

#### Introduction:

Posterior spinal fusion (PSF) or anterior spinal fusion (ASF) is the standard treatment options for AIS correction. NFASC is a novel motion sparing alternative to fusion surgery for Lenke 5 AIS. There is a dearth of literature comparing between the two techniques for Lenke 5 AIS. The current study aims to compare the clinico radiological outcomes between the two procedures at 2 years follow up. Material and

#### Methods:

38 consecutive Lenke 5 AIS patients treated by a single surgeon with NFASC (group A) or PSF (group B) were matched by age, Cobb's angle, and skeletal maturity. Intra operative blood loss, operative time, LOS, coronal Cobbs and SRS22 scores at 2 years were compared. Flexibility was assessed by modified Schobers test. Continuous variables were compared using student t-tests and categorical variables were compared using chi-square.

#### Results:

The cohort included 19 patients each in group A and B . Group A had M:F distribution of 1:18 while group B had 2:17. The mean age in group A and group B were  $14.8 \pm 2.9$  and  $15.3 \pm 3.1$  years respectively. The mean follow-up of patients in group A and B were  $24.5 \pm 1.8$  months and  $27.4 \pm 2.1$  months respectively. Mean pre op thoraco lumbar/lumbar (TL/L) cobbs for group A and group B were  $55^\circ \pm 7^\circ$  and  $57.5^\circ \pm 8^\circ$  respectively. At two years follow up, the cobbs for group A and B were  $18.2^\circ \pm 3.6^\circ$  and  $17.6^\circ \pm 3.5^\circ$  respectively ( $p=0.09$ ). The average operating time for group A and B were  $169 \pm 14.2$  mins and  $219 \pm 20.5$  mins respectively ( $p<0.05$ ). The average blood loss of group A and B were  $105.3 \pm 15.4$  and  $325.3 \pm 120.4$  respectively ( $p<0.05$ ). The average number of instrumented vertebra between group A and B were 6.2 and 8.5 respectively ( $p<0.05$ ). The average LOS for NFASC and PSF were  $3.3 \pm 0.9$  days and  $4.3 \pm 1.1$  days respectively ( $p<0.05$ ). No statistical significant difference in SRS 22 score was noted between the two groups. No complications were recorded.

#### Conclusion:

Our study shows no significant difference in PSF and NFASC in terms of Cobbs correction and SRS scores, but NFASC group had significantly reduced blood loss, operative time and fewer instrumented levels while preserving flexibility.