Health-related quality of life in adults with degenerative scoliosis: comparison between conservative and surgical treatments

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ABSTRACT

Aim: to compare health-related quality of life (HRqoL) between non-operated and operated patients at two-year follow-up. Secondary objectives were to compare pain intensity, activity limitations and X-ray parameters between these two groups

Materials and methods: we conducted a prospective observational study of adults with lumbar or thoraco-lumbar degenerative scoliosis (Cobb angle ≥ 25°) followed-up for two years in twelve French centres. Two groups were defined: non-operated and operated groups. Participants in the non-operated group had optimized conservative treatments including exercise therapy, physical activity, bracing, spinal injections and analgesics, as needed. Participants in the operated group had correction-fusion surgery. All participants underwent complete physical and radiological examination, including full spine radiograph (coronal and sagittal). Four clinical scores were reported at baseline (corresponding to the time of surgery in the operated group and start of the follow-up in the non-operated group) and at two years. They included Short Form-12 (SF-12) (HRQoL score), pain visual analog scale (VAS), Scoliosis Research Society-30 (SRS-30) (scoliosis-specific activity limitations) and Oswestry Disability Index (ODI, spine-specific activity limitations)

Results: overall, 181 patients met inclusion criteria **(Figure 1)**, including 159 women (88%). At baseline, participants in the non-operated group were younger, had lower body mass index and more severe sagittal imbalance than participants in the operated group. There was no between-group difference in HRQoL, pain intensity, activity limitations and Cobb angle **(Table 1)**. At two years, all clinical outcomes improved in both groups, with no between-group differences in HRQoL and activity limitations. Lumbar pain intensity was lower in the non-operated group. Three X-ray parameters were better in the operated group than in the non-operated group: Cobb angle, sagittal vertical axis and lumbar lordosis **(Table 2)**

Conclusions/discussion: in adults with degenerative scoliosis, both optimized conservative and surgical treatments were associated with an improvement in HRQoL and clinical outcomes at two years. Low back pain intensity was lower in the non-operated patients. Some X-ray parameters were better in the operated group

