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MODERN TREATMENT OF DEGENERATIVE SPINAL DISEASES AND INTERVERTEBRAL DISC HERNIATION: CONSERVATIVE APPROACHES, EFFICACY AND SAFETY OF NERVE BLOCKS

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Abstract: Degenerative changes of the spine, including intervertebral disc degeneration and herniation, are common clinical conditions that can lead to lower back and neck pain, radicular syndromes, and limitations in functional capacity and work performance. The aim of this article is to analyze contemporary approaches to the treatment of degenerative spinal diseases and intervertebral disc herniation, with particular emphasis on interventional pain management techniques and the clinical role of various types of nerve blocks from an evidence-based perspective.

The article reviews pharmacological treatment of degenerative spinal diseases, paravertebral and facet joint blocks, selective nerve root blocks, epidural steroid injections, and indications for surgical intervention. Available evidence suggests that epidural steroid injections may provide short-term relief of pain and functional limitations in selected patients with radiculopathy. However, the duration of therapeutic effects, appropriate patient selection, and procedural safety remain important considerations.

Nerve blocks should not be regarded as methods that anatomically eliminate intervertebral disc herniation; rather, they should be considered components of a comprehensive treatment strategy in appropriately selected patients. This article summarizes the principles of clinical decision-making, potential complications, and recommendations relevant to clinical practice in local healthcare settings.

RELEVANCE OF THE TOPIC

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Spinal disorders are among the most frequently encountered conditions in primary healthcare and neurological practice. Low back pain is one of the leading causes of disability worldwide. In 2020, approximately 619 million people were reported to be affected by this condition [1]. The clinical significance of this problem extends beyond pain itself, as it also affects sleep, physical activity, occupational capacity, psychological well-being, and healthcare expenditure.

In everyday clinical practice, the term "osteochondrosis" is commonly used as a general designation for degenerative changes involving intervertebral discs, vertebral bodies, and facet joints. However, degenerative findings detected by radiography or magnetic resonance imaging (MRI) do not always correlate with clinical symptoms. Therefore, diagnosis should not be based solely on imaging findings but should involve a comprehensive assessment of the patient's medical history, neurological examination, pain distribution, and functional limitations [2,3].

AIM OF THE STUDY

The primary objective of treatment is not to eliminate structural abnormalities identified on imaging but to reduce pain, preserve or restore neurological function, facilitate the patient's return to daily activities, and minimize the risk of recurrence. From this perspective, maintaining physical activity, individualized exercise programs, safe pharmacological therapy, and interventional procedures when indicated should be considered complementary components of patient management [1,2].

In clinical practice, nerve blocks are frequently used as methods of achieving relatively rapid pain relief. Nevertheless, the term "nerve block" does not refer to a single procedure: the injection target, medication used, clinical indications, and expected outcomes may vary considerably. Inappropriate patient selection or technical errors may result in complications such as infection, bleeding, nerve injury, and, although rare, severe neurological complications. Therefore, an objective assessment of the benefit–risk ratio of these procedures and their role in relation to conservative treatment remains highly relevant.

Keywords: spine, osteochondrosis, intervertebral disc herniation, radiculopathy, low back pain, epidural steroid injection, paravertebral block, facet joint, rehabilitation, evidence-based medicine.

INTRODUCTION

The pathophysiology of degenerative changes and intervertebral disc herniation of the spine involves several interconnected mechanisms. An intervertebral disc consists of the nucleus pulposus, annulus fibrosus, and cartilaginous endplates, which collectively distribute mechanical loads and maintain the mobility of the spinal segment. Age, genetic predisposition, smoking, obesity, repetitive heavy physical loading, and certain metabolic factors are associated with alterations in the disc matrix. A reduction in proteoglycan and water content decreases the elastic properties of the disc. Fissures in the annulus fibrosus, loss of disc height, osteophyte formation, and facet joint arthrosis may alter the biomechanics of the spinal segment.

