Management of Compression Fractures: National Trends and Predictors of Vertebroplasty/Kyphoplasty” via <https://doi.org/10.14245/ns.2346804.402>.

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Given the demographics of our aging population and the increasing prevalence of osteoporosis, vertebral compression fractures (VCFs) represent a true public health emergency. While VCF may generally be managed nonoperatively with majority of individuals experiencing resolution of pain and improvements in function within several weeks,¹ certain patients are at higher risk for failing conservative care and may benefit from cement augmentation which continues to be performed with greater frequency. To address the ongoing ambiguities regarding indications for kyphoplasty/vertebroplasty (K/V), O’Neill et al.² utilized a large national claims database (PearlDiver) to retrospectively investigate trends and predictors for vertebral augmentation procedures.

From a total of 91 million patients, the authors identified approximately 350,000 individuals (18–89 years old) who underwent treatment for thoracolumbar VCF between 2016 to 2019 of which 9.2% underwent K/V. The demographic and clinical characteristics of these cohorts were analyzed to elucidate factors predictive of K/V versus medical management as well as to determine the odds of having a second procedure within 30 days.

Multivariable logistic regression demonstrated that treatment with K/V was associated with older age, female sex, obesity, active use of tobacco, and the presence of multiple medical comorbidities (i.e., higher Elixhauser Comorbidity Index). Of this subset of patients, 43.5% underwent a subsequent K/V within 30 days of the index intervention. Although the absolute number of procedures performed each year increased, there were no significant differences between the annual rates of K/V.

In general, these findings largely reflect clinical practice as cement augmentation of VCF is frequently reserved for individuals at high risk for developing delayed healing or nonunion of their fractures. Many of the factors that were predictive of K/V including older age, female gender, and smoking are known to contribute to the development of osteoporosis which would be expected to diminish the potential for successful bone healing; similarly, conservative measures such as immobilization in an orthosis may be less feasible for patients with obesity or significant medical conditions (e.g., cardiopulmonary disease, neurologic disorder).



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ders). In support of this conclusion, our group had previously reported in this journal that cement augmentation represents a viable therapeutic option for VCF even in the very elderly population.³

However, K/V are not benign, and the very patients who may benefit the most from K/V may also be at a higher risk for complications from these interventions which is an issue that was unable to be assessed with the available data. For instance, Kim et al.⁴ determined that increased American Society of Anesthesiologists scores and preexisting kidney disease to be risk factors for mortality after K/V. Furthermore, individuals treated with K/V may ultimately undergo an additional procedure in the near future as noted in this study.

There are inherent limitations to database analyses including their retrospective nature, coding inaccuracies, relatively short follow-up time period, and a general lack of granular details for these subjects including no radiographic or clinical outcomes.⁵ Nevertheless, given the lack of consensus regarding optimal VCF management, the sheer number of individuals considered in this investigation increases the generalizability of these results which are clinically relevant for practitioners who must determine the risk-benefit ratio of K/V for their own patients.

- **Conflict of Interest:** The authors have nothing to disclose.

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