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Comparative Analysis of Surgical Approaches and Osteotomies for the Correction of Sagittal Plane Spinal Deformity in Adults
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Study design: A retrospective review.
Objective: To compare the radiographic and clinical profile between two surgical approaches for the correction of sagittal plane spinal deformity.
Summary of background data: Sagittal plane decompensation is the radiographic parameter that carries the greatest impact on adverse outcomes. Surgical correction methods are heterogeneous, and opposing views pervade the spine community in consideration of the most effective approach and techniques to achieve correction.
Methods: A total of 33 cases with sagittal spinal deformity were assessed according to their surgical approach, posterior only vs. combined anterior-posterior group. Comparison was based on demographic data and radiographic parameters included: pelvic tilt (PT), pelvic incidence, sacral slope, lumbar lordosis, thoracic kyphosis and sagittal vertical axis (SVA).
Results: 22 subjects were identified for the posterior only and 11 subjects for the antero-posterior group. Average age was 58.7 years in the posterior only and 55.7 years for the combined approach. Preoperative mean SVA was 186.6mm and 147.7mm, for the posterior only and combined approach, respectively (p=0.1). Preoperative mean PT was 34.2º for the posterior group and 36.9º for the combined approach group (p=0.5). A greater operative time for the combined approach was significant, 535 vs. 333 minutes (p< 0.001). 8/22 patients in the posterior only group and 7/11 patients in the combined approach cohort experienced a post operative complication, (p=0.16). The average follow up was 41.8 and 47.7 months for the posterior only and combined approaches, respectively (p=0.4).
Conclusions: A posterior only or combined surgical approach had comparable radiographic outcomes. Higher morbidity was significant in regards to operative time in the combined approach group. Deciding on the approach best suited for achieving correction in the sagittal plane, likely resides on the surgeon’s experience and expertise.