

The rising burden of spondylodiscitis in Germany: an epidemiologic study based on the federal statistical office database [Abstract]

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Angaben zur Veröffentlichung / Publication details:

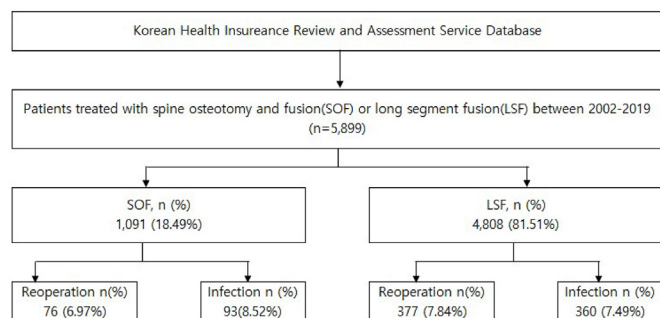
Kramer, A., S. Thavarajasingam, J. Neuhoff, B. Davies, A. Demetriades, Ehab Shiban, and F. Ringel. 2023. "The rising burden of spondylodiscitis in Germany: an epidemiologic study based on the federal statistical office database [Abstract]." *Brain and Spine* 3 (Supplement 2): 102466. <https://doi.org/10.1016/j.bas.2023.102466>.

rates between patients who underwent long segment spine fusion (LSF) alone and those who underwent spine osteotomy and fusion (SOF).

Materials and Methods: In this retrospective, nationwide cohort study, the Korean National Health Insurance database from 1 January 2002 to 31 December 2019 was reviewed. Data were extracted for patients aged over 50 years old who underwent LSF or SOF for spine degenerative deformity. The study followed individual patients for a period 6 months using their encrypted unique resident registration number. The primary endpoints were the reoperation and infection rates during the follow-up period. Additionally, other risk and socioeconomic factors associated with reoperation and infection were also assessed.

Results: Among the total of 5,899 patient, 1,091 (18.49%) underwent SOF while 4,808 (81.51%) underwent LSF. The reoperation rates were 6.97% for SOF and 7.84% for LSF. The infection rates within the first year were 8.52% for SOF and 7.49% for LSF. There was no statistically significant difference found in either the reoperation rate or infection rate. However, there was a significant difference in the time to reoperation between the SO group (1.86 years) and LSF group (2.82 years). ($p=0.002$). The risk of infection and reoperation was similar in both group. (hazard ratio 0.974 in infection, 1.099 in reoperation)

Conclusion: Compared with the LSF alone, the SOF showed same reoperation and infection rates. But, early reoperation was required in SOF group.



000499

BRAIN AND SPINE 3 (2023) 102351 102464

OUTCOMES AND COMPLICATIONS OF SURGERY FOR SYMPTOMATIC SPINAL METASTASES; A COMPARISON BETWEEN PATIENTS AGED ≥ 70 AND <70

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Introduction: Advances in oncological treatment have resulted in increased life expectancies for cancer patients. This combined with an aging population has led to a consistent increase in elderly patients presenting with spinal metastases. Physicians may be deterred from operating on these patients due to fears of poorer outcomes and increased complications because elderly patients have more comorbidities which puts them at a greater risk than other age groups. This concern about increased mortality and morbidity in the elderly can potentially lead to suboptimal surgical treatment in elderly cancer patients. In this study, we aim to compare the outcomes of surgical treatment of spinal metastases in patients aged ≥ 70 -yrs and patients aged <70 -yrs.

Materials and Methods: This is a retrospective study of patients who underwent surgical treatment for spinal metastases between January 2005 to December 2021. These patients were divided into two groups age <70 years and ≥ 70 years. Outcomes studied included post-operative neurological status, ambulatory status, medical and surgical complications and the need for readmission after surgery.

