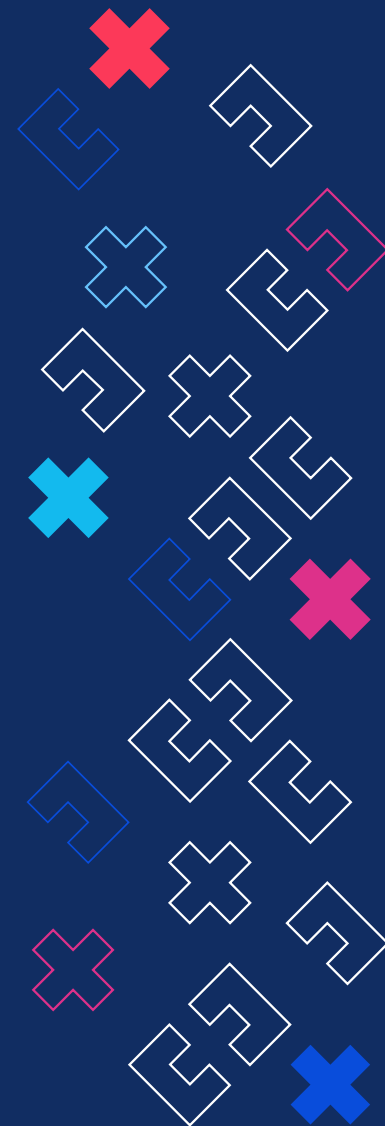


Současný pohled na epidurální aplikaci kortikoidů

MUDr. Ivo Křikava, Ph.D.

Oddělení léčby bolesti FN Brno & Klinika dětské anesteziologie a resuscitace LF MU

18.9.2026



Střet zájmů



Epidemiologie bolestí zad

- náklady spojené s bolestí dolních zad - ročně 100 000 000 000 \$
- celoživotní prevalence je 40 – 70 %
- roční prevalence 10 – 30 %
- u 30 % pacientů s LBP dojde k chronifikaci nebo opakovaným obtížím

Regional Anesthesia and Pain Medicine • Volume 38, Number 3, May-June 2013

Historie

The Epidural Treatment of Sciatica: Its Origin and Evolution

Bastiaan C. Ter Meulen^{a,c} Henry Weinstein^{a,c} Raymond Ostelo^b Peter J. Koehler^d



Year	Country	Description
1885	USA	First spinal puncture by Corning
1895	Germany	Intrathecal infusion of cocaine by Bier
1901	France	First caudal epidural injections by Sicard and Cathelin
1925	Canada	Viner uses novocain to treat sciatica
1930	UK	Evans successfully treats 24/40 patients with procaine
1952	Italy	Robecchi and Capra use corticosteroids for the first time
1953	France	Lièvre et al. [21] publish a series of patients treated with epidural corticosteroids
1961	USA	Goebert et al.: first series in the USA
1960s–1970s		Uncontrolled studies
1970s–now		Randomized, controlled trials

Eur Neurol 2016;75:58–64

DOI: 10.1159/000443729

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The Epidural Treatment of Sciatica: Its Origin and Evolution

Bastiaan C. Ter Meulen^{a, c} Henry Weinstein^{a, c} Raymond Ostelo^b Peter J. Koehler^d

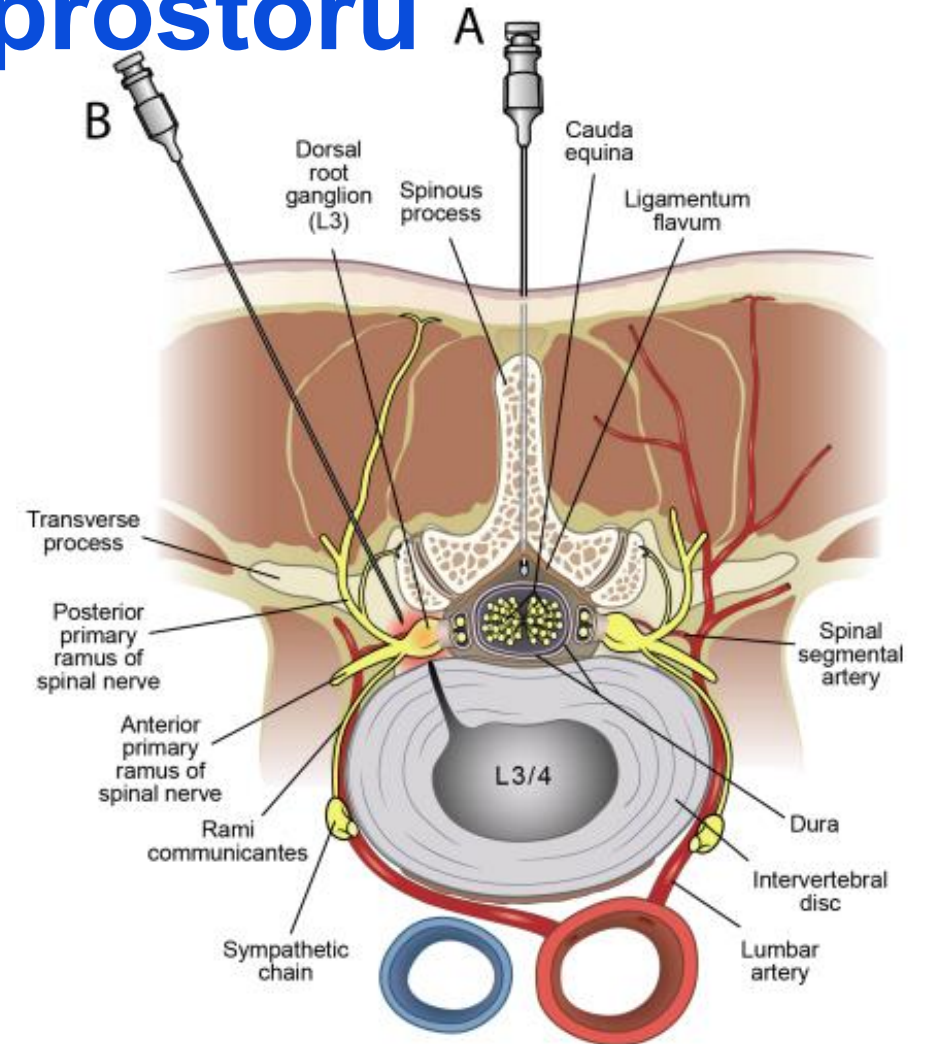
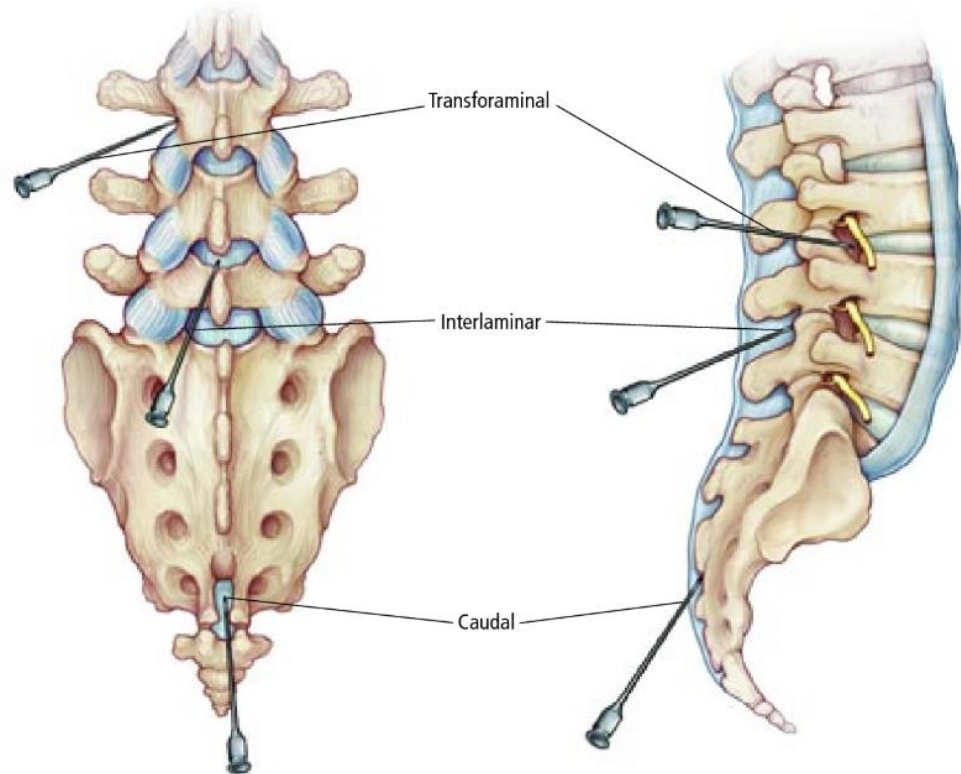
^aDepartment of Neurology, Onze Lieve Vrouwe Gasthuis, and ^bDepartment of Health Sciences, VU University and EMGO Institute for Health and Care Research, Amsterdam, ^cDepartment of Neurology, Zaans Medisch Centrum, Zaandam, and