Degenerative changes may also occur in asymptomatic individuals. Therefore, disc protrusion or degenerative findings detected on magnetic resonance imaging (MRI) should not automatically be considered the source of pain. From a clinical perspective, the key consideration is the correlation

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between imaging findings and the patient's symptoms, including their anatomical distribution, dermatomal pattern, and objective neurological signs [2,3].

INTERVERTEBRAL DISC HERNIATION AND RADICULOPATHY

Intervertebral disc herniation refers to the displacement of disc material beyond its normal anatomical boundaries. In addition to mechanical compression of the nerve root, disc herniation may induce chemical radiculitis through the release of local inflammatory mediators. Clinical manifestations include lower back or neck pain, radiating pain into the lower or upper extremities, paresthesia, changes in reflexes, myotomal muscle weakness, and, in some cases, sensory loss. Differentiating radicular pain from nonspecific axial low back pain is essential because the indications for interventional procedures differ between these conditions.

In most patients, symptoms improve over time with conservative treatment. However, progressive motor deficits, suspected cauda equina syndrome, spinal cord compression, or the possibility of infection, neoplasm, or fracture require urgent diagnostic evaluation and referral to an appropriate specialist [2,3].

MRI is the preferred imaging modality for evaluating nerve roots, intervertebral discs, the spinal canal, and surrounding soft tissues. However, routine imaging is not recommended for patients with newly developed nonspecific low back pain in the absence of red flags. Imaging is appropriate when the results are expected to influence treatment decisions or when persistent symptoms necessitate consideration of interventional or surgical management [2,3]. Computed tomography (CT) is useful for assessing bony structures or when MRI is contraindicated or unavailable. Electroneuromyography (ENMG)/electromyography may be considered when clinical examination findings and MRI results are inconsistent or when differentiation from peripheral neuropathy is necessary. However, it is not a mandatory investigation in all cases of disc herniation.

Imaging findings must be consistent with the clinical syndrome. For example, the detection of degenerative changes at the L4–L5 level on MRI does not, by itself, establish that this particular spinal level is the source of the patient's pain. Treatment decisions should be based on symptoms, objective clinical examination findings, functional limitations, patient-specific goals, and the overall consistency of diagnostic findings.

It is important to provide patients with clear information about the nature of the disease, the expected course of recovery, safe physical activity, and strategies for managing recurrence. Prolonged bed rest is generally not recommended; patients should be encouraged to maintain their usual daily activities as tolerated and gradually return to work. The World Health Organization (WHO) considers patient education and physical exercise important components of a broader, individualized approach to the management of chronic primary low back pain [1].

TYPES OF NERVE BLOCKS AND THEIR CLINICAL ROLE

The term "nerve block" encompasses various injection procedures that differ in their anatomical targets and therapeutic objectives. Their outcomes depend on the accurate identification of the pain generator, the medication and technique used, image guidance, and the patient's clinical characteristics. Before performing any procedure, patients should be informed about the expected benefits, alternative treatment options, and potential complications, and their informed consent should be obtained.

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Paravertebral and Myofascial Injections

Paravertebral or myofascial injections may be considered when a pain component originating from local soft tissues or muscles is suspected. These procedures should not be considered equivalent to the treatment of nerve root compression. The WHO recommends against the routine use of local anesthetic injections into soft tissues as part of standard care for chronic primary low back pain. However, this recommendation should not automatically be extrapolated to all types of spinal or epidural injections [4].

The potential advantages include the relatively localized nature of the procedure and the possibility of short-term pain relief in selected patients with myofascial pain. Limitations include variable treatment outcomes, difficulties in accurately identifying the source of pain, and the risk of continuing repeated injections without sufficient supporting evidence. Strict aseptic technique, adequate anatomical knowledge, and accurate calculation of medication dosages are essential.

Facet Joint Injections and Medial Branch Blocks

Degeneration of the facet joints may contribute to axial neck or low back pain in certain patients. However, clinical findings or MRI results alone cannot reliably confirm facet-mediated pain. Medial branch blocks are primarily used to identify pain originating from the facet joints and to assess eligibility for radiofrequency denervation in appropriately selected patients. NICE recommends considering radiofrequency denervation in patients whose conservative treatment has been unsuccessful, whose pain is moderate or severe, and who have demonstrated a positive response to a medial branch block [3].

