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**Comment on “Outcomes of different minimally invasive surgical treatments for vertebral compression fractures: An observational study”**

Ma L *et al*. Comments on vertebral compression fractures

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**Abstract**

Recently we read the article entitled “Outcomes of different minimally invasive surgical treatments for vertebral compression fractures: An observational study”. This was an observational study that reviewed the safety and efficacy of different cement augmentation modalities for vertebral compression fractures under osteoporotic condition. Overall, this is a valuable study that can provide a reference for clinical practice. On the other hand, we also noticed some points in the article and are willing to share our views. Further studies with a higher level of evidence can add more knowledge regarding relevant concerns.

**Key Words:** Vertebral compression fractures; Osteoporosis; Study design; Observational study; Randomize

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**Core Tip:** Recently we read the article entitled “Outcomes of different minimally invasive surgical treatments for vertebral compression fractures: An observational study” with pleasure. We noticed some points in the article and are willing to share our views. Further studies with a higher level of evidence can add more knowledge regarding relevant concerns.

**TO THE EDITOR**

Recently we read the article entitled “Outcomes of different minimally invasive surgical treatments for vertebral compression fractures: An observational study” with pleasure. In this research, the authors retrospectively analyzed the postoperative safety and efficacy of five different cement augmentation modalities for vertebral compression fractures (VCFs) under osteoporotic condition[1]. The robustness of this article is a long follow-up period of 10 years and that all procedures were performed by a single surgeon. This research, with practical value, can serve as a reference for decision-making when dealing with osteoporotic patients with VCFs. On the other hand, we noticed some details that may further unveil interesting findings.

First, in this research, several items were not clarified, based on the Cochrane risk of bias analysis tool[2,3]. Authors claimed that this was a randomized clinical trial in the “Methods” section. However, according to the information revealed, no randomization method was described, let alone the allocation method and concealment blindness. Moreover, whether the evaluation was conducted by an independent physician unaware of the surgical details should be clearly stated. Apart from the fact that all procedures were performed by a single surgeon, these confounders above may also introduce uncertainty to the result.

Second, a piece of important but missing information is the osteoporosis-related data among patients in five groups. The duration, bone mineral density, and anti-osteoporotic therapies taken by patients pre- and post-operatively, were not delineated. Authors found that patients who received vertebroplasty had the highest cement leakage rate and adjacent compression fracture occurrence. However, since the risk of adjacent osteoporotic fracture can be high if patients fail to follow the standard anti-osteoporosis treatment after the surgery[4], one may ask whether patients of different groups have taken regular medication. Besides, considering the advancements of anti-osteoporotic agents and strategies in recent years[5], which type of treatment was provided to a patient, and what was the influence of various anti-osteoporosis treatments on post-operative pain, kyphotic angle reduction, body height restoration, or adjacent compression fractures need to be investigated. That is, subgroup analysis may identify a cost-effectively suitable anti-osteoporosis medication for these patients.

Finally, whether vertebroplasty was still valuable to be analyzed is questioned. According to two studies published in the New England Journal of Medicine in 2009, vertebroplasty did not alleviate significantly pain intensity as compared to the sham surgery at 1 wk or at 1, 3, or 6 mo post-operatively, or modified Roland-Morris Disability Questionnaire at 1 mo post-operatively[6,7]. Although the follow-up of the two papers did not reach 1 year, these two reports could serve as the wind vane for surgeons in making options. Therefore, the information regarding the time when operation was performed may also be of reference value to readers.

Taken together, this observational study provided a valuable basis for making treatment options against osteoporotic VCFs. Based on the information disclosed in this literature and studies electronically available together, further well-designed prospective clinical trials are needed to compare the difference of these surgical procedures with an adjustment on the demographical data and concomitant medications both pre-operatively and post-operatively.

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**Footnotes**

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