Introduction:
The aim of this study is to evaluate the clinical, radiological outcomes and long-term behavior of the lumbar curve in AIS patients treated with selective thoracic fusion and assess the disc degeneration (DD) and facet joint degeneration (FJD) of the unfused lumbar spine with MRI at the end of minimum 20 years follow up.
Methods:
AIS patients treated with selective thoracic fusion and having a minimum of 20 years follow up were included. Preoperative, postoperative, and final follow up radiographs were reviewed. All patients had lumbar MRIs at the final follow up in order to evaluate DD and FJD of the unfused lumbar spine. Clinical evaluation was done by using SRS22r and Numerical Rating Scale (NRS).
Results:
21 AIS (21 F) patients with mean age 36,2 (32-45) years and mean follow up was 22,8 (20-30) years. MT was corrected from 53,8° to 16° (70,3% correction rate), spontaneous lumbar curve correction rate was 57,9% (38° to 16°). Coronal, sagittal parameters, residual lumbar curve and lowest instrumented vertebra (LIV) angulation were stable over time. Median grade of lumbar DD was 2 (1-4) and lumbar FJDs was 2 (1-4). Residual lumbar curve more than 20° (area=0,734) was correlated with DD of unfused segments ($r=0,62$; $p<0,01$), decrease in total SRS22r score ($U=11,0$; $p<0,05$) and SRS pain domain ($U=0,0$; $p<0,05$). LIV angle more than 10° (area=0,703) was correlated with FJD at LIV+1 level ($r=0,477$; $p<0,05$). Mean SRS22r sub-total score was 4,42 and NRS was 1,4 at final follow up. Mean patient satisfaction was 4,72 at final follow up.
Conclusion:
Selective thoracic fusion provides satisfactory clinical and radiological outcomes at minimum 20 years follow up. Spinal balance and spontaneous lumbar curve correction were well maintained over time. The degree of disc and facet joint degeneration in unfused segments was higher in patients who had residual lumbar curve > 20° and LIV angle > 10° compared to those with residual lumbar curve < 20° and LIV angle < 10°. Patient satisfaction (4,72 / 5) was high at the end of 20 year follow up.