Reviewer's comment on “Sagittal balance of 85 patients with a lumbar degenerative disease: a comparative study” (by Cédric Y. Barrey et al.), (ESJ-05-0488.R2)

Teija Lund

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In recent studies, “abnormal” sagittal balance has been shown to correlate with increased pain and decreased function in adult deformity patients both before and after surgical treatment [1–3]. It has also been suggested as a factor in postoperative pain [5] and adjacent segment degeneration [4] after shorter lumbosacral fusions. And yet, our understanding of what constitutes “normal” or “abnormal” sagittal balance remains unclear. Furthermore, the definitions of sagittal plane indices in the literature have varied considerably with inconsistent measurement methods. The authors of the present study “Sagittal balance of 85 patients with a lumbar degenerative disease: a comparative study” have contributed significantly to this poorly understood subject.

As so many studies, the present one also leaves quite a few unanswered questions, and encourages new study designs. The most obvious question is also discussed by the authors, namely the wide variance in the parameters describing lumbar and pelvic alignment in an asymptomatic population. Although the ranges of the different parameters in the three patient groups are not given here, it would seem that they are for the most part of a magnitude that could be detected in asymptomatic subjects as well. Furthermore, although several of the differences between the historic control group and the patient groups of the present study have shown

statistical significance, their clinical significance still remains to be determined.

All patients in the three study groups were candidates for surgery, so they were presumably suffering from severe pain. Because of the retrospective cross-sectional study design, the effect of pain on the sagittal balance of these patients remains unclear, i.e. to what degree were the changes in the sagittal balance functional (e.g. due to stenosis) as opposed to truly structural. The retrospective study design also raises the question of patient selection: how were these 85 patients selected among all the surgical candidates during the 10 year study period?

Lumbar degenerative disease is a multi-faceted problem, and we will probably never find one single factor that causes it. It is an attractive idea that some structural “abnormalities” might influence the earlier start of the degenerative process, its progress and extent, or indeed what form the degenerative process in one given individual takes. Based on the results of the present study we should not make too far-reaching conclusions, but rather aim at prospective longitudinal studies to answer the abovementioned questions. The authors, however, need to be congratulated for their significant contribution to our knowledge on the importance of sagittal balance. This complex issue certainly merits further investigation.

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T. Lund (✉)
ORTON Orthopaedic Hospital, Invalid Foundation,
Tenholantie 10, 00280 Helsinki, Finland
e-mail: teija.lund@invalidisaatio.fi

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