Facet joint steroid injections, diagnostic medial branch blocks, and radiofrequency denervation are distinct procedures. It is therefore inappropriate to classify them collectively as a single type of "nerve block" and assume that their outcomes are interchangeable. Diagnostic blocks may produce false-positive or false-negative results. Factors such as sedation, injection volume, and the patient's activity level may influence the interpretation of the results.

Selective Nerve Root Blocks

Selective nerve root blocks may be considered for diagnostic or therapeutic purposes when clinical and imaging findings indicate a specific nerve root as the likely source of symptoms. Local anesthetics and corticosteroids may be used in selected cases. Although the procedure targets a specific anatomical structure, its diagnostic accuracy is not absolute, and the therapeutic effect may be temporary.

The main potential advantage is the targeted effect at the symptomatic nerve root level, with the possibility of pain reduction in selected patients. Important limitations and safety considerations include the need for radiological guidance and an experienced operator, the risk of inadvertent intravascular injection, bleeding, infection, nerve injury, and uncertainty regarding the duration of therapeutic effects. Clinical and radiological concordance should remain the principal criterion for patient selection.

Epidural Steroid Injections

Epidural steroid injections involve the administration of medication into the epidural space with the aim of reducing the inflammatory component surrounding the affected nerve root. The

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procedure may be performed through interlaminar, caudal, or transforaminal approaches. The choice of approach depends on the patient's symptoms, anatomical characteristics, the operator's experience, and established safety protocols. This intervention may be considered particularly in selected patients with persistent radicular pain despite conservative treatment, when clinical findings correlate with MRI abnormalities.

A systematic review conducted by the American Academy of Neurology analyzed 90 randomized controlled trials and reported that epidural steroid injections may reduce short-term pain and disability in patients with radiculopathy. However, the evidence regarding long-term pain reduction remains insufficient or uncertain [5]. NICE recommends considering epidural injections containing local anesthetics and corticosteroids in patients with acute and severe sciatica, but does not recommend spinal injections for uncomplicated axial low back pain [3].

Blockade types comparison

Treatment	Home goal	Probable advantage	Important limitation / risk
Paravertebral/ myofascial injection	Soft tissue or myofascial pain component	Some in patients short term relief	Chronic nonspecific waist in pain regular application evidence limited ; infection , hematoma
Facet /medial branch block	Facet the pain evaluation ; radiofrequency for treatment choice	Selected in case diagnostic information	Wrong positive / negative result ; technical and interpretation problems
Selective nerve root blockade	Specific root with related radicular symptoms	Targeted , some in cases diagnostic and therapeutic help	Nerve/ vessel injury , blood infection ; impact variable
Epidural steroid injection	In radiculopathy inflammation and the pain reduce	Short term pain / function improvement possible	Far term benefit unclear ; scarce occurring serious neurological complications
Radio frequency denervation	Selected facet medial branch nerve in pain thermal influence	Some in patients farther pain lightness	Only right chosen patient ; diagnostic blockade demand is done ; effectiveness is not guaranteed

ADVANTAGES AND DISADVANTAGES OF NERVE BLOCKS

Potential Benefits

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First, in appropriately selected patients, short-term pain reduction may help facilitate physical exercise, improve sleep, and restore daily activities. Second, selective or diagnostic nerve blocks may provide additional information about the source of pain in certain clinical situations. Third, in some patients with severe radicular pain, these procedures may serve as one of the conservative treatment options before a decision regarding surgery is made. However, these outcomes are not consistent across all patients [3,5,6].

