Comment on: efficacy and safety of balloon kyphoplasty in the treatment of vertebral compression fractures: a systematic review (C. Bouza et al.)

J. J. Verlaan

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In their work C. Bouza and coauthors present the results from a systematic review conducted to 'analyze the collected body of evidence regarding the efficacy and safety on balloon kyphoplasty in the treatment of vertebral compression fractures'. The authors conclude from their work that balloon kyphoplasty seems effective and safe.

It is generally accepted that, in the absence of conclusive results from methodological rigorous studies, a systematic review can increase the accuracy of estimated treatment effect by pooling previously published data [1]. The authors have chosen to evaluate a relatively new minimal invasive technique using a systematic review as research tool, which makes good sense since large-scale randomized controlled trials on this subject are absent while interest in balloon kyphoplasty is considerable, having led to lively debate on multiple occasions. One of the most interesting topics under discussion is the difference of kyphoplasty versus vertebroplasty versus medical therapy for the treatment of vertebral compression fractures in terms of indications, outcome, complications and cost effectiveness. Following preliminary publications reporting success with kyphoplasty and vertebroplasty compared to medical therapy for vertebral compression fractures, both techniques seem to have been embraced and promoted by their respective advocates with uncon-

trolled case-series and anecdotes put forward as evidence. Although preliminary data from new techniques obtained from low level of evidence studies can certainly be interesting to discover potential benefits and/or pitfalls, it will not lead to proof of effectiveness. The spine community is unfortunate to have witnessed the introduction of numerous (surgical) techniques without proper controlled unbiased investigation of their merits. The ongoing controversy about the optimal treatment of traumatic thoracolumbar fractures, initiated more than 20 years ago and unlikely to be solved in the coming twenty, serves as a good example of what can happen without careful early evaluation of a new type of treatment. Vertebroplasty and kyphoplasty are recent examples of this practice and, with respect to the availability of evidence of their effectiveness and/or safety, we are in the dark. Conclusive statements on the performance of these new techniques must be regarded invalid if not backed up by solid data from methodological sound studies. Acknowledging the lack of good quality clinical trials, the present authors have taken a different route to find evidence and combined data from existing material to achieve better estimates of effect. The quality of a systematic review, and therewith the strength of its conclusions and recommendations, is directly dependent on the methodological quality of the studied material. Some limitations of the present study become apparent after close review of the primary papers. Critical quality parameters such as study design, duration of follow up, number of patients lost to follow up, validation of outcome parameters point to grade IV level of evidence instead of the grade II–III as suggested by the authors (http://www.cebm.net/levels_of_evidence.asp). The authors seem to have overestimated the quality of the material

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J. J. Verlaan (✉)
Department of Orthopaedics, University Medical Center
Utrecht, Heidelberglaan 100, 3584 CX Utrecht
The Netherlands
e-mail: j.j.verlaan@umcutrecht.nl

under investigation which is surprising for a study aiming to find evidence. Although the authors do an excellent job of recognizing the limitations of their work in the discussion section, they do not succeed in eliminating all bias when assessing the papers their manuscript is based on. This is something the reader should keep in mind when reading the article and contemplating the conclusions.

In the end, I think this work is a good summary of the available papers describing balloon kyphoplasty for

vertebral compression fractures but I am not sure if it has advanced the field besides stressing once more the necessity of high quality clinical research.

References

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