

Peer Review File

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Comment 1: The definition of elderly and super elderly should be clarified. Have the authors based this upon previous literature, the WHO definition or the UN definition?

Reply 1: Elderly was defined as age ≥ 65 and super-elderly as age ≥ 80 in this manuscript. "Elderly" is more commonly used in the literature, and in this article agrees with U.S. Census Bureau, WHO, and similar definitions. Super-elderly is more poorly defined and variable. It does not seem to be defined directly by the WHO/UN or U.S. organizations, but is frequently used in the spine literature so was adopted here to define a much older subset of elderly patients with potential differences in outcome. 80 years of age was used to include a broader group of these patients and to not include some articles, as some include 80, 85 and even 90 years of age.

A summary these definitions for the manuscript is now included in the manuscript.

Comment 2: The authors have appropriately identified an increasing focus on the 'super elderly' population (> 80 years) within the subset of the elderly population (> 60 years). Further discussion regarding how clinicians can appropriately risk stratify this increasingly vulnerable population would be of use. For example, role of the ASA, CCI or MFI variations and the evidence behind this.

Reply 2: Thank you for your suggestion. This super-elderly population is specifically reviewed in section 3.32, from page 12 of the manuscript. Specific use of ASA, CCI or m-FI and other classifications are included when possible, although are not always included in all articles evaluating an older subset of patients. This section does include a brief discussion of surgical utilization in increasingly older patients, which was modified to emphasize these risk factors (page 16) from the literature, as was the discussion and conclusion.

Comment 3: The case presentations regarding less invasive treatment options for elderly patients (such as non instrumented surgery with decompression alone) are valuable. In the authors home institution, is there a standardized protocol that could be shared with readers to assist in this clinical decision making?

Reply 3: There is no standardized protocol utilized at our institution. Given the broad variability of symptoms, anatomy, and expectations in the elderly, surgical interventions may be likely best considered on a case-by-case basis. The limitations of the literature do not strongly suggest a single protocol is currently reasonable for this population for all surgical interventions. This was added to the discussion.

Comment 4: A limitation for any retrospective study of this nature is inherent bias in patients undergoing spinal surgery have already been assessed by clinicians and anaesthetists preoperatively as being fit for surgery. Emphasis should be placed in the discussion on the value of prospective studies and relevant literature of this nature should be discussed.

Reply 4: I agree with your concerns. These limitations were discussed in detail in the discussion (page 27). To further emphasize this weakness of the literature and address this need, the conclusion was also added with a call for further prospective study.

Comment 5: The structure of preoperative assessment with ERAS and postoperative complications is to be commended. Further discussion on intraoperative modifications for elderly patients could be discussed.

Reply 5: Thank you for your comments. I agree, and ERAS protocols may be best positioned to reduce variability and complications in higher risk patients in general. Operative techniques including less invasive options were included in the discussion. ERAS protocols including specific intraoperative factors were not well represented for the elderly alone. Age may have an effect in other general ERAS studies, but again further study is needed here to identify modifications that would be most effective in the elderly population. This section was modified then to emphasize this (page 22).