Limitations and Safety Considerations

The main limitation is that the effects are often short-lived, while their impact on the long-term natural course of pain remains uncertain. Repeated procedures without documented clinical benefit may increase both costs and risks. Corticosteroids may cause a transient increase in blood glucose levels, changes in blood pressure or mood, sleep disturbances, and other systemic effects. Particular attention should be paid to patients receiving anticoagulants, those with coagulopathies, active infections, drug allergies, pregnancy, or uncontrolled metabolic disorders, in whom the associated risks must be assessed individually.

Although uncommon, epidural and transforaminal procedures carry potential risks, including epidural hematoma, abscess, meningitis, dural puncture, nerve injury, and serious neurological complications. Image guidance, appropriate use of contrast agents, strict aseptic technique, sound anatomical knowledge, selection of suitable medications, and post-procedural monitoring are essential for reducing these risks. Technical aspects, which should be determined in accordance with local protocols and the practitioner's level of expertise, must comply with the standards of the relevant clinical institution. This review is not intended to serve as a practical procedural guide [5,6].

INDICATIONS FOR SURGICAL TREATMENT

The decision to perform surgery for an intervertebral disc herniation should not be based solely on MRI findings. The assessment should take into account the concordance between clinical symptoms and radiological findings, the severity of pain or functional impairment, and the inadequate response to conservative treatment. NICE recommends considering spinal decompression in patients with sciatica when nonsurgical treatment has failed to improve pain or function and radiological findings are consistent with the clinical symptoms [3].

Suspected cauda equina syndrome, rapidly progressive motor weakness, or spinal cord compression requires urgent evaluation. Depending on the clinical presentation, planned surgical options may include microdiscectomy, decompression, or other procedures. Surgery also carries potential risks, such as bleeding, infection, dural injury, persistent symptoms, or recurrence. Therefore, the decision should be made through shared decision-making between the patient and the treating physician.

STEP-BY-STEP ALGORITHM FOR CLINICAL PRACTICE

Stage	Clinical movement	Home goal
1. Initial assessment	History , neurological red , yellow flags and motor deficit check	Urgent the situation passing not to send
2. Syndrome determination	Axial pain , radicular pain ,	Treatment the way right

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	myelopathy or other the reason distinction	choice
3. Descriptive inspection	MRI/ CT only clinical necessity and of the result to the decision to the effect looking at to order	Random findings excess interpretation not to do
4. First stage treatment	Activity , individual exercise / rehabilitation , safe pharmacotherapy	Function restoration and symptoms management
5. Repeat assessment	Pain , neurological status , daily activity and to the cure the answer measurement	Treatment the effect objective assessment
6. Intervention treatment	Only clear clinical instruction , suitable inspections , consent and safe under the circumstances	Selected in the patient short term symptomatic relief
7. Surgery consultation	Progressive deficit , urgency characters or enough nonsurgical to the cure despite heavy symptoms	Own on time expert decision

The general algorithm provides an overall framework for clinical decision-making; however, it does not replace local clinical protocols, individual patient risk assessment, or specialist evaluation.

The available evidence indicates that there is no single universal treatment approach for degenerative spinal disorders. The term “osteochondrosis” may encompass various clinical phenotypes, including nonspecific axial pain, discogenic pain, radiculopathy, facet-mediated pain, and stenosis-related symptoms. Therefore, recommending the same medication, nerve block, or course of physiotherapy for all patients is not scientifically justified.

The WHO guidelines emphasize patient education, exercise, and a biopsychosocial approach to the management of chronic primary low back pain [1]. NICE does not recommend spinal injections for axial low back pain; however, it allows consideration of epidural injections in patients with acute and severe sciatica [3]. The AAN review indicates that epidural steroid injections (ESIs) may provide short-term benefits in radiculopathy, whereas their long-term effects remain uncertain [5]. Differences between these recommendations can largely be explained by variations in the patient populations and clinical questions addressed.

In clinical practice, the success of a nerve block should not be assessed solely on the basis of pain reduction during the first few hours after the procedure. Outcomes should be evaluated over a predefined period using pain intensity, functional status, medication consumption, and the ability to perform daily activities. Systematic documentation of post-procedural follow-up data is important for local clinical audits and future research.

