bona fide spinal cord NSPCs and their isogenic iPSC-derived counterparts, iPSC-SC and iPSC-Br. Methods: Human spinal cord and skin tissue were obtained with ethics approval to establish primary NSPC cultures. iPSCs were derived from these primary cells and differentiated into iPSC-SC and iPSC-Br NSPCs. Assessments encompassed differentiation, proliferation capabilities, immunostaining, and RNA sequencing for differential gene expression. Results: Functional and transcriptional differences were identified between bona fide NSPCs and iPSC-SC/iPSC-Br. Bona fide and iPSC-SC NSPCs exhibited spinal cord regionalization, while iPSC-Br displayed forebrain regionalization. iPSC-derived NSPCs shared features reminiscent of early developmental stages, including embryonic patterning genes and increased proliferation rates. Notably, differentiation profiles were most similar between bona fide and iPSC-Br, with substantial distinctions observed between bona fide and iPSC-SC. Conclusions: This study unveils unique regional, developmental, and functional characteristics distinguishing spinal cord NSPCs from iPSC-derived counterparts. Addressing these disparities holds promise for enhancing iPSC-derived NSPC therapies in spinal cord injuries, contributing to a deeper understanding of their potential applications in regenerative medicine.

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The growing problem of spine surgery wait times in British Columbia: longitudinal trends and impacts on perioperative outcomes

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Background: Surgical delays are in common in Canada. Wait times in elective spine surgery and their impact on outcomes remain uncharacterized. Methods: This was a single-center analysis of elective spine surgery data between 2009-2020. Wait times between referral and consultation (T1), consultation and surgical booking (Ti), and booking and surgery (T2) were assessed. Results: 2041 patients were included. Longitudinal analyses were adjusted for age, sex, diagnosis, surgical volume, while outcomes analyses were age and sex-adjusted. Total T1+Ti +T2 increased 8.1% annually ($p<0.001$). T1 decreased 4.3% annually ($p=0.032$). It was not associated with adverse events (AEs) or disposition. Every 100 days of T1 was associated with 1.0% longer hospitalization ($p=0.001$). Ti increased 21.0% annually ($p<0.001$). Every 100 days of Ti was associated with 2.9% increased odds of an adverse event ($p=0.002$), 1.8% longer hospitalization ($p<0.001$), and 15.9% increased likelihood of discharge home ($p<0.001$). T2 increased 7.0% annually ($p<0.001$) and was not associated with AEs. Every 100 days of T2 was associated with 11.6% longer hospitalization ($p<0.001$) and 76.5% increased likelihood of discharge home ($p<0.001$). Conclusions: Total wait times for elective spine surgery have increased between 2009-2020. Notably, Ti increased ninefold and was associated with AEs. This study highlights areas of delay and targets for healthcare optimization.

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Consult and kyphoplasty delay impacts on geriatric vertebral compression fracture outcomes

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Background: Vertebral compression fractures (VCF) lead to both considerable morbidity and increased mortality. Kyphoplasty, a minimally invasive surgery, treats VCFs providing significant pain relief, preserving vertebral height, and reducing spinal deformity. Methods: A retrospective cohort study at Hamilton Health Sciences (HHS) was conducted on elderly patients (60 years or older) who underwent kyphoplasty at between 2012 and 2022. The patients had prior hospital admissions under non-spine-related specialties at HHS within two years before their surgery. Primary outcomes were the progression of vertebral height loss and focal kyphotic deformity. Results: The study included 119 patients (52.1% female, mean age 70.71 years). A significant increase in vertebral height loss was observed from diagnosis to pre-kyphoplasty (0.32% change, $p < 0.0001$) and from diagnosis to post-kyphoplasty (0.24% change, $p = 0.015$). However, there were no significant correlations between delay times and changes in vertebral height or focal kyphotic deformity. Conclusions: Delays in neurosurgical consultation and kyphoplasty did not significantly affect radiographic outcomes in elderly patients with VCF despite the progression of vertebral height loss. This suggests that while timely patient care is essential, delayed treatment may not adversely affect key radiographic metrics in elderly VCF patients.

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Saskatchewan spine pathway classification is associated with post-operative outcome and improved quality-adjusted life years following lumbosacral fusion

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Background: Low back pain (LBP) is a common cause of disability and decreased quality of life. The Saskatchewan Spine Pathway classification (SSPc) is a method for triaging patients who are candidates for surgery. Methods: Consecutive patients who underwent lumbosacral instrumented fusion for degenerative spinal pathology from Jan 1, 2012, to Sept 20, 2018, by a single surgeon at our institution were retrospectively reviewed. Patients were stratified by SSPc into 4 groups based on pain pattern. Demographic and clinical data were collected. Outcomes were compared between cohorts both for absolute values and achieving MCID. Results: 169 consecutive patients were included in our study. After stratifying by SSPc grouping, there were 61 SSPc I patients, 45 SSPc III patients, and 63 SSPc IV patients. Patients in all groups had clinical improvement following surgery. Patients classified as SSPc III had superior outcomes in ODI, EQ-5D and EQ-VAS, and were more likely to achieve the