^dDepartment of Neurology, Atrium Medical Center, Heerlen, The Netherlands

First author, year	n	Study design	Patients with pain relief, %*
Lièvre, 1953	20	Retrospective	25 at 3 weeks
Brown, 1960	20	Retrospective	100 at 52 weeks
Goebert, 1960	239	Retrospective	6 at 12–130 weeks
Gardner, 1961	113	Retrospective	83 at >12 weeks
Winnie, 1972	10	Prospective	100 at 2–104 weeks
Rosen, 1988	40	Retrospective	25 at 1–32 weeks
Power, 1992	16	Retrospective	6 at 1 week
Bowman, 1993	35	Retrospective	43 at 12 weeks

* Definition of ‘pain relief’ = excellent + good + moderate + ‘not severe’.

Přístupy do epidurálního prostoru



McLain, Robert F et al. "Epidural steroids for back and leg pain: mechanism of action and efficacy." *Cleveland Clinic journal of medicine* 71 12 (2004): 961-70 .

Rathmell J. Atlas of Image-Guided Intervention in Regional Anesthesia and Pain Medicine. 2nd ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2012.

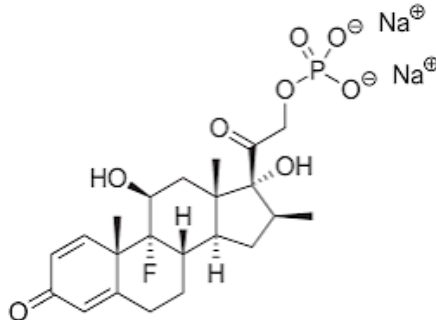
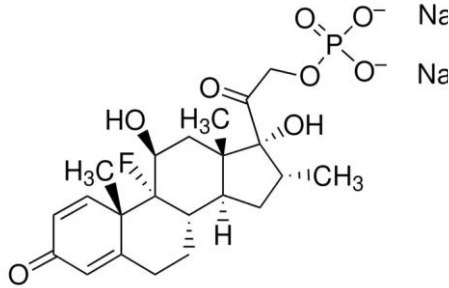
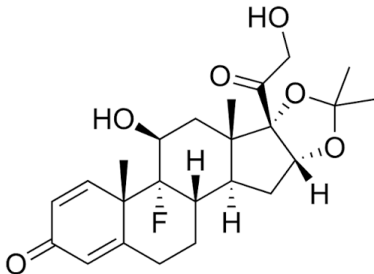
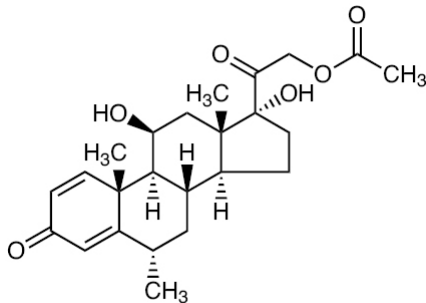
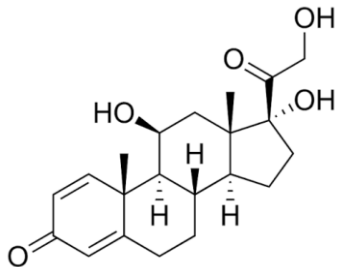
Kortikoidy

Table 1. General characteristics of steroid used in epidural injection

	Betamethasone sodiumphosphate and betamethasone acetate	Methylprednisolone acetate	Triamcinolone acetonide	Dexamethasone sodiumphosphate	Betamethasone sodium phosphate
Dosage form	Suspension	Suspension	Suspension	Solution	Solution
Benzyl alcohol	No	Yes	Yes	Yes	No
Equivalent dose	0.75	4	4	0.75	0.75
Particle, aggregation, packing	Variable	Large	Large	Small	Small
Solubility	Acetate form, insoluble; sodium phosphate form, freely soluble	0.001	0.0002	Soluble	Soluble

Int J Pain 2024;15:80-87
pISSN 2233-4793 / eISSN 2233-4807
<https://doi.org/10.56718/ijp.24-022>

	Metylprednisolon acetát	Triamcinolon acetonid	Dexametason fosfát	Betametason fosfát
forma	suspenze	suspenze	roztok	roztok
ekvivalentní dávka	4	4	0,75	0,75
částice, agregace	velké	velké	mikro	mikro
rozpustnost	0,001	0,0002	rozpustný	rozpustný
epidurální podání	KI	KI	?	NA



Systematic Review

Particulate vs Non-Particulate Steroids for Transforaminal Epidural Steroid Injections: Systematic Review and Meta-analysis of the Current Literature

Jeetinder Kaur Makkar, MD, DNB¹, Preet Mohinder Singh, MD, DNB², Divya Jain, MD¹, and Basavana Goudra, MD, FRCA, FCARSI³

Conclusions: As the use of particulate steroids seems to be associated with slightly better VAS scores only, clinicians need to weigh their clinical relevance in the light of complications and recent FDA recommendations on the use of particulate steroids.

