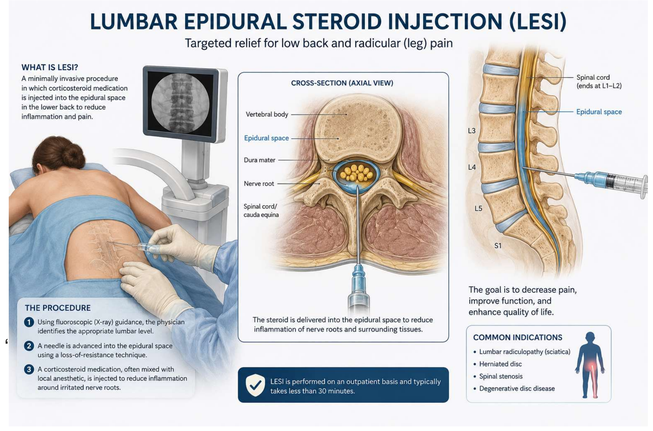
Comparative Effectiveness of Dexamethasone versus Triamcinolone in Lumbar Epidural Steroid Injections in a Cancer Cohort: A Retrospective Study

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Background

Lumbar epidural steroid injections (LESIs) are minimally invasive procedures that deliver corticosteroids into the epidural space to reduce inflammation and relieve lumbar radicular pain. LESIs are commonly used to treat lumbar radicular pain caused by disc herniation or spinal stenosis.



Dexamethasone (a non-particulate corticosteroid) and triamcinolone (a particulate corticosteroid) are among the most commonly used steroids for LESIs[1]. While triamcinolone may provide longer-lasting pain relief, dexamethasone is often preferred because of its lower risk of embolic complications[2,3]. Despite their widespread use, comparative evidence evaluating the effectiveness and safety of these agents is limited. In this study, we evaluated the effectiveness and safety of dexamethasone and triamcinolone following LESIs in cancer patients. We hypothesized that there would be no significant difference in short-term pain relief between the two corticosteroids, but triamcinolone may provide longer duration of pain relief while being associated with more adverse events.

Objectives

To compare the clinical effectiveness between dexamethasone versus triamcinolone in cancer patients undergoing lumbar epidural steroid injections.

Methods

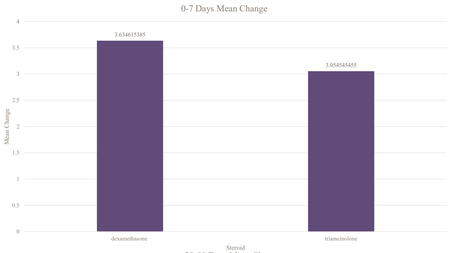
A retrospective cohort study was conducted at a tertiary cancer facility. Adult patients (≥18 years) with lumbar radiculopathy, disc herniation, or spinal stenosis who underwent lumbar epidural steroid injections (LESIs) with either dexamethasone or triamcinolone between January 2018 and December 2024 were included. Patients receiving mixed corticosteroids, those who underwent recent lumbar surgery, or those with incomplete follow-up were excluded.

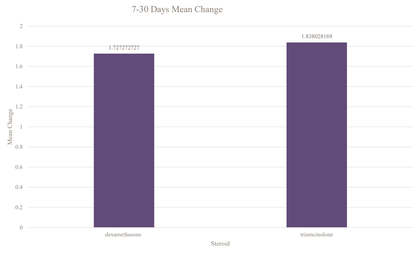
Patient demographics, medical comorbidities, injection approach, steroid type, and steroid dose were evaluated. Pain relief at 1 month was the primary outcome. Secondary outcomes included functional improvement, duration of pain relief, repeat injection within 3 months, and adverse events. Outcomes were analyzed using descriptive statistics, univariate analyses, and multivariable logistic regression.

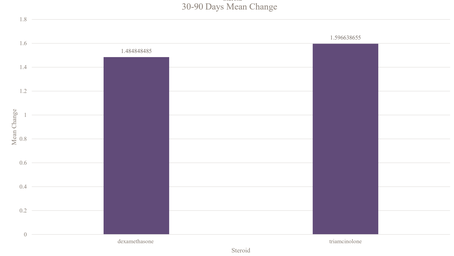
Results

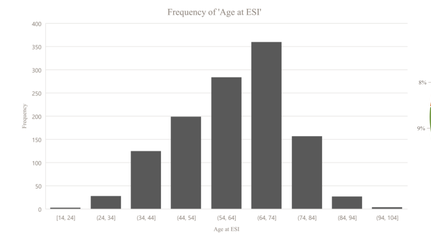
Outcome	Dexamethasone	Triamcinolone (Kenalog)
Baseline pain	5.99 (n=401)	5.94 (n=563)
Baseline ESAS	6.98 (n=383)	7.04 (n=524)
Baseline MME	51.58 (n=391)	59.77 (n=522)
% improvement	46.49 (n=41)	50.51 (n=72)
0-7 pain	2.78 (n=163)	2.90 (n=114)
7-30 pain	4.44 (n=232)	4.26 (n=266)
30-90 pain	4.75 (n=234)	4.76 (n=290)

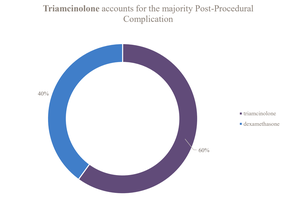
Baseline pain severity was similar between groups. Patients receiving triamcinolone demonstrated higher baseline opioid requirements. Both corticosteroids were associated with substantial early pain improvement, with comparable short-term outcomes. Given the retrospective design and unequal follow-up, these findings should be considered exploratory.

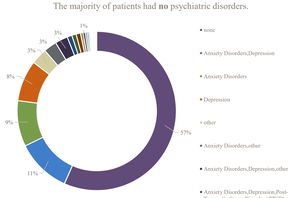












Discussions/Clinical Significance

Lumbar epidural steroid injections are a commonly used treatment for lumbar radicular pain, especially in patients who have not responded to conservative therapy or who require temporary pain relief while recovering.[1] Although dexamethasone and triamcinolone are both frequently used during these procedures, there is still limited evidence directly comparing their clinical outcomes. As a result, the choice between dexamethasone and triamcinolone often depends on provider preference. Because repeated corticosteroid exposure is associated with systemic adverse effects, choosing the most appropriate corticosteroid can reduce unnecessary risks.[1]

A better understanding of the differences between these corticosteroids may help guide treatment decisions in patients undergoing lumbar epidural steroid injections. If clinically meaningful differences in pain relief, duration of benefit, opioid requirements, or adverse events are identified, clinicians may be better able to individualize corticosteroid selection based on the patient's clinical presentation, comorbidities, and treatment goals. Additional comparative evidence may also help reduce practice variability and support more evidence-based corticosteroid selection.

Conclusions

Both dexamethasone and triamcinolone produced similar reductions in pain during the early post-procedural period. No clear differences in analgesic effectiveness were observed using unadjusted descriptive analyses. Future multivariable and propensity-adjusted analyses are planned to determine whether corticosteroid selection independently influences pain relief, opioid utilization, or symptom burden.

References