and 9.1 ± 0.9 ng/dL, respectively. The mean serum 1,25(OH) vit-D levels were 15.6 ± 10.8 ng/mL and 15.8 ± 7.2 ng/mL, respectively. The mean serum OC levels were 15.9 ± 8.1 ng/mL and 14.8 ± 6.5 ng/mL, respectively. The mean serum CTX levels were 0.5 ± 0.4 ng/mL and 0.4 ± 0.3 ng/mL, respectively. The mean serum BSAP levels were 12.2 ± 5.3 mcg/L and 10.4 ± 4.3 mcg/L, respectively. BMD of group A was lower than that of group B ($p < 0.05$). In this study, variables such as sex, age, calcium, Vit-D, BASP, OC, and CTX showed no differences between the 2 groups. **Conclusion:** In Korean elderly population, BMD of patients with vertebral fracture showed significant difference from that of no vertebral fracture group. The occurrence of vertebral fracture is mainly related to lower BMD than another laboratory findings. It is important to prevent vertebral fractures by maintaining and normalizing BMD.

Surgical complications

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P482: Disparities in postoperative outcomes by insurance status following elective spine surgery: a systematic review and meta-analysis

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Introduction: With increasing evidence demonstrating adverse outcomes for government insured patients following spine surgery, the expanding disparity between the care of privately and government insured patients is concerning. However, no pooled analyses have previously characterized differences in post-operative outcomes among patients with varying insurance types. The purpose of our review is to use an AI-assisted review platform to assess the effects of insurance status on postoperative outcomes following elective spine surgery. **Material and Methods:** A comprehensive literature search of PUBMED, MEDLINE(R), ERIC, and EMBASE was performed using a semi-automated cloud-based platform. 25 meta-analyses were performed to calculate pooled incidence rates and odds ratios for each outcome: 90-day readmission, non-routine discharge (NRD), extended length of stay (LOS), any complication (surgical and medical), and all medical complications. For each of these five outcomes, meta-analyses of the following comparisons were performed: (1) private versus government (Medicaid, Medicare, Veterans Affairs, Managed Care, and Triwest) insurance; (2) sub-analysis comparing Medicaid to private insurance; (3) sub-analysis comparing Medicare to private insurance; (4) Medicare versus Medicaid; and (5) Medicare versus non-Medicare (private and other government). **Results:** 38 studies (5,018,165 total patients) were included. Compared to private insurance, patients with government insurance had an increased incidence of 90-day readmissions (OR 1.84, $p < 0.0001$), NRD (OR 4.40, $p < 0.0001$), extended LOS (OR 1.82, $p < 0.0001$), post-operative complication (OR 1.61, $p < 0.0001$), and any medical complication (OR 1.93, $p < 0.0001$). These differences persisted across outcomes in sub-analyses comparing Medicare or Medicaid to private insurance. Similarly, across all examined outcomes, Medicare patients had a higher risk of experiencing an adverse event compared to non-Medicare patients. Compared to Medicaid patients, Medicare patients were only more likely to experience NRD (OR 2.68, $p = 0.0007$). **Conclusion:** Patients with government insurance have a greater likelihood of morbidity across several peri-operative outcomes. Additionally, Medicare patients fare worse than non-Medicare patients across outcomes, potentially due to age-based factors. These results warrant further granular analyses evaluating clinical and socioeconomic factors associated with suboptimal outcomes for government-insured patients. Based on our results, directed measures should be taken to ensure that underinsured patients receive equal access to resources and quality care.

