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Gender differences in outcomes trajectories in thoracolumbar burst fractures without neurological deficits

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BACKGROUND: Exploring gender differences in outcomes after spinal surgery is essential to ensure optimization of treatment. The goal of this study was to assess if any gender differences exist in patients treated for thoracolumbar (TL) burst fractures without neurological deficits, specifically in terms of Oswestry Disability Index (ODI) improvement.

METHODS: Patient demographics and all clinical and outcome data were taken from the observational, prospective multicenter cohort study comparing surgical versus non-surgical treatment of TL burst fractures in neurological intact patients. The study included patients between 18 and 65 years of age with an acute (<10 days from injury) traumatic fracture between T10 - L2 inclusive where the fracture met the criteria of an AO Type A3 or A4 burst fracture. Patients with any neurological deficit or multiple fractures were excluded. Primary endpoint was defined as time to achieve minimal clinically important difference (MCID) in Oswestry disability index (ODI). In exploratory analysis, we defined improvement in ODI as reaching minimal disability.

RESULTS: A total of 198 patients were included. Sixty-eight patients were female, 130 male. Genders were similar in terms of baseline characteristics except working status and similar in terms of injury characteristics as well as treatment selection and timing. Mean age was 42.1 years (SD 13.9) for females and 40.8 years (SD 13.3) for males ($p=0.527$).

Surgically treated females showed a statistically faster achievement of MCID in ODI compared to males (14 days, 95%CI 14.0-28.0 vs 28 days, 95% CI 15.0-34.0, $p=0.009$).

Females had a longer median time to achieve minimal disability (102.0 days, 95% CI: 76.0; 131.0 vs 62.0 days, 95% CI: 51.0; 72.0, $p=0.008$). Nonoperative females had a longer median time to achieve minimal disability (130.0 days, 95% CI: 82.0-185.0 vs 61.0 days, 95% CI: 47.0-76.0, $p=0.048$). On multivariable model, nonoperative females had a lower chance for achieving minimal disability than nonoperatively treated males (HR 0.55, 95%CI 0.31-0.98 $p=0.042$).

CONCLUSION: This study provides novel data showing that gender differences exist in TL burst fractures in neurologically intact patient. Females do worse within nonoperative management compared to males. In addition, female patients do better with operative management than nonoperative management in achieving MCID while this was not observed in male patients. Thus, females also seem to benefit to a greater extent from surgical management. The results highlight the importance of personalized treatment based on gender.

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Management strategies for severe spinal infections: A multicenter cohort study

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OBJECTIVE: Spondylodiscitis management poses significant clinical challenges, particularly regarding the indication and timing of surgical intervention, especially in critically ill patients where surgical risks must be balanced against the benefits of infection control. This study aims to investigate the effectiveness of early surgery versus delayed surgery or conservative management in critically ill patients with de novo spinal infections.

METHODS: This international, multicenter retrospective cohort study analyzed patients from 24 centers, predominantly in Europe, treated between 2015 and 2022. The study focused on patients severely affected by pyogenic spondylodiscitis, characterized by an initial CRP level >200 mg/l or the presence of two out of four Systemic Inflammatory Response Syndrome criteria upon admission. Patients were divided into early surgery (within 3 days of admission), delayed surgery (after 3 days of admission), and conservative therapy groups. The primary outcome was 30-day mortality. Secondary outcomes included length of ICU stay, length of hospital stay, and relapse rates.

RESULTS: The study included 192 patients (65.63% male) with a median age of 69 years. Treatments were early surgery (41.15%), delayed surgery (38.54%), and conservative therapy (18.75%). Delayed surgery was associated with significantly lower mortality (4.05%, $p<0.001$) compared to early surgery (27.85%, $p<0.001$) and conservative therapy (27.78%, $p<0.001$). Additionally, delayed surgery resulted in shorter hospital ($p<0.001$) and ICU stays ($p<0.001$). The optimal window for surgery, minimizing mortality, was identified as 10 to 14 days post-admission. Risk factors for increased mortality included early surgery ($p<0.05$), multiple organ failure ($p<0.05$), vertebral body destruction ($p<0.05$), and cervical infection localization ($p<0.05$).

CONCLUSION: Delayed surgical treatment was associated with significantly lower mortality and shorter hospitalization in critically ill patients with pyogenic spondylodiscitis. These findings suggest a reevaluation of current treatment protocols, emphasizing the importance of surgical timing in improving patient outcomes.

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Detailed analysis of chronic back pain: Preliminary results from a population-based cross-sectional study for 5177

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BACKGROUND: "Chronic back pain" is a widely used term that encompasses various pain conditions. To improve the diagnosis of "chronic back pain" (defined as daily back pain lasting over 12 weeks) and to investigate causal relationships, the German Research Foundation (DFG) is funding the research group FOR5177. Over four years, this interdisciplinary team will conduct comprehensive examinations of 3000 participants, both with and without chronic back pain. The current analysis aims to investigate the localization, intensity, and duration of chronic back pain in the general German population.

MATERIALS AND METHODS: From January 2022 to December 2023, 1127 participants (aged 18-64) were prospectively enrolled by the research group,