Results: 383 patients met the criteria for inclusion of which 79 (20.6%) were ≥ 70 -yrs. Age ≥ 70 -yrs patients had significantly poorer ECOG score 3-4 ($p=0.0017$), CCI ($p<0.001$). There was no significant difference in modified Tokumashi score and prognostic subgroup between patients aged ≥ 70 -yrs and <70 -yrs. There was no significant difference in the location of tumour operated, type of surgery, surgical approach, number of levels instrumented and decompressed between both groups. There was no significant difference in post-operative neurology, ambulatory status, and survival between both groups. Patients ≥ 70 -yrs were more likely to have medical complications (53.2% vs

50.8%) ($p=0.528$) and require readmission within 1-month post discharge (33.3% vs 29.6%) ($p=0.800$), although both were not statistically significant.

Conclusion: ≥ 70 -yrs patients have comparable improvement in neurological status, ambulatory status and survival compared to younger patients. However, there is a significant complication and readmission rate. Age should not be a contraindication to surgery in spinal metastases and patients should be treated on an individual basis in a multidisciplinary setting.

000535

BRAIN AND SPINE 3 (2023) 102351 102465

IN-HOSPITAL COMPLICATIONS FOLLOWING ELECTIVE AND EMERGENCY SPINAL SURGERY IN OCTOGENARIANS AND NONAGENARIAN PATIENTS

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Introduction: The UK population of over 80s is expected to see the largest increase in population growth over the next 20 years with double the number of >85 s expected then than there are today. Increasing age is a known risk factor for higher rates of morbidity and mortality post-operatively and many spinal surgeons are therefore reluctant to operate on this age group. The aim of this study was to assess the rates of complications in patients over the age of 80 undergoing elective and spinal surgery based at a single UK spinal unit.

Materials And Methods We performed a single-center, retrospective, observational study looking at both elective and emergency spinal operations performed in patients over the age of 80 between January 2008 and August 2019. Patients were identified using the Bluespир Theatre Management Systems. Data extracted included patient characteristics, co-morbidities, procedure performed, length of stay and complications. Complications were divided into perioperative and postoperative and subsequently categorised using the Clavien-Dindo classification modified by the authors.

Results: Over an 11-year period we identified 322 patients who underwent 348 spinal operations. 72 patients underwent 82 emergency operations, and 251 patients underwent 266 elective operations. The average age of each group was 83 years. The average length of stay was 22.5 days for emergency patients and 6.8 days for elective patients. ($p<0.001$) Of the 82 emergency operations that took place, 40 (55.6%) patients experienced complications and 25 (34.8%) had at least one class 3 or above complication. Amongst the 274 elective operations 50 (18.2%) patients experienced complications and 13 (4.7%) experienced a class 3 or above complication. Ten (13.8%) patients returned to theatre for surgical intervention in the emergency group and three (1.1%) amongst the elective cases. There were eight mortalities post-operatively in the emergency group (11.1%), up compared to the one mortality in the elective group (0.3%). ($p<0.001$)

Conclusion: Complication rates were significantly higher in the emergency group than the elective cohort, in keeping with other studies of similar age groups. Our study highlights that with careful pre-operative patient selection and optimization significant post-operative morbidity and mortality can be minimized in elderly patients undergoing spinal surgery in the elective setting. Elderly patients with spinal conditions will continue to present at hospital, therefore a greater awareness of intra and postoperative complications is necessary, particularly when considering whether major surgical intervention is in the patients' best interests.

000543

BRAIN AND SPINE 3 (2023) 102351 102466

THE RISING BURDEN OF SPONDYLODISCITIS IN GERMANY: AN EPIDEMIOLOGIC STUDY BASED ON THE FEDERAL STATISTICAL OFFICE DATABASE

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Introduction: Spondylodiscitis is the commonest form of infectious disease of

the spine and harbours a high mortality rate of up to 20%. Recent demographic trends in Germany, such as an aging population, immunosuppression, and intravenous drug use, suggest that the incidence of spondylodiscitis may be on the rise. However, the exact epidemiological development of the disease remains uncertain. This study aims to analyse the burden on the tertiary healthcare system in Germany using data from the Federal Statistical Office of Germany (FSOG) database.