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P483: Does the choice of chemoprophylaxis affect the prevention of deep vein thrombosis in lumbar fusion surgery? A systematic review of literature

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Introduction: To date, the available guidance on venous thromboembolism (VTE) prevention in elective lumbar fusion surgery is largely open to surgeon interpretation and preference without any specific suggested chemoprophylactic regimen. This study aims to comparatively analyze the incidence of deep vein thrombosis (DVT) and pulmonary embolism (PE) with the use of commonly employed chemoprophylactic agents such as unfractionated heparin (UH) and low molecular weight heparin (LMWH) in lumbar fusion surgery. **Methods:** An independent systematic review of four scientific databases (PubMed, Scopus, clinicaltrials.gov, Web of Science) was performed by two authors to identify relevant articles in adherence to the preferred reporting in systematic reviews and meta-analysis (PRISMA) guidelines. Studies reporting on DVT/PE outcomes of lumbar fusion surgery in adult patients with UH or LMWH chemoprophylaxis were included for analysis. Analysis was performed using the Open Meta[Analyst] software. **Results:** Twelve studies with 8495 patients were included in the analysis. A single-arm meta-analysis of the included studies found an incidence of DVT 11.80 (95%CI [6.40% - 17.10%]) and 1.30% (95%CI [0.50% - 2.10%]) with LMWH and UH respectively. Both the chemoprophylaxis agents prevented PE with a noted incidence of 0% (95%CI [0% - 0.10%]) and 0.40% (95%CI [0% - 0.90%]) with LMWH and UH respectively. The risk of bleeding-related complications with their usage was 0.20% (95% CI [0.10% - 0.30%]). **Conclusion:** Both LMWH and UH are effective in reducing the overall incidence of DVT/PE, but there is a paucity of evidence analyzing the comparative effectiveness of the chemoprophylaxis regimens in lumbar fusion procedures. The heterogeneity in data prevents any conclusions, as there remains an evidence gap. We recommend future high-quality RCTs to investigate in this regard to help develop recommendations on thromboprophylaxis usage.

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P484: Hardware failure in spinal tumor surgery: a hallmark of longer survival?

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Introduction: The incidence of spinal tumors is increasing, and surgical interventions for spinal tumors are becoming more common. Instrumentation failure in spine tumor surgery is a common reason for a revision operation. With recent surgical and medical advances, patient survival is expected to increase, which will demand a better understanding of the hardware longevity. A fusion is not always feasible in the setting of metastatic disease, which will mean that hardware will have to potentially withstand physiological stresses for life. The objective of this study was to investigate risk factors for instrumentation failure requiring revision surgery in patients with spinal tumors. **Material and Methods:** This was a retrospective cohort from a single tertiary care specialty hospital from January 2005 to January 2021, for patients with spinal primary or metastatic tumors who underwent surgical intervention with instrumentation. Demographic and treatment data were collected and analyzed. Kaplan-Meier analysis was performed for overall survival, and separate univariate and multivariate regression analysis was performed. **Results:** A total of 351 patients underwent surgical intervention for spinal cord tumor, of which 23 experienced instrumentation failure requiring revision surgery (6.6%). Multivariate regression analysis identified pelvic fixation (OR = 10.9), spinal metastasis invasiveness index (OR = 1.11), and survival of greater than 5 years (OR = 3.6) as significant risk factors for hardware failure. One- and five-year survival rates were 57% and 8%, respectively. **Conclusion:** Instrumentation failure after spinal tumor surgery is a common reason for revision surgery. Our study suggests that use of pelvic fixation, invasiveness of the surgery, and survival greater than 5 years are independent risk factors for instrumentation failure.

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P485: Knotless tailless running subcuticular skin closure using non-barbed monofilament suture may reduce the risk for surgical site infection in posterior spine surgery

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Introduction: Surgical site infections (SSIs) can add significant costs to patient care as well as societal and personal costs. SSI can start prior to or after the wound closure. For the latter, the infection most likely occurs through the incision. Optimal surgical wound skin closure method would provide good cosmesis while minimizing the risk for SSI. Subcuticular running wound closure with non-barbed absorbable sutures is often used in spine surgery. Two common methods of managing the ends of the sutures are buried knots or tails/knots outside the skin. Suture reactions seen with both methods and loss of wound closure tension seen with tails/knots outside the skin can increase the risk for wound breakdown. Our