during video-assisted thoracoscopic release. 66 patients with a mean age at surgery of 16.4 years (range: 10-20) were included in Group 2. Complications in Group 2 included 6 cases of cerebro-spinal fluid leak, 1 case of deep wound infection secondary to cerebro-spinal fluid leak, 1 case of leg weakness and 1 case of pleural rupture cause by misplacement of pedicle screw. There is no difference of age at surgery, preoperative Cobb angles, and SRS-22 total scores (3.0 vs 3.1) between the two groups. (P>0.05) Group 1 yielded larger correction rate than Group 2 for both thoracic (62.5% vs 56.2%) and lumbar scoliosis (68.3% vs 62.7%) (P< 0.05). Loss of correction was similar between the two groups for both thoracic (4.1° vs 3.6°) and lumbar (4.2°vs 4.6°) curves (P>0.05). EBL (1972 ml vs 1530) and operation time (669 minutes vs 419 minutes) were significantly greater in Group 1 than in Group 2 (P<0.05). No difference was noted for SRS-22 total scores in the last follow-up between the two groups (3.7 vs 3.8, P>0.05).

CONCLUSIONS: The combined anterior and posterior surgery had a better correction rate than posterior-only surgery. However, health-related quality-of-life and complications were comparable between the two approaches.

FDA DEVICE/DRUG STATUS: This abstract does not discuss or include any applicable devices or drugs.

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P66. Preoperative Halo Gravity Traction, Posterior Column Osteotomies and Rib Resections: Are Three-Column Osteotomies Always Needed for Severe Rigid Deformities? A Prospective Analysis

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BACKGROUND CONTEXT: The surgical treatment of severe spinal deformities is challenging, especially in areas with limited resources. We have been using preoperative halo-gravity traction (HGT) routinely to obtain partial curve correction prior to definitive fusion in an attempt to avoid three-column osteotomies (3CO) and reduce surgical risk. We questioned whether preoperative HGT combined with posterior-based spinal and rib osteotomies would allow for similar correction to patients undergoing 3COs, with less operative risk.

PURPOSE: To determine whether preoperative HGT with posterior column osteotomies (PCOs) and rib resections is a safe technique to achieve comparable surgical correction to a 3CO for patients with severe spinal deformity.

STUDY DESIGN/SETTING: Retrospective analysis of a prospectively collected series of consecutive patients.

PATIENT SAMPLE: 60 consecutive patients collected prospectively.

OUTCOME MEASURES: Cobb angles, SRS-22 scores, pulmonary function tests.

METHODS: Patients with scoliosis or kyphoscoliosis (KS) undergoing preoperative HGT for severe deformities were prospectively enrolled over 2 years. Patients who had 3COs were excluded. Indications for traction were immature patients with curves >70°, and older patients with curves >100° with <20% flexibility on traction X-ray images. HGT was gradually increased to 50% of body weight by 4 weeks, and was maintained at all times. X-ray images were obtained pre-traction, monthly in traction, and postoperatively. Demographic variables, pulmonary function tests (PFTs), operative data, radiographic parameters and HRQL scores were collected.

RESULTS: 60 patients (average age 16.1 years) underwent HGT for an average of 99 days (range 33-179 days) prior to spinal fusion (49 patients) or growing rods (11 patients). PFTs improved significantly after HGT (52.5% pre-traction vs 59.9% post-traction, p = 0.03). The major curve improved from 134° to 87° (35% reduction) in HGT, and to 64° (52% reduction) postoperatively, comparing favorably with published series on 3CO (59-67% reduction, Suk et al 2005, Lenke et al 2013). Correction in HGT was equal for kyphosis and scoliosis in patients with KS. Deformity correction in traction plateaued at 63 days. SRS-22 scores (overall, image, mental health) improved significantly pretraction vs postoperatively. Neuromonitoring changes occurred frequently (37%), but no patients had permanent neurological deficits postoperatively. There were 12 pin tract infections (20%) and no neurological complications from HGT itself.

CONCLUSIONS: HGT in combination with PCOs, thoracoplasty and concave rib osteotomies is a safe and effective method to correct large curves while avoiding the risk associated with 3COs, especially in regions with limited resources.

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P67. Does Adolescent Obesity affect Surgical Presentation and Radiographic Outcome for Patients with AIS?

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BACKGROUND CONTEXT: Adolescent obesity is a growing epidemic and has been as been associated with adverse outcomes for many elective procedures. With regard to adolescent idiopathic scoliosis (AIS), prior studies have been inconclusive with regards to any adverse effect of increased BMI on AIS patients undergoing surgery.

PURPOSE: The study purpose is to test a hypothesis that adolescent obesity is associated with a larger curve presentation, more postsurgical kyphosis and less surgical correction than their healthy weight counterparts.

STUDY DESIGN/SETTING: Review of AIS database prospectively collected from a six-year period at a single institution of patients with at least one year of radiographic follow-up.

PATIENT SAMPLE: Consecutive patients from a single institution from 2007-2013 were reviewed. All AIS patients who underwent posterior spinal arthrodesis between ages 10-18 were included.

OUTCOME MEASURES: Major curve correction and postsurgical kyphosis.

METHODS: Subjects were grouped by body mass index (BMI) into overweight (BMI% ≥ 85) and healthy weight (BMI% < 85) groups. Radiographic measurements were completed before surgery, immediately postsurgically at first standing and at latest follow-up at least one year after surgery.

RESULTS: 191 patients met inclusion criteria. There were 24% (46/191) in the overweight cohort. The healthy weight group was older (15.0 vs 13.5, p<0.001); demographics were otherwise similar between the groups. Overweight subjects presented with larger major curves (58° vs 53°, p=0.008), resulting in larger curves at latest follow-up (21° vs 18°, p=0.019), but achieved a similar surgical correction (65% vs 64%, p=0.70). Overweight individuals presented with increased presurgical T5/T12 thoracic kyphosis (27° vs 22°, p=0.013). Following surgery, no significant difference was noted in thoracic kyphosis between groups (18° vs 16°) but at latest follow-up, overweight subjects had more T5/T12 kyphosis (21° vs 18° p=0.028).

CONCLUSIONS: Major curves and thoracic kyphosis were larger both pre- and postsurgically for overweight patients; however; the surgical correction was similar for both groups. This would suggest a lower threshold for earlier and perhaps more frequent imaging in overweight patients with AIS. A greater postsurgical thoracic kyphosis suggests a worsening sagittal profile in overweight subjects in the postsurgical phase and may merit more longitudinal clinical monitoring as well as further investigation in longer-term follow-up studies.