SPINE INTERVENTION SOCIETY
FACTFINDERS FOR PATIENT SAFETY

Particulate or Non-Particulate Steroids for Lumbar Transforaminal Injections

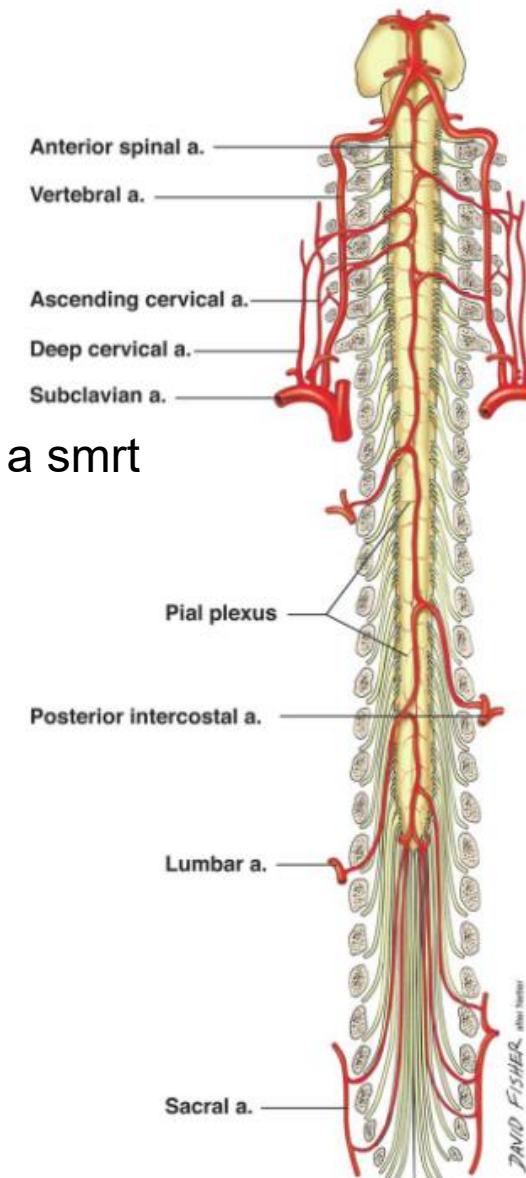
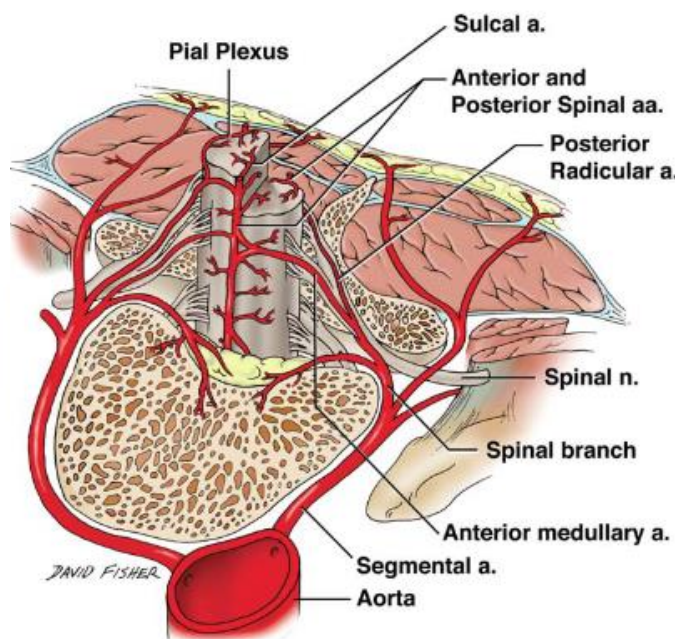
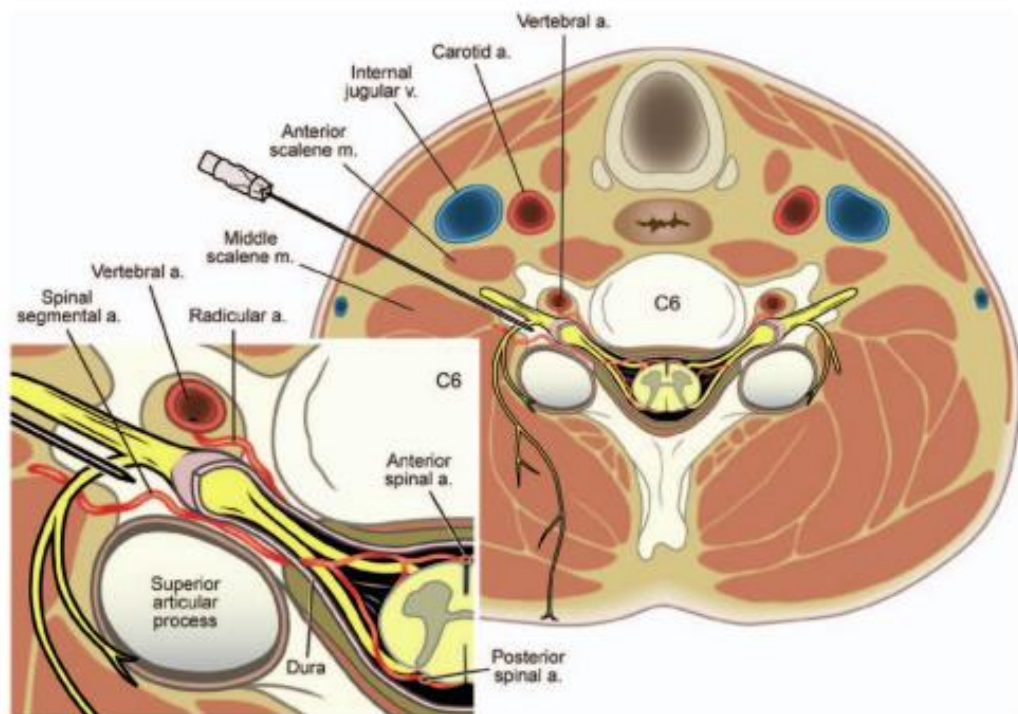
Byron Schneider, MD; Zachary McCormick, MD; and Clark Smith, MD, MPH on behalf of the Spine Intervention Society's Patient Safety Committee

Myth: Particulate steroids are more effective than non-particulate steroids and, therefore, should be preferred for routine use in lumbar transforaminal injections, despite a greater risk profile.

