Abstract

Cost Effectiveness of Conservative versus Surgical Treatment Strategies of Lumbar Spinal Stenosis in the Swiss Setting – Analysis of the Prospective Multicenter Lumbar Stenosis Outcome Study (LSOS)

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Purpose
To evaluate the cost effectiveness of conservative versus surgical treatment strategies for LSS.

Methods/Materials
Patients prospectively enrolled in the Swiss multicenter Lumbar Stenosis Outcome Study (LSOS) with a minimum follow-up of 12 months were included. Quality adjusted life years (QALY) were calculated based on EQ-5D data, as well as the area under the curve (AUC) over the follow-up. A consensus statement was defined for the average treatment costs of each arm of the decision tree. Cost effectiveness was calculated based on a decision tree analysis. Willingness to pay (WTP) was assumed to be CHF 50,000. Robustness of the model was evaluated by a Probabilistic sensitivity analysis (PSA).

Results
A total of 434 patients were included, treated surgically (n=170) or conservatively (n=264) for LSS. The majority of surgically treated patients underwent decompression only (n=141, 82.9%), compared to 17.1% (n=29) who additionally underwent fusion. A reoperation was required in 13 (7.6%) surgically treated patients. In 27 (10.2%) conservatively treated patients a single infiltration was sufficient, with no further infiltration or surgery required within the follow-up. However, 46 patients (17.4%) required multiple infiltrations, and in 191 cases (72.4%) a subsequent surgical intervention was performed. Treatment costs were estimated at CHF 12,958 and 13,637 in surgically and initially conservatively treated patients, respectively. The AUC was 0.776 QALY in the surgical arm (decompression±fusion: 0.790, and 0.776, respectively), compared to 0.778 in the conservative arm (ICER: CHF 392.145, per QALY gained). Probabilistic sensitivity analysis identified surgery as the preferred strategy in 67.1%.

Conclusion
Based on our data, decompression seems to be the most cost effective treatment approach for LSS. The majority of initially conservatively treated patients required multiple infiltrations or a subsequent surgical intervention.