Materials and Methods: All cases of spondylodiscitis diagnosed between 2005 and 2021 were identified from the FSOG database. The study characterised the mean duration of hospital stays, total and population-adjusted number of diagnoses made, age-stratified incidence, and outcomes of hospitalised patients.

Results: A total of 131,982 diagnoses for spondylodiscitis were identified between 2005 and 2021. The number of diagnoses for spondylodiscitis has doubled during this period, from 5.4/100,000 population in 2005 to 11/100,000 population in 2021. The highest increase in admissions was recorded for those aged 90 years and above (+1307%), 80-89 (+376%) and 70-79 (+99%). Hospital discharges to rehabilitation facilities have increased by 160%, and discharges against medical advice by 91%. On the other hand, during the analysed period, the in-hospital mortality rate has decreased by 52%.

Conclusion: The population-adjusted incidence of spondylodiscitis in Germany has more than doubled between 2005 and 2021, highlighting the clinical relevance of this disease. During the same period, in-hospital mortality dropped by half. These findings suggest the need for further investigation into optimal therapy, particularly the role and timing of surgical treatment.

000592

BRAIN AND SPINE 3 (2023) 102351 102467

THE CLINICAL AND RADIOGRAPHIC DEGENERATIVE SPONDYLOLISTHESIS CLASSIFICATION AND ITS PREDICTIVE VALUE

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Introduction: A new classification has been introduced for degenerative spondylolisthesis (DS) with four sub-types. Type A: advanced disc space collapse without kyphosis; Type B: disc partially preserved with translation of 5 mm or less; Type C: disc partially preserved with translation of more than 5 mm; and Type D: kyphotic alignment.

This study aimed to analyse the long-term functional and radiographic outcome following degenerative spondylolisthesis surgery.

Materials and Methods: A retrospective trial of our prospective database was performed using the Australian spine registry. Data on demographics, preoperative, 6 months, 12 months and 24 months postoperative patient reported outcome measures (PROMs) applying the Oswestry Disability Index (ODI), EQ-5D-3L scores were collected. All pre- and postoperative EOS scans were analysed and measurements of the L4/5, and L1/L5 lordosis, pelvic incidence, pelvic tilt, sacral slope, coronal list and degree of spondylolisthesis (slip) were measured. In addition the type of fusion (PLIF vs. TLIF) was noted. Based on the preoperative findings all x-rays were classified applying the CARDS classification as described above.

Results: Between 2018 and 2021 a total of 62 patients at a mean age of 67.8±11.6 years were included. A majority of patients were female (60.3%). Preoperatively, the L4/5 lordosis was 19.6±8.6°, lumbar lordosis was 42.9±11.8°, pelvic incidence was 59.2±9.4°, pelvic tilt was 22.6±6.4° and sacral slope was 35.7±7.6°. The preoperative slip was 4.6±3.2mm and a coronal list of -22.5±50.2mm was found. There were 38.9% of CARDS type B and C and 11% of type A and D were observed in 11.1%. Postoperatively, L4/5 lordosis changed significantly to 26.3±9.6° (p=0.024). No changes in pelvic incidence, tilt, sacral slope and coronal list were observed.

The preoperative ODI was 41.9±12.2 which changed significantly to 21.2±15.2 at 24 months and EQ-5D-3L scores 57.4±20.9 changed significantly to 76.8±24.0 at 24 months.

The CARDS classification ODI for Type A was 44±8.5 changing to 17±9.9 at 24 months; Type B 43.3±6.5 to 26.4±20.1; Type C 39.7±18.6 to 23±21.2; Type D 44±14.1 to 10.0±5.7. Similar improvements were observed for the EQ-5D-3L which were Type A 77.5±3.5 to 89.5±0.7; Type B 51.4±21.0 to 67.0±22.2; Type C 61.7±19.3 to 54.5±62.9; Type D 60.0±14.1 to 82.5±4.9.