In Uzbekistan, a cost-effective approach would involve strengthening clinical assessment and patient education at the primary healthcare level, expanding access to rehabilitation services, using MRI when clinically indicated, and restricting interventional procedures to appropriately equipped

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settings with qualified specialists. Prospective observational studies or registries could be established to evaluate local clinical outcomes. Such studies should systematically record pain scores, the Oswestry Disability Index (ODI), return-to-work rates, repeat procedures, complications, and healthcare costs.

CONCLUSIONS

1. Degenerative changes of the spine and intervertebral disc herniations may give rise to different clinical syndromes. Imaging findings should be interpreted in conjunction with clinical symptoms and neurological examination results.
2. For most patients, the foundation of treatment consists of patient education, maintenance of physical activity, individualized exercise and rehabilitation programs, and safe, short-term pharmacological management.
3. Epidural steroid injections may reduce pain and functional limitations in the short term in selected cases of radiculopathy; however, long-term benefits are not guaranteed.
4. Paravertebral, facet joint, selective nerve root, and epidural blocks have different clinical objectives and evidence bases; therefore, they should not be regarded as interchangeable procedures.
5. Nerve blocks do not anatomically eliminate intervertebral disc herniation and cannot replace rehabilitation. They should be used only as part of comprehensive management, with clear clinical indications, informed consent, appropriate risk assessment, and adequate safety measures.
6. Progressive motor deficits or suspected cauda equina syndrome require urgent specialist assessment. Conservative or interventional procedures should not delay surgical consultation.

REFERENCES

1. World Health Organization. WHO guideline for non-surgical management of chronic primary low back pain in adults in primary and community care settings. Geneva: WHO; 2023. https://www.who.int/publications/i/item/9789240081789
2. Evidence-Based Interventions. Low back pain imaging. Academy of Medical Royal Colleges; reviewed September 2024. https://ebi.aomrc.org.uk/interventions/low-back-pain-imaging-2/
3. National Institute for Health and Care Excellence (NICE). Low back pain and sciatica in over 16s: assessment and management. NICE guideline NG59. Updated 29 July 2026. https://www.nice.org.uk/guidance/ng59/chapter/recommendations
4. World Health Organization. Evidence and recommendations: WHO guideline for non-surgical management of chronic primary low back pain in adults. NCBI Bookshelf. https://www.ncbi.nlm.nih.gov/books/NBK599213/
5. Armon C, Argoff CE, Samuels J, Backonja MM. Epidural Steroids for Cervical and Lumbar Radicular Pain and Spinal Stenosis: A Systematic Review Summary. Report of the AAN Guidelines Subcommittee. Neurology. 2025. PubMed PMID: 39938000. https://pubmed.ncbi.nlm.nih.gov/39938000/
6. North American Spine Society. Diagnosis and Treatment of Lumbar Disc Herniation with Radiculopathy. Clinical Guidelines. https://www.spine.org/documents/researchclinicalcare/guidelines/lumbardischerniation.pdf
7. Hayden JA, Ellis J, Ogilvie R, Malmivaara A, van Tulder MW. Exercise therapy for chronic low back pain. Cochrane Database of Systematic Reviews / evidence summarized in systematic

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

review informing WHO guideline. 2023. PubMed PMID: 37991647. https://pubmed.ncbi.nlm.nih.gov/37991647/

8. South Korea Clinical Practice Guideline Group. Evidence-Based Clinical Practice Guidelines for Patients With Lumbar Disc Herniation With Radiculopathy in South Korea. 2025. https://pmc.ncbi.nlm.nih.gov/articles/PMC12242740/
9. American College of Radiology. ACR Appropriateness Criteria: Low Back Pain. Updated clinical imaging recommendations. https://acsearch.acr.org/docs/5/related/
10. Maharty DC, Hines SC. Chronic Low Back Pain in Adults: Evaluation and Management. American Association of Colleges of Osteopathic Medicine; 2024. https://www.aacom.org/detail-pages/research/chronic-low-back-pain-in-adults-evaluation-and-management