Fact: All particulate corticosteroid preparations have been implicated in rare cases of paraplegia, whereas no definitive evidence exists of paraplegia resulting from injection of non-particulate steroids. Studies directly comparing the effectiveness of particulate and non-particulate steroids largely show no differences between the two, with respect to relief of pain, restoration of function, or rate of spine surgery. There is no evidence-based rationale for routine use of particulate steroids in lumbar transforaminal injections, given the increased risk of paraplegia.

Arteriální embolizace

- spinální infarkt
- paraplegie
- kvadruplegie
- kortikální slepota
- cévní mozková příhoda a smrt



Rathmell J. Atlas of Image-Guided Intervention in Regional Anesthesia and Pain Medicine. 2nd ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2012.

Bosmia, A.N., Hogan, E., Loukas, M., Tubbs, R.S. and Cohen-Gadol, A.A. (2015), Blood supply to the human spinal cord: Part I. Anatomy and hemodynamics. Clin. Anat., 28: 52-64. <https://doi.org/10.1002/ca.22281>

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An update on epidural steroid injections: is there still a role for particulate corticosteroids?

Francis T. Delaney¹  · Peter J. MacMahon^{1,2}

Received: 22 April 2022 / Revised: 14 September 2022 / Accepted: 16 September 2022 / Published online: 29 September 2022
© The Author(s), under exclusive licence to International Skeletal Society (ISS) 2022

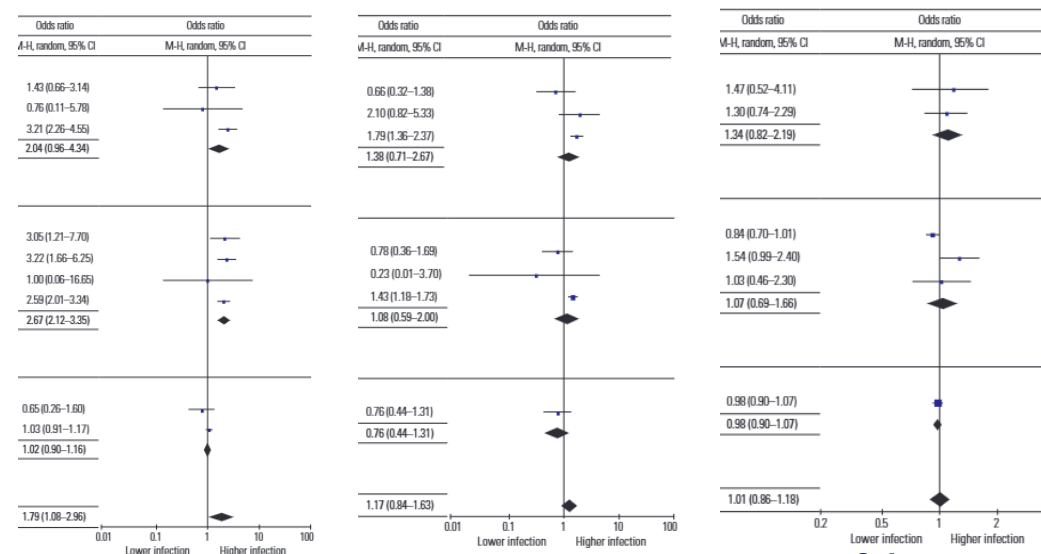
Současná role partikulárních kortikosteroidů u ESI by měla být omezena na **kaudální a interlaminární injekce** nebo transforaminální injekce v bederní oblasti pouze v případě, že počáteční nepartikulární ESI vedla k významnému, ale krátkodobému zlepšení.

Odstup od operačního výkonu

- Singla, Anuj et al. “The impact of preoperative epidural injections on postoperative infection in lumbar fusion surgery.” *Journal of neurosurgery. Spine* 26 5 (2017): 645-649.
 - **odstup 3 měsíce**
- Patel, Harshadkumar A. et al. “Lumbar Spinal Steroid Injections and Infection Risk after Spinal Surgery: A Systematic Review and Meta-Analysis.” *Asian Spine Journal* 16 (2022): 947 - 957.
 - **odstup 1 měsíc**
- Hooten W, Eberhart N, Cao F ...Preoperative Epidural Steroid Injections and Postoperative Infections After Lumbar or Cervical Spine Surgery: A Systematic Review and Meta-Analysis, *Mayo Clinic Proceedings: Innovations, Quality & Outcomes* , 2023; 7, 349-365

TABLE 2. Postoperative infection risk in the control group versus the injection group

Variable	Control Group	Injection Group		
		0–1 Mo	1–3 Mos	3–6 Mos
No. of individuals	70,857	1699	5491	10,493
No. of postop infections (%)	1089 (1.5)	66 (3.9)	120 (2.2)	136 (1.3)
OR (95% CI)		2.6 (2.0–3.3)	1.4 (1.2–1.7)	0.8 (0.7–1.0)
p value		<0.0001	0.0002	0.06



Review

Recommendations for Diagnosis and Treatment of Lumbosacral Radicular Pain: A Systematic Review of Clinical Practice Guidelines

Ahmad Khoshal Khorami ¹, Crystian B. Oliveira ^{2,3}, Christopher G. Maher ^{3,4}, Patrick J. E. Bindels ¹, Gustavo C. Machado ^{3,4}, Rafael Z. Pinto ⁵, Bart W. Koes ^{1,6} and Alessandro Chiarotto ^{1,*}

Title Guideline	Year	Country	Professional Bodies/ Abbreviation
Low back disorders	2016	USA	American College of Occupational and Environmental Medicine (ACOEM [28])
Diagnostic Imaging for Low Back Pain: Advice for High-Value Health Care From the American College of Physicians	2011	USA	American College of Physicians (ACP [29])
Diagnosis and Treatment of Low Back Pain: A Joint Clinical Practice Guideline from the American College of Physicians and the American Pain Society	2007	USA	American College of Physicians and the American Pain Society (ACP-APS [30])
ACR Appropriateness Criteria Low Back Pain	2016	USA	American College of Radiology (ACR [31])
Interventional Therapies, Surgery, and Interdisciplinary Rehabilitation for Low Back Pain	2009	USA	American Pain Society (APS [32])
Low Back Pain: Clinical Practice Guidelines Linked to the International Classification of Functioning, Disability, and Health from the Orthopedic Section of the American Physical Therapy Association	2012	USA	Orthopedic Section of the American Physical Therapy Association (APTA [33])
An Update of Comprehensive Evidence-Based Guidelines for Interventional Techniques in Chronic Spinal Pain. Part II: Guidance and Recommendations	2013	USA	American Society of Interventional Pain Physicians (ASIPP [34])
Spinal Manipulative Therapy and Other Conservative Treatments for Low Back Pain: A Guideline From the Canadian Chiropractic Guideline Initiative	2018	Canada	Canadian Chiropractic Guideline Initiative (CCGI [35])

