Reviewer's report

Title: Prevalence of vertebral fractures in a disease activity steered cohort of patients with early active rheumatoid arthritis

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Reviewer: Takefumi Furuya

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The authors investigated the prevalence of vertebral fractures after 5 years of DAS-steered treatment in patients with early active RA who participated the BeSt study. They found that 1) the prevalence for vertebral fracture was 15% and similar for males and females, 2) vertebral fractures were not associated with low BMD or prednisone use but advanced age and smoking, 4) patients with vertebral fracture suffer greater functional disability over time than those without vertebral fractures. This paper is important because it sheds light on the associated factors of vertebral fractures among RA patients in the real world.

Major points

1. Radiographs of the lateral thoracic and lumbar spine were available in 275 of the 508 patients (due to logistic reasons). Please specify the reasons in more detail in the Methods or elsewhere.

2. Authors diagnosed vertebral fractures after 5 years and evaluated the DAS, HAQ, and BMD retrospectively. The study design appears to be complex. Authors should clarify the study design, state they evaluated the DAS, HAQ, and BMD retrospectively in the Methods, and discuss the shortcomings of this study design in the Discussion.

3. Authors state ‘-patients with vertebral fractures suffer functional impairment due to vertebral fractures or the underlying bone condition, ---’ in the Discussion. However, this is not a prospective study and high HAQ disability score during the 5 years may be associated with the vertebral fractures, although the baseline HAQ score was not significantly different between the patients with and without vertebral fractures. High HAQ disability score is reported to be associated with the risk of vertebral fractures in RA patients. Authors should cite this paper and discuss association between high HAQ score and risk of vertebral fractures in the Discussion.


3. Authors did not evaluate non-vertebral fractures in this study, although RA
patients are likely to have not only vertebral fractures but non-vertebral fractures. Authors should state the effect of non-vertebral fractures in the Discussion.

Minor points
1. Does the term 'GEE' indicate generalized estimating equations in the abstract? Be sure to define all abbreviations on the first use.

2. Authors used both 'vertebral fractures' and 'VFs in the Discussion'. They should define vertebral fractures use one or the other term consistently to avoid confusion.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

none