Figure 1: flow diagram

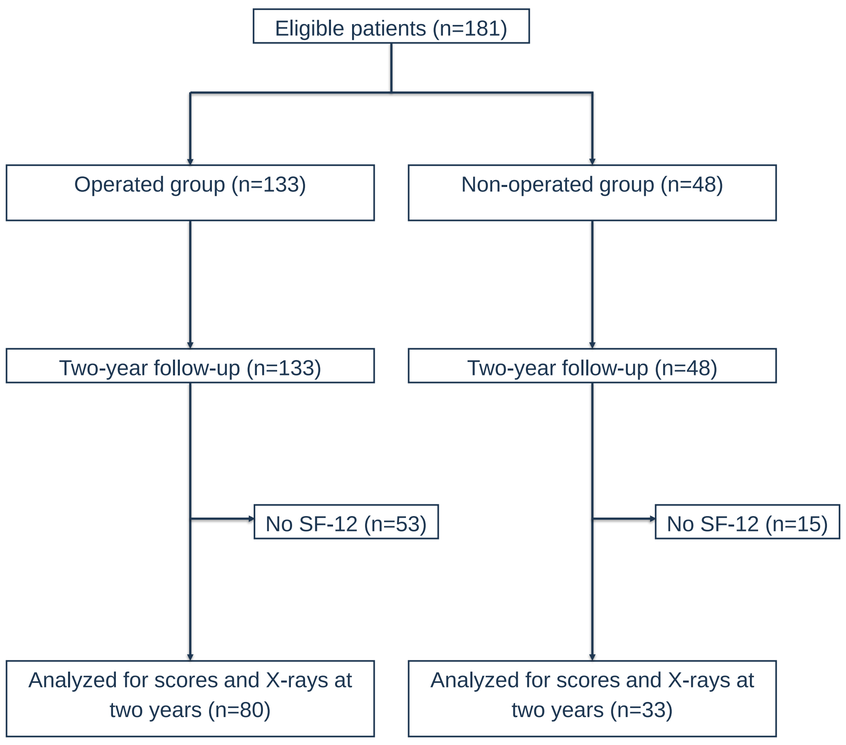

Table 1: demographics, scores and X-ray findings at baseline

	Operated group (n=133)	Non-operated group (n=48)	P-value
Women, n (%)	120 (90)	39 (81)	0.32
Age (years), mean (SD)	**74.0 (5.8)**	**65.3 (8.3)**	**<0.00001**
Body mass index (kg/m²), mean (SD)	**25.2 (4.1)**	**22.9 (3.7)**	**<0.01**
Degenerative scoliosis, n (%)	95 (71)	39 (81)	0.32
Physical HRQoL (SF-12 PCS, 0-100), mean (SD)	31.0 (7.0)	34.0 (9.0)	0.33
Mental HRQoL (SF-12 MCS, 0-100), mean (SD)	42.0 (10.0)	43.0 (14.0)	0.46
Lumbar pain (VAS, 0-10), mean (SD)	6.7 (2.0)	6.3 (1.6)	0.54
Radicular pain (VAS, 0-10), mean (SD)	5.5 (2.3)	6.5 (1.6)	0.21
Spine-specific activity limitations (ODI, 0-100)	49.0 (18.0)	42.0 (17.0)	0.37
Scoliosis-specific activity limitations (SRS total, 0-4), mean (SD)	2.6 (0.7)	2.9 (0.8)	0.19
Main Cobb angle (°), mean (SD)	49.0 (19.0)	41.0 (19.0)	0.46
Sagittal vertical axis (mm), mean (SD)	**53.1 (8.6)**	**73.1 (20.4)**	**< 0.05**
Coronal C7 tilt (mm), mean (SD)	26.3 (4.8)	31.0 (33.0)	0.23
Thoracic kyphosis (°), mean (SD)	**46.4 (2.9)**	**58.4 (7.1)**	**< 0.001**
Lumbar lordosis (°), mean (SD)	47.2 (3.0)	49.9 (6.1)	0.32
Pelvic tilt (°), mean (SD)	26.5 (2.0)	26.6 (3.1)	0.73

Table 2: scores and X-ray findings at two years

	Operated group (n=80)	Non-operated group (n=33)	P-value
Physical HRQoL (SF-12 PCS, 0-100), mean (SD)	42.0 (8.0)	42.0 (9.0)	0.65
Mental HRQoL (SF-12 MCS, 0-100), mean (SD)	44.0 (12.0)	49.0 (11.0)	0.08
Lumbar pain (VAS, 0-10), mean (SD)	**4.0 (2.5)**	**2.1 (1.3)**	**< 0.05**
Radicular pain (VAS, 0-10), mean (SD)	3.9 (2.3)	3.7 (3.0)	0.8
Spine-specific activity limitations (ODI, 0-100)	26.0 (17.0)	25.0 (19.0)	0.78
Scoliosis-specific activity limitations (SRS total, 0-4), mean (SD)	3.6 (0.8)	3.8 (0.6)	0.29
Main Cobb angle (°), mean (SD)	**24.0 (12.0)**	**40.0 (18.0)**	**< 0.001**
Sagittal vertical axis (mm), mean (SD)	**32.0 (39.0)**	**67.0 (60.0)**	**< 0.001**
Coronal C7 tilt (mm), mean (SD)	18.0 (15.0)	22.0 (22.0)	0.70
Thoracic kyphosis (°), mean (SD)	46.0 (14.0)	54.0 (15.0)	0.05
Lumbar lordosis (°), mean (SD)	**50.0 (20.0)**	**40.0 (15.0)**	**< 0.05**
Pelvic tilt (°), mean (SD)	26.0 (9.0)	27.0 (9.0)	0.67