Title Guideline	Year	Country	Professional Bodies/ Abbreviation
Low Back Pain medical Treatment Guidelines	2014	USA	Department of Labor and Employment, Division of Worker's Compensation (DLE-DWC [36])
European guidelines for the management of chronic non-specific low back pain	2004	Europe	European Commission, Research Directorate-General, department of Policy, Coordination and Strategy (EG [37])
Adult Acute and Subacute Low Back Pain Diagnosis Algorithm	2018	USA	Institute for Clinical Systems Improvement (ICSI [38])
Diagnostic therapeutic flow-charts for low back pain patients: the Italian clinical guideline	2006	Italy	Italian Health Ministry-Care and Research Institute Fondazione Don Carlo Gnocchi ONLUS of Milan (IHM [39])
Low back pain and radicular pain: assessment and management	2017	Belgian	Belgian Health Care Knowledge Center (KCE [40])
Korean medicine clinical practice guideline for lumbar herniated intervertebral disc in adults	2017	Korea	The Korea Institute of Oriental Medicine (KIOM [41])
Clinical Guideline for the Diagnosis and Treatment of Lumbar Disc Herniation with Radiculopathy	2012	USA	North American Spine Society (NASS [42])
National Clinical Guideline: interventions for recent onset lumbar radiculopathy	2016	Denmark	National Board of Health (Denmark) (NBHD [43])
Acute low back pain Interdisciplinary clinical guidelines	2007	Norway	The Norwegian Back Pain Network and an interdisciplinary working group (NBPN [44])
NHG-Standaard Lumbosacraal radiculair syndroom	2015	Netherlands	Dutch General Practitioners Society (NHG [45])
Low back pain and sciatica in over 16s: assessment and management	2016	UK	National Institute for Health and Care Excellence (NICE [46])
Clinical Practice Guidelines on the Diagnosis and Management of LBP	2011	Philippines	Philippine Academy of Rehabilitation Medicine PARM [47])
Evidence-Informed Primary Care Management of Low Back Pain	2015	Canada	Institute of Health Economics Toward Optimized Practice (TOP [48])
Acute Low Back Pain	2010	USA	The University of Michigan Health System (UMHS [49])
VA/Do clinical practice guideline for diagnosis and treatment of low back pain	2017	USA	Department of Veterans Affairs and Department of Defense (Va/Dod [50])

Review

Recommendations for Diagnosis and Treatment of Lumbosacral Radicular Pain: A Systematic Review of Clinical Practice Guidelines

Ahmad Khoshal Khorami ¹, Crystian B. Oliveira ^{2,3}, Christopher G. Maher ^{3,4}, Patrick J. E. Bindels ¹, Gustavo C. Machado ^{3,4}, Rafael Z. Pinto ⁵, Bart W. Koes ^{1,6} and Alessandro Chiarotto ^{1,*}

Guideline	AGREE Domains							
Guideline *	Scope and Purpose, %	Stakeholder Involvement, %	Rigor of Development, %	Clarity of Presentation, %	Applicability, %	Editorial Independence, %	Overall Assessment, %	Quality
ACOEM	58	44	50	100	23	92	61	Low
ACP	86	36	11	83	46	100	60	Average
ACP-APS	97	47	76	94	46	96	76	Average
ACR	14	17	81	67	0	17	33	Low
APS	100	67	94	94	60	96	85	High
APTA	81	47	72	89	0	0	48	Average
ASIPP	83	64	72	67	29	96	68	High
CCGI	92	72	74	58	33	67	66	Average
DLE-DWC	17	11	0	72	2	0	17	Low
EG	72	64	70	92	33	38	61	Average
ICSI	83	69	76	92	60	92	79	High
IHM	61	58	68	83	50	25	58	Average
KCE	97	75	88	86	77	100	87	High
KIOM	78	28	76	81	6	83	59	Average
NASS	83	61	75	78	17	92	68	High
NBHD	86	47	91	97	60	96	80	High
NBPN	89	83	83	94	29	100	80	High
NHG	83	56	58	89	25	33	57	Low
NICE	97	94	95	97	71	100	92	High
PRAM	72	25	31	81	38	0	41	Low
TOP	94	78	84	94	73	96	87	High
UMHS	56	25	57	94	6	92	55	Low
VA/Dod	94	92	77	83	44	67	76	High
Mean	77	55	68	85	36	69	65	



Review

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Pharmacological interventions

Paracetamol	KCE PARM ACOEM IHM UMHS NHG NBPN	Inconsistent	None
Non-steroidal anti-inflammatory drugs (NSAIDs)	KCE ICSI PARM ACOEM IHM NHG NBPN	Inconsistent	None
Opioids	NICE KCE PARM IHM NHG NBPN	Inconsistent	None
Paracetamol + opioids	IHM NHG NBPN	Inconsistent	None
Anti-epilepticum	KCE VA/Dod PARM ACOEM NASS NICE NHG	Inconsistent	None

Non-Invasive Interventions	Guideline *	Consistency	Clinical Inference
Muscle relaxants	KCE ICSI PARM ACOEM IHM NHG NBPN	Inconsistent	None
Antidepressants	NASS NICE KCE ACOEM NHG VA/Dod PARM ACOEM DLE-DWC NHG ACP-APS	Inconsistent	None
Corticosteroids	KCE ACOEM DLE-DWC NHG ACP-APS	Inconsistent	None
Antibiotics	KCE ACOEM	Inconsistent	None
Cannabis	NICE NHG	Consistent	Do not do

