Complications in patients older than 50 years undergoing scoliosis surgery

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Introduction

Prevalence 68% adult healthy population

TABLE 2. Univariate Analysis: Likelihood of Presence of Scoliosis Based on Demographic Characteristics of the DEXA Cohort

<table>
<thead>
<tr>
<th>Demographic Variable</th>
<th>No. Patients With Scoliosis (No. Total Group)</th>
<th>Prevalence of Scoliosis (%)</th>
<th>Odds Ratio (95% CI)*</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yr)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40–49</td>
<td>16 (510)</td>
<td>3.14</td>
<td>1.00†</td>
<td>N/A</td>
</tr>
<tr>
<td>50–59</td>
<td>41 (942)</td>
<td>4.35</td>
<td>1.41 (0.78–2.53)</td>
<td>0.255</td>
</tr>
<tr>
<td>60–69</td>
<td>92 (840)</td>
<td>10.95</td>
<td>3.80 (2.21–6.54)*</td>
<td>0.039*</td>
</tr>
<tr>
<td>70–79</td>
<td>75 (508)</td>
<td>14.76</td>
<td>5.35 (3.0–9.32)*</td>
<td>0.029*</td>
</tr>
<tr>
<td>80–89</td>
<td>36 (167)</td>
<td>21.56</td>
<td>8.49 (4.57–15.77)**</td>
<td>0.003*</td>
</tr>
<tr>
<td>90–99</td>
<td>3 (6)</td>
<td>50.00</td>
<td>30.87 (5.78–164.97)*</td>
<td>0.005*</td>
</tr>
</tbody>
</table>

Kebaish, K; Spine 2011
Introduction

↑ Life expectancy

+  

↑ Scoliosis prevalence with age

↓  

↑ Rate of surgery in advanced ages

Scoliosis Research Society Morbidity and Mortality of Adult Scoliosis Surgery

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**Objetive**

To evaluate the rates of major complications and reinterventions in patients older than 50 years undergoing surgery for idiopathic or degenerative scoliosis.

**Materials and methods**

- Retrospective study

- Inclusion criteria:
  - >50 years old
  - Idiopathic or degenerative scoliosis
  - Surgery between 1998-2009
  - Instrumented fusion ≥3 segments

- Two independent investigators retrospectively evaluated the clinical records
Materials and methods

- **Population parameters**: age, sex, BMI, ASA, and comorbidities

- **Surgical parameters**: instrumented levels, type of instrumentation (hooks, screws), approach, blood loss.

- **Radiologic parameters preop, postop, and final follow-up**: Cobb angle of major curve and sagittal parameters of spinopelvic balance

- **Major complications/mechanical complications**

- **Reinterventions**
**Major complication:** One that negatively affects the patient’s postoperative recovery.

- Wound infection
- Pneumonia
- Renal failure
- Myocardial infarction
- Respiratory distress
- Neurologic deficit
- Heart failure
- Stroke
Results

- 171 adult scoliosis patients operated between 1998 and 2009
- 38 met the inclusion criteria

Population
Age 60.5 years (SD 7.4)
89.5% women
5 comorbidities per patient (SD 3.3)
ASA 2.4 (SD 0.6)
BMC 29 (SD 4.1)

Surgery
10 instrumented levels (SD 4.4)
50% A+P approach
Instrumentation
  - 68% pedicular screws
  - 32% hybrid
Results

Radiologic parameters

<table>
<thead>
<tr>
<th>Thoracic</th>
<th>Thoracolumbar</th>
<th>Lumbar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apex T4-T10</td>
<td>Apex T11-L1</td>
<td>Apex L2-L4</td>
</tr>
<tr>
<td>8.1%</td>
<td>24.3%</td>
<td>67.6%</td>
</tr>
</tbody>
</table>

Preop | Postop
--- | ---
Cobb major curve | 43.2° (SD 20.4) | 15.5° (SD 12.0)
T2-T12 kyphosis | 33.3° (SD 17.4) | 37.8° (SD 13.6)
L1-S lordosis | 38.8° (SD 18.8) | 43.8° (SD 12.3)
Sacral inclination | 28.8° (SD 11.9) | 27.7° (SD 10.9)

Correction=64.2%

PI = SS + PT

Duval-Beaupère
Results

Complications

Excluding wound infection, no major medical complications

28.9% mechanical complications (11 patients)

- 45.5% loosening/breakage instrumentation (5)
- 36.4% junctional kyphosis (4)
- 9.1% aseptic pseudoarthrosis (1)
- 9.1% postop flatback (1)

Reinterventions: 40% (17)

- 52.9% mechanical complications (9)
- 23.5% infection (4)
- 17.6% pain (3)
Results

Risk factors associated with mechanical complications:

- less lordosis preop: $13.6^\circ$ vs. $42.5^\circ$ ($p=0.002$)
- less sacral inclination postop: $20.6^\circ$ vs. $30.5^\circ$ ($p=0.039$)

Current patient satisfaction

- Surgery: 3.8 (SD 1.2) [scale from 0 to 5]
- Current situation: 3.9 (SD 3.4) [scale from -7 to +7]

76.5% patients answered
Conclusion

- Rates of mechanical complications and reinterventions are high after scoliosis surgery in adults over 50 years old.

- Risk population can be identified by spinopelvic parameters that indicate sagittal trunk imbalance.

- Although these patients have numerous mechanical complications and often require reinterventions, in general, they are satisfied with the outcome of surgery.
Disclosures

Domingo-Sàbat, Montse: No relationships
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Villanueva, Carlos: N.A.
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