

### Introduction:

previous short and intermediate-term clinical and radiographic studies demonstrated good results in patients who underwent spine surgery for Adolescent Idiopathic Scoliosis (AIS), instead long-term outcomes are lacking. Young patients are often involved in high-demanding and sport activities, therefore good/excellent functional outcomes are very important for their future quality of life. The aim of this study is to assess the long-term functional results in young patients surgically treated for AIS. Materials and

### Methods:

From a large database of consecutive patients who underwent surgery for scoliosis in a single spine center, we included those matching the following criteria: diagnosis of adolescent idiopathic scoliosis, age at surgery  $\geq 12$  and  $\leq 18$  years, follow-up  $\geq 20$  years. By means of a questionnaire drawn up in the shape of "Google Form", the following outcomes were assessed: VAS-back, VAS-leg, Scoliosis Research Society 22 score (SRS-22), Short Form 12 score (SF-12), rate of revision surgery, pregnancy, postoperative sport and work activity. Furthermore, we conducted a statistical analysis by dividing the patients in two groups based on surgery performed: Group 1 (non-instrumented fusion according to Risser technique) and Group 2 (instrumented fusion technique with pedicle screws and hooks)

### Results:

63 patients (mean age 47.5 years) met inclusion criteria, completed the questionnaires and were enrolled. Mean age at surgery was 15.6 years and mean follow-up was 31.9 years (20-41). Group 1 and 2 were of 42 and 21 patients respectively. 12 patients (19%) needed revision surgery, mainly for implant issues in Group 2 (11.9% vs 33%,  $p < 0.05$ ). Good overall functional outcomes were found at last follow-up: VAS-back=3.6, VAS-leg=2.6, SRS-22=3.48, SF-12 Physical Component Summary=41.1, SF-12 Mental Component Summary=46.7, without significant differences between two groups. General satisfaction score was 3.65 out of 5; 56% of the women enrolled had at least one pregnancy and 87.3% of patients declared to carry out a regular work activity. Among those patients who practiced a sport (34 – 54%), 50% recovered the same preoperative level, 32.3% a lower level and 17.7% stopped the sport for pain or other reasons. Conclusions: This study shows good long-term functional outcomes in patients surgically treated for AIS. After surgery, there is incidence of mild to moderate back and leg pain, the overall satisfaction is good and most patients perform sport and work activity. The use of the non-instrumented technique and, on the other hand, the higher rate of surgical revision in patients treated with the instrumented technique do not seem to affect long-term functional results.