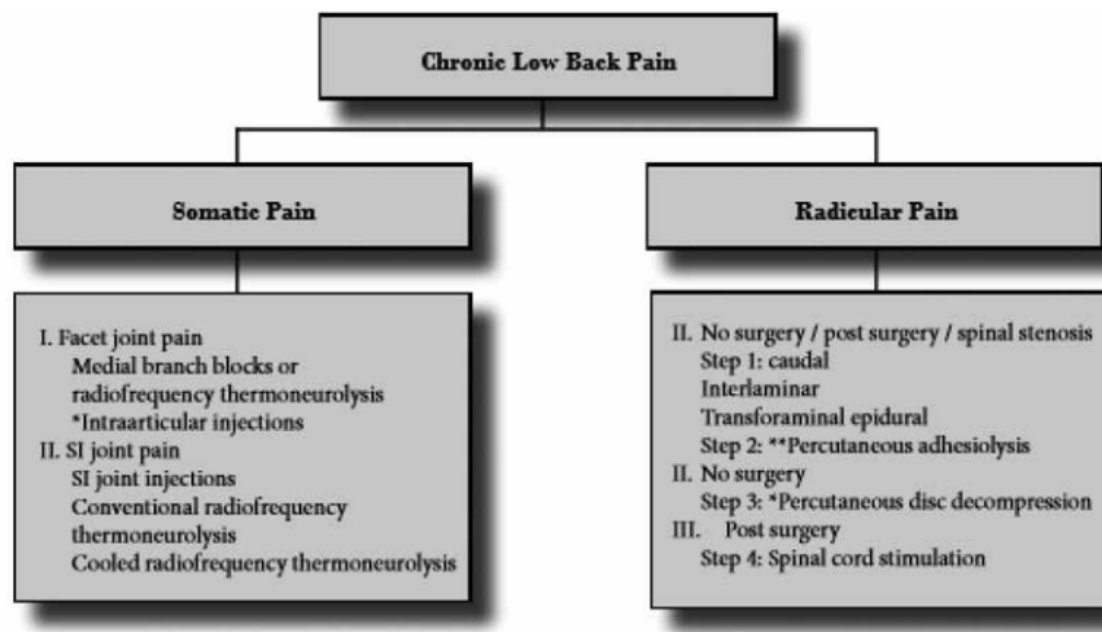
Invasive Treatments

Surgery	NASS APS NHG DLE-DWC IHM ACOEM NBPN	Common	Could do
Injection therapies Epidural injections	NICE NASS KCE VA/Dod ICSI NBHD PRAM ACOEM ACP NHG NBPN APS PRAM IHM NHG	Inconsistent	None
Referral		Consistent	Should do

Epidural Guidelines

e Epidural Interventions in the Management of Chronic Spinal Pain: American Society of Interventional Pain Physicians (ASIPP) Comprehensive Evidence-Based Guidelines

Laxmaiah Manchikanti, MD, Nebojsa Nick Knezevic, MD, PhD, Annu Navani, MD,



*Evidence is limited

**Evidence available only for post surgery syndrome and spinal stenosis

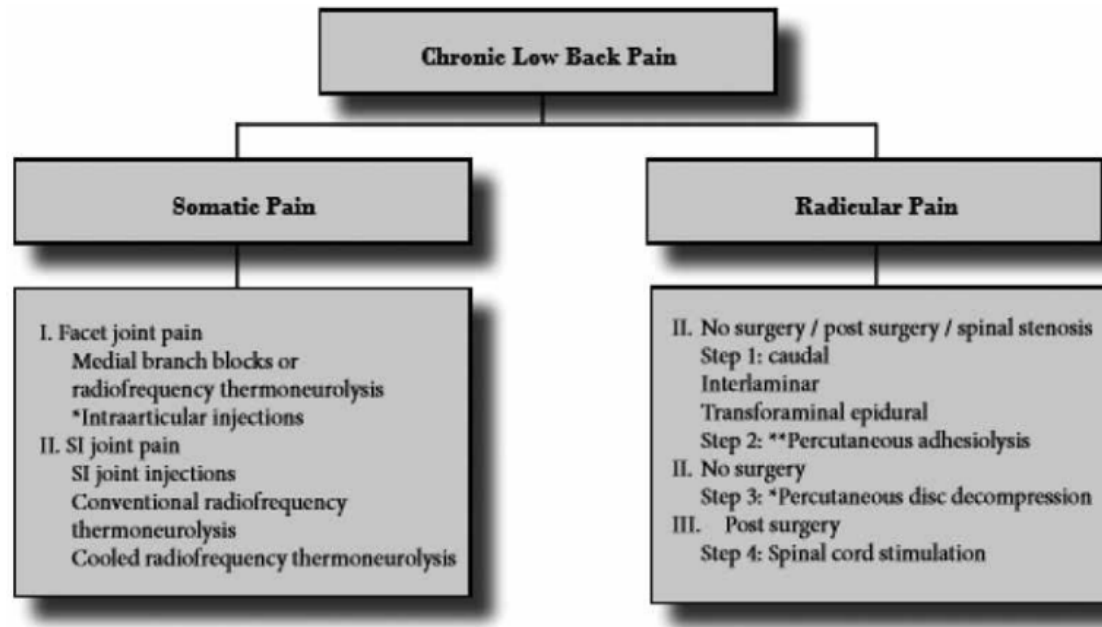
Indikace pro epidurální aplikaci:

- Chronická bolest v dolní části zad a/nebo dolních končetin trvající nejméně 3 měsíce, která nereaguje nebo reaguje špatně na neintervenční a nechirurgickou konzervativní léčbu v důsledku:
 - Výhřezu ploténky/lumbální radikulitidy
 - Lumbální spinální stenózy
 - Syndromu po operaci bederní páteře
 - Axiální nebo diskogenní bolest dolní části zad bez facetové bolesti kloubu nebo bolesti sakroiliakálního kloubu nebo herniace disku
- Středně silná až silná bolest způsobující funkční postižení
- Lumbální interlaminární zákrok lze provést u pooperačního syndromu pouze tehdy, pokud je přístup do epidurálního prostoru mimo jizvu (preferovanými metodami jsou kaudální a transforaminální zákrok)
- Akutní prokázaná herniace disku s radikulitidou s invalidizující bolestí nebo k vyhnutí se chirurgickému zákroku, herpes zoster, postherpetická neuralgie, KRBS I a II, epidurální injekce lze provést dle uvážení lékaře bez výše uvedených požadavků.

