

12<sup>th</sup> International Conference on

# ORTHOPEDICS, OSTEOPOROSIS & TRAUMA

November 13-14, 2019 | London, UK

## Evaluation of sagittal balance and the influence of spinopelvic on sagittal balance on the correction and stabilization of the pedicle screw rod system of patients with adolescent idiopathic scoliosis

**Ayiq Mahmud**

Soepraoen Military Hospital, Indonesia

**Background:** The use of pedicle screw rod system is believed to facilitate the correction of 3-dimensional deformity and maintain the results of the correction so that it is expected to get better sagittal balance correction results.

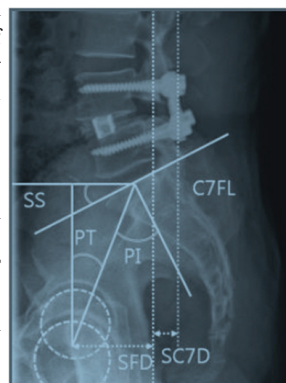
**Objectives:** We conducted a retrospective cohort study of 43 Adolescent Idiopathic Scoliosis (AIS) patients who performed correction, stabilization and posterior fusion to determine the effect of spinal and spinopelvic on sagittal balance correction.

**Patients and Methods:** 43 patients who met the criteria of Adolescent Idiopathic Scoliosis (AIS) were retrospective cohort. X-ray data were measured for thoracic kyphotic, lordar lumbar as a spinal component and Pelvic Incidence (PI), Pelvic Tilt (PT), Sacral Slope (SS) as spinopelvic components. Further evaluation of sagittal spinal balance (C7PL), sagittal global balance, Sacro femoral distance pre and post-surgery. Finally, a statistical evaluation is performed to determine the correlation of the spinal component and the spinopelvic component to the achievement of sagittal balance correction.

**Results:** TK / Sagittal modifier obtained a significant correction with an average of  $18.69^{\circ} (\pm 9.57)$ , while LL (Lordar Lordotic) at an average of  $44.58^{\circ} (\pm 11.94)$ . Sagittal spinal balance (C7PL) correction is achieved with an average of 0.68 cm ( $\pm 3.13$ ). Sagittal Global Balance is achieved with an average of -2.04 cm ( $\pm 3.24$ ) while SCFD is achieved with an average of 2.69 cm ( $\pm 2.48$ ). Increasing or decreasing the TK / LL degree does not significantly influence or weak influence on Sagittal Global Balance and C7PL. Addition or decrease in TK degree significantly affects SCFD, whereas LL does not significantly affect SCFD. Changes in each spinopelvic component (PT, PI, SS) are not significant in affecting sagittal global balance.

**Conclusions:** Spinal Components TK / Sagittal modifier and LL were successfully corrected significantly by achieving corrections of  $8.93^{\circ} (\pm 13.21)$  and  $7.51^{\circ} (\pm 12.8)$ , respectively. Sagittal global balance is not significantly affected by all components of Spinopelvic PT (Pelvic Tilt), PI (Pelvic Incidence) and SS (Sacral Slope), while sagittal spinal balance (C7PL) is only significantly affected by PT (Pelvic Tilt). For SCFD it is only significantly influenced by PT and SS, while PI does not significantly affect SCFD.

**Keywords:** Adolescent Idiopathic Scoliosis, Spinal Component, Spinopelvic Component, Sagittal Spinal Balance, Sagittal Global Balance, SCFD



Picture: Sagittal balance and spinopelvic component

### Biography

As an orthopaedic subspecialty of the spine that evaluates scoliosis cases and about surgical techniques interested in evaluating or researching various techniques and implants used.

ayiq.mahmud@gmail.com