Reviewer's report

Title: Is health related quality of life associated with the risk of low-energy wrist fracture? A case control study.

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Reviewer: ELIZABETH J SAMELSON

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GENERAL COMMENTS FOR AUTHORS

This manuscript is a case-control study of health related quality of life, as measured by the SF-36, and wrist fracture. Since risk factors for wrist fracture are not widely studied, this study has the potential to make a meaningful contribution to this area.

The manuscript would greatly benefit if authors were to provide a compelling and clear rationale for the study, including the clinical significance. Also, the manuscript would be improved if the authors provided a comprehensive, yet clear and detailed mechanism to explain the hypothesized relation between the individual SF-36 domains (bodily pain, general health, etc.) and the risk of wrist fracture. This should build on the current state of knowledge of the etiology of wrist fracture in older adults.

The manuscript would be benefit from improvement in the grammar and organization.

SPECIFIC COMMENTS FOR AUTHORS

Introduction

The hypothesis for a relation between poor health related quality of life measures and increased risk of (specifically) wrist fracture is not well described. As written, the introduction is confusing and written in too general a fashion.

Greater detail should be provided as to defining health related quality of life, how it is measured, and its hypothesized relation to fracture of the wrist.

Some background on known risk factors for wrist fracture should be provided in the introduction. This should be presented making a case for why a summary measure of self-reported general health status, pain, emotional and physical function, mental health, etc. would increase an individual’s risk for fracture of the wrist.

The significance of the study needs to be described.

Methods
Description of participants should be described using a section (or paragraph) on cases and a second section/paragraph on controls.

Results for recruitment should perhaps be given separately in the section, “Results,” since the text describing ascertainment of cases and controls, recruitment methods, inclusion/exclusion criteria, participation, etc. is very confusing with the recruitment results interspersed throughout.

The choice of covariates needs to be justified. Why were these variables included?

The methods used to ascertain demographic and clinical variables need to be described.

If poor health related quality of life measures are thought to increase risk of hip fracture, this could be through an increase in risk of falls or decrease in BMD (or other mechanism). It is not clear how BMD will be treated in the analysis. Will lumbar spine BMD be treated as a potential confounder? If it were in the casual pathway, it would not be appropriate to adjust for it.

Greater detail should be provided regarding the constructs measured by the SF-36. This section is written poorly, for example, “role limitation physical (four items)” -- what does this mean? While the SF-36 is a well-validated instrument, its application to measuring risk factors for wrist fracture is not clear. The validity of presenting each of the domains individually (with respect to risk for wrist fracture) also needs to be justified and explained.

The statistical analyses section is difficult for the reader to follow. The grammar and organization need to be significantly improved.

Odds ratios should be presented throughout (including Table 2) rather than “effect size” (which should not be abbreviated). The clinical significance of the differences between cases and control in each of the domains needs to be provided. For example, what does a 10+-point (in “role limitation physical”) or 2-point difference (in bodily pain) mean for any of the domains?

Similarly, what is the unit for the SF-36 domains in Table 3? Assuming it is 1 unit increase for each of the 1-100 scales, what is the meaning of a 0.99 decreased odds of fracture per 1 unit increase in physical limitation? The unit provided may not be the most interpretable for readers. Whatever unit is given however, some explanation for the meaning of the magnitude of effect needs to be described.

Discussion

Overall, the discussion covers a lot of territory but is very difficult to follow. Careful editing and better organization will improve the discussion.

The discussion of age as a risk factor does not seem appropriate since it was a matching factor in the design.
Level of interest: An article of limited interest

Quality of written English: Not suitable for publication unless extensively edited

Statistical review: Yes, and I have assessed the statistics in my report.