Epidural Guidelines

Epidural Interventions in the Management of Chronic Spinal Pain: American Society of Interventional Pain Physicians (ASIPP) Comprehensive Evidence-Based Guidelines

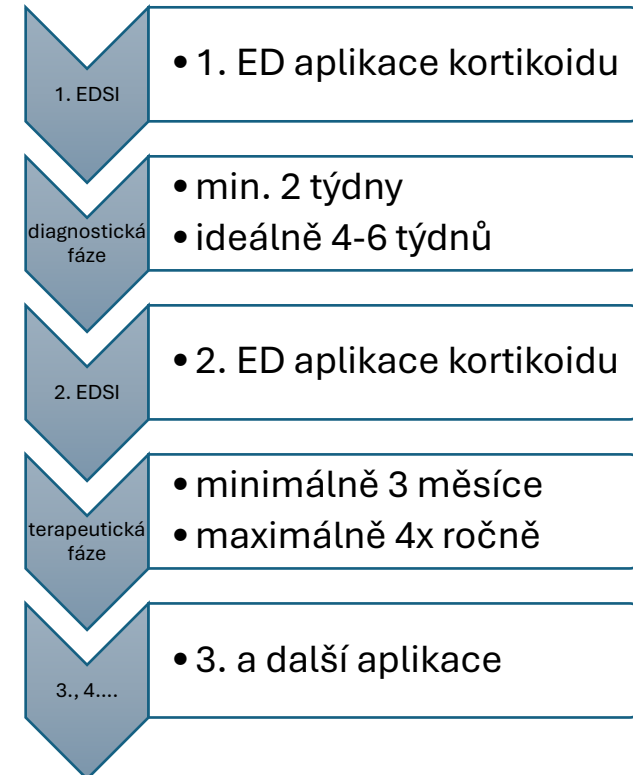
Laxmaiah Manchikanti, MD, Nebojsa Nick Knezevic, MD, PhD, Annu Navani, MD,



*Evidence is limited

**Evidence available only for post surgery syndrome and spinal stenosis

Schéma pro epidurální aplikace:





Low back pain and sciatica in over 16s: assessment and management

NICE guideline

Published: 30 November 2016

Last updated: 29 July 2026

www.nice.org.uk/guidance/ng59

• Radiofrekvenční denervace

- 1.3.2 Zvažte doporučení k posouzení radiofrekvenční denervace u osob s chronickou bolestí dolní části zad, když:
 - nechirurgická léčba u nich nefungovala a
 - hlavní zdroj bolesti je považován za strukturu zásobovanou mediálním nervem a
 - mají středně těžkou nebo těžkou lokalizovanou bolest zad (hodnocena 5 více na vizuální analogové škále, nebo ekvivalentně v době odeslání. [2016])
- 1.3.3 Provádějte pouze radiofrekvenční denervaci u osob s chronickou bolestí dolní části zad po pozitivní odpovědi na diagnostický blok mediální větve. [2016]
- 1.3.4 Nenabízejte zobrazovací vyšetření u lidí s bolestí dolní části zad a specifickou bolestí facetových kloubů jako předpoklad pro radiofrekvenční denervaci. [2016]

• Epidurály

- 1.3.5 Zvažte epidurální injekce lokálního anestetika a steroidů u lidí s **akutním a těžkým ischiasem**. [2016]
- 1.3.6 **Nepoužívejte epidurální injekce pro neurogenní klaudikace u lidí s centrální stenózou páteřního kanálu**. [2016]

Common interventional procedures for chronic non-cancer spine pain: a systematic review and network meta-analysis of randomised trials

Xiaoqin Wang,^{1,2} Grace Martin,³ Behnam Sadeghirad,^{1,3,4} Yaping Chang,⁴ Ivan D Florez,^{5,6,7} Rachel J Couban,^{1,3} Fatemeh Mehrabi,^{8,9} Holly N Crandon,¹ Meisam Abdar Esfahani,³ Laxsanaa Sivananthan,¹⁰ Neil Sengupta,¹¹ Elena Kum,^{4,12} Preksha Rathod,³ Liang Yao,^{1,13} Rami Z Morsi,¹⁴ Stéphane Genevay,¹⁵ Norman Buckley,^{1,3,12} Gordon H Guyatt,⁴ Y Raja Rampersaud,^{16,17} Christopher J Standaert,¹⁸ Thomas Agoritsas,^{4,19,20} Jason W Busse^{1,3,4}

BMJ 2025;388:e079971 | doi: 10.1136/bmj-2024-079971

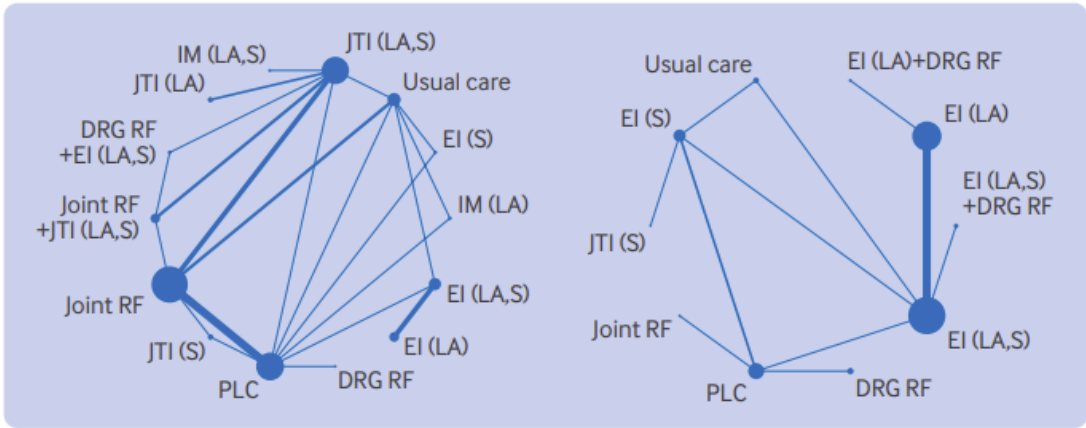


Fig 2 | Network maps of interventional procedures administered for: a. Axial chronic spine pain; b. Radicular chronic spine pain. Abbreviations: DRG RF=Dorsal root ganglion radiofrequency, EI=epidural injection, IM=Intramuscular injection, Joint RF=Joint radiofrequency ablation, JTI=Joint-targeted injection, LA=Local anaesthetic, PLC=Placebo (sham procedure), S=Steroid

3a. Pain relief (VAS 0-10cm, lower scores are better) for chronic axial spine pain

Treatment v placebo	MD (NMA)	RD for achieving MID (95% CI)	COE
EI (LA,S)	0.20 (-1.11 to 1.51)	-3 (-21 to 18)	Moderate
EI (LA)	0.28 (-1.18 to 1.75)	-4 (-23 to 19)	Moderate
JTI (S)	0.83 (-0.26 to 1.93)	-12 (-25 to 4)	Moderate
IM (LA)	-0.53 (-1.97 to 0.92)	9 (-14 to 32)	Low
Usual care	0.15 (-0.56 to 0.85)	-2 (-13 to 9)	Low
JTI (LA,S)	0.22 (-0.42 to 0.87)	-3 (-13 to 7)	Low
EI (S)	0.39 (-0.94 to 1.71)	-6 (-23 to 15)	Low
JTI (LA)	0.63 (-0.57 to 1.83)	-9 (-24 to 9)	Low
IM (LA,S)	1.82 (-0.29 to 3.93)	-24 (-36 to 5)	Low
Joint RF	-0.89 (-1.37 to -0.40)	15 (7 to 23)	Very low
Joint RF+JTI (LA,S)	-0.68 (-1.71 to 0.35)	11 (-5 to 28)	Very low

