

Prospective Follow-Up of Functional and Quality-of-Life Outcomes in Patients with Spondylodiscitis during Rehabilitation

Natalie Greiner¹, Hans-Jörg Schubert², Alexander C. Disch³, Klaus-Dieter Schaser³, Stefan Zwingenberger³

1 Department of Dermatology and Allergology, Lausitzer Seenlandklinikum, Hoyerswerda, Germany

2 Department of Orthopaedics, Traumatology and Spinal Cord Injury, Klinik Bavaria, Kreischa, Germany

3 University Center for Orthopaedics, Traumatology and Plastic Surgery, University Hospital, Carl Gustav Carus, Dresden, Germany

INTRODUCTION: Spondylodiscitis is an infectious osteomyelitis of the spine, with an increasing incidence in recent years. While the acute management has been extensively discussed in the literature, data on post-acute rehabilitation and its impact on functional outcomes and quality of life remain scarce. The aim of this study was to contribute to the limited body of prospective data by evaluating functional recovery and health-related quality of life in patients undergoing neurological rehabilitation following spondylodiscitis, in the context of its rising incidence and growing socio-political relevance. This study was approved by the Ethics Committee.

METHODS: In this prospective, clinical single-center study conducted over two years, a sample size of 28 patients (7 women, 21 men) with neurological deficits due to spondylodiscitis were assessed in a specialized rehabilitation facility. Data were collected at admission (T0) and at discharge (T1). Baseline characteristics such as length of stay, age, gender, Body-Mass-Index (BMI) comorbidities, detected pathogens and treatment methods in the acute phase were recorded. The general physical condition and morbidity of the patients was assessed using the ASA-score and the Charlson comorbidity index (CCI). Outcome measures included ISNCSCI subscores (motor, light touch, pinprick), the EQ-5D-3L (TTO index), the Oswestry Disability Index (ODI), and numerical rating scales (NRS) for back and leg pain. Descriptive statistics and Wilcoxon matched-pairs tests (two-sided, $p < 0.0001$) were used for analysis.

RESULTS SELECTION: During the course of rehabilitation, patients showed significant improvements in both functional and subjective outcomes. The ASIA Motor Score increased by an average of 11 points ($p < 0.0001$). The ASIA Pinprick Score improved by a mean of 4.77 points ($p < 0.0063$), and the Light Touch Score by 5.85 points ($p < 0.0001$). The EQ-5D-3L TTO index improved by a mean of 0.36 ($p < 0.0001$), and the ODI decreased by an average of 20.22 points ($p < 0.0001$). Pain intensity significantly decreased, with back pain improving by a mean of 3.1 points ($p < 0.0001$) and leg pain by 1.8 points ($p < 0.0104$) on the numerical rating scale. The average age at admission was 68 years. The mean BMI was 28.1 kg/m², which is within the pre-obesity range. Length of stay ranged from 29 to 283 days, with a mean duration of 119 days. Spondylodiscitis of the thoracic spine was the most common. The most frequently detected pathogen was Staphylococcus aureus.

DISCUSSION: The baseline characteristics were mostly consistent with data already available in the literature. The results underscore the significant improvements in functional ability and health-related quality of life that patients with neurological deficits due to spondylodiscitis can achieve during rehabilitation. These findings highlight the importance of structured post-acute care. Although a causal relationship to the rehabilitation intervention cannot be definitively established, this study provides valuable impetus for interdisciplinary collaboration in post-hospital treatment. Compared to the general population, quality of life remains reduced, but demonstrates a clear trend toward improvement over time.

SIGNIFICANCE/CLINICAL RELEVANCE: While the acute management of spondylodiscitis is well documented, there is a notable lack of data regarding the outcomes of post-acute rehabilitation. This prospective clinical study addresses this gap by demonstrating significant improvements in both functional outcomes and health-related quality of life following rehabilitation. The findings emphasize the clinical importance of interdisciplinary follow-up care and provide evidence that rehabilitation plays a key role in restoring neurological function and improving quality of life in this growing patient population. These results support the need for further research and health policy focus on long-term recovery strategies especially with regard to its increasing incidence and its socioeconomic impact.

