SEVERE RIGID IDIOPATHIC SCOLIOSIS: SINGLE-STAGED POSTERIOR SPINAL FUSION (PSF) USING PEDICLE SCREW CONSTRUCTS WITHOUT OSTEOTOMIES LED TO SHORTER OPERATION DURATION, LENGTH OF STAY AND FASTER RECOVERY

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Background:
Various surgical strategies including combined approach and spinal osteotomies in severe rigid scoliosis had been reported with significant perioperative complication rates.

Objective:
To evaluate the perioperative outcome of single-staged PSF in severe rigid idiopathic scoliosis (Cobb angle $\geq 90°$ and $\leq 30\%$ flexibility).

Methods:
41 idiopathic severe rigid scoliosis patients who underwent single-staged PSF without osteotomies were recruited. The perioperative outcome parameters were operation duration, intraoperative blood loss, intraoperative hemodynamic parameters, preoperative and postoperative hemoglobin, transfusion rate, PCA morphine usage, length of postoperative hospital stay and perioperative complications.

Results:
The mean age was 16.9 ± 0.9 years. The mean preoperative Cobb angle and flexibility were 110.8 ± 1.9° and 23.1 ± 1.0%, respectively. The mean operation duration was 216.5 ± 7.8 minutes with mean blood loss of 1752.6 ± 129.7 ml. The allogeneic blood transfusion was 24.4%. The mean postoperative hospital stay was 76.9 ± 4.2 hours. The mean postoperative Cobb angle and correction rate were 54.4 ± 2.0° and 50.9 ± 1.6%, respectively. There was significantly shorter operation duration and reduced blood loss in the second half of the study duration. 4 perioperative complications were documented (1 somatosensory evoke potential signal loss, 1 superficial infection, 1 lung collapse and 1 superior mesenteric artery syndrome).

Conclusion:
Severe rigid idiopathic scoliosis treated with single-staged PSF demonstrated an average correction of 50.9% and a mean duration of postoperative hospital stay of 76.9 hours with 9.8% perioperative complication rate.