Conclusion: This study shows that the CARDS classification predicts the improvement in functional outcome and change in lumbar lordosis well. It will help to simplify the diagnosis and operative planning, especially for A and D types who benefit more from single level fusion.

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BRAIN AND SPINE 3 (2023) 102351 102468

RETROSPECTIVE EVALUATION OF RETROGRADE EJACULATION EVENT RATE AFTER PRIMARY ALIF - QUALITY CONTROL IN THE PATIENT COLLECTIVE OF A HIGH VOLUME SPINE CENTER

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Introduction: Anterior lumbar interbody fusion (ALIF) is an established procedure for spondylosis, spondylolisthesis and degenerative disc disease. Approach-related, this procedure may result in altered sexual function (VS) and retrograde ejaculation (RE) due to damage to the hypogastric plexus. In a retrospective quality control we investigated the event rate of VS and RE as well as the general satisfaction with the surgical outcome in our own patient collective.

Materials and Methods: Patients undergoing primary ALIF L5/S1, L4/L5, or L5/S1 + L4/L5, either stand-alone or combined with posterior stabilization, during 2015-2020, were studied.

170 male patients received a questionnaire by mail.

Results: We received 98 responses.

Patients ranged in age from 20 to 60 years, with a median age of 44 years.

In 74 patients an ALIF L5/S1, in 6 patients an ALIF L4/L5 and in 11 patients an ALIF L4/L5 + L5/S1 was performed. In 5 patients, no assignment to surgical level was possible.

Primary outcome: 11% of patients reported decreased amount or absence of ejaculation as an indication of the presence of retrograde ejaculation.

21% of patients reported noticing a general change in their sexual function.

Secondary outcome: 83.6% (n=82) of patients were very satisfied with the outcome of surgery.

84.6% of patients would have the surgery again (83 yes, 10 no, 5 undecided).

82% (9 von 11) of patients who had signs of RE and

76% (16 von 21) of patients reporting general changes in sexual function would have surgery again.

Conclusion: The event rate seen in our own patient population (11%) exceeds the frequency rates of retrograde ejaculation reported in the literature.

The values presented in the literature seem not representative, because sexual dysfunction is a taboo topic in postoperative follow-up and therefore probably underreported and the natural history of sexual dysfunction is high.

Patients with a desire to have children must be advised to do a sperm donation preoperatively. The preoperative education must be adapted.

The ALIF procedure is a successful treatment option with high postoperative patient satisfaction.

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BRAIN AND SPINE 3 (2023) 102351 102469

RISK FACTORS FOR RESIDUAL BACK PAIN FOLLOWING PERCUTANEOUS CEMENT AUGMENTATION: THE IMPORTANCE OF PARASPINAL MUSCLE FATTY DEGENERATION

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Introduction: Residual back pain (RBP) still experience considerable residual back pain after percutaneous cement augmentation (PVA), and it even affects daily life due to moderate or severe back pain. A variety of risk factors have been previously identified for developing residual back pain. However, there are conflicting reports regarding the association between sarcopenia and residual back pain. As such, the aim of this study was to investigate whether paraspinal muscle fatty degeneration is a predictor of residual back pain.

Materials and Methods: We retrospectively reviewed the medical records of patients with single-segment osteoporotic vertebral compression fractures (OVCF) who underwent PVA from January 2016 to January 2022. Patients were divided into RBP group (86 patients) and Control group (790 patients) according to whether the visual analogue scale (VAS) score ≥ 4 . Collected data included: demographic data (age, gender, body mass index [BMI]), comorbidities (hypertension, diabetes, chronic obstructive pulmonary disease [COPD] and others), preoperative VAS, preoperative imaging data (bone mineral density [BMD], injured vertebral segment, vertebral height loss, local kyphosis angle, intra-vertebral vacuum cleft, posterior fascia injury and fatty degeneration of paraspinal muscle), surgical data (surgical method, surgical approach, cement