3b. Pain relief (VAS 0-10cm, lower scores are better) for chronic spine related radicular pain

Treatment v placebo	MD (NMA)	RD for achieving MID (95% CI)	COE
EI (LA,S)	-0.49 (-1.54 to 0.55)	4 (-4 to 16)	Moderate
DRG RF	0.15 (-0.98 to 1.28)	-1 (-8 to 9)	Moderate
EI (S)	-0.56 (-1.30 to 0.17)	5 (-1 to 13)	Low
EI (LA)	-0.26 (-1.37 to 0.84)	2 (-6 to 14)	Low
EI (LA)+DRG RF	-2.26 (-3.97 to -0.56)	26 (5 to 51)	Very low
EI (LA,S)+DRG RF	-0.94 (-2.52 to 0.65)	9 (-5 to 30)	Very low
Usual care	0.49 (-0.71 to 1.70)	-4 (-9 to 6)	Very low

Certainty	Classifications (the higher level, the better effectiveness)
Moderate to high	Category 2: More effective than sham procedures
	Category 1: No more effective than sham procedure
Low to very low	Category 2: May be more effective than sham procedures
	Category 1: May be no more effective than sham procedures

COE = Certainty of evidence, DRG RF = Dorsal root ganglion radiofrequency ablation, EI = Epidural injection, IM = Intramuscular injection, Joint RF = Joint radiofrequency ablation, JTI = Joint-targeted injection, LA = Local anaesthetic, MD (NMA) = Mean difference (network meta-analysis), MID = Minimally important difference (1.5 cm on 10 cm scale), RD = Risk difference (%), S = steroid, VAS = Visual analogue scale

Common interventional procedures for chronic non-cancer spine pain: a systematic review and network meta-analysis of randomised trials

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Treatment v placebo	Relative risk (95% CI) (NMA)	Certainty of evidence
Joint RF	1.56 (1.08 to 2.24)	Low
JTI (LA,S)	1.61 (0.63 to 4.11)	Low
IM (LA,S)	1.38 (0.30 to 6.38)	Low
JTI (LA)	1.73 (0.15 to 19.78)	Very low
IM (LA)	1.72 (0.55 to 5.38)	Very low
EI (LA,S) + DRG RF	1.70 (0.34 to 8.54)	Very low
EI (S)	1.37 (0.82 to 2.28)	Very low
EI (LA,S)	1.13 (0.37 to 3.47)	Very low
JTI (S)	1.07 (0.39 to 2.96)	Very low
DRG RF	1.03 (0.75 to 1.42)	Very low
Usual care	0.95 (0.37 to 2.45)	Very low
EI (LA) + DRG RF	0.92 (0.02 to 52.74)	Very low
EI (LA)	0.92 (0.29 to 2.93)	Very low

Certainty	Classifications (the higher level, the better effectiveness)
Moderate to high	Category 2: More harmful than sham procedures
	Category 1: No more harmful than sham procedures
Low to very low	Category 2: May be more harmful than sham procedures
	Category 1: May be no more harmful than sham procedures

DRG RF = Dorsal root ganglion radiofrequency ablation, EI = Epidural injection, IM = Intramuscular injection, JTI = Joint-targeted injection, LA = Local anaesthetic, NMA = Network meta-analysis, S = steroid

4a. Physical functioning (ODI 0-100 points, lower scores are better) for chronic axial spine pain			
Treatment v placebo	MD (NMA)	RD for achieving MID (95 CI%)	COE
JTI (S)	1.60 (-10.45 to 13.65)	-4 (-23 to 30)	Moderate
JTI (LA,S)	2.78 (-4.95 to 10.51)	-7 (-20 to 14)	Moderate
IM (LA,S)	9.30 (-6.36 to 24.96)	-19 (-28 to 18)	Moderate
IM (LA)	-6.83 (-17.18 to 3.51)	19 (-8 to 48)	Low
Joint RF	-4.56 (-9.97 to 0.85)	13 (-2 to 29)	Low
Joint RF+ JTI (LA,S)	-0.77 (-11.88 to 10.33)	2 (-20 to 34)	Low
JTI (LA)	0.78 (-10.43 to 11.98)	-2 (-22 to 30)	Low
Usual care	3.87 (-2.51 to 10.26)	-9 (-20 to 7)	Low
EI (LA,S)	-21.37 (-35.35 to -7.38)	56 (21 to 69)	Very low
EI (LA)	-21.15 (-36.28 to -6.01)	56 (17 to 69)	Very low

4b. Physical functioning (ODI 0-100 points, lower scores are better) for chronic spine related radicular pain			
Treatment v placebo	MD (NMA)	RD for achieving MID (95 CI%)	COE
EI (LA,S)	-5.97 (-13.07 to 1.13)	17 (-3 to 36)	Moderate
EI (LA)	-4.76 (-12.33 to 2.81)	14 (-8 to 34)	Moderate
DRG RF	-1.35 (-8.50 to 5.80)	4 (-15 to 24)	Moderate
EI (LA,S)+DRG RF	-10.90 (-23.81 to 2.01)	31 (-6 to 53)	Low
EI (S)	-0.89 (-6.20 to 4.41)	3 (-12 to 18)	Low
EI (LA)+DRG RF	-22.72 (-35.04 to -10.41)	52 (29 to 58)	Very low
Usual care	5.97 (-1.81 to 13.75)	-16 (-30 to 5)	Very low

Certainty	Classifications (the higher level, the better effectiveness)
Moderate to high	Category 2: More effective than sham procedures
	Category 1: No more effective than sham procedure
Low to very low	Category 2: May be more effective than sham procedures
	Category 1: May be no more effective than sham procedures

COE = Certainty of evidence, DRG RF = Dorsal root ganglion radiofrequency ablation, EI = Epidural injection, IM = Intramuscular injection, Joint RF = Joint radiofrequency ablation, JTI = Joint-targeted injection, LA = Local anaesthetic, MD (NMA) = Mean difference (network meta-analysis), MID = Minimally important difference (10 points on 100 point scale), ODI = Oswestry Disability Index, RD = Risk difference (%), S = steroid

Fig 5 | Network meta-analysis results, sorted by GRADE certainty of evidence and effect estimate, for the comparisons of interventional procedures versus sham procedures for non-serious adverse events

BMJ Open

Harms of selected spinal and paraspinal injections and denervation procedures for chronic non-cancer spine pain: a systematic review and meta-analysis of non-randomised studies

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Malam F, et al. *BMJ Open* 2026;**16**:e102122. doi:10.1136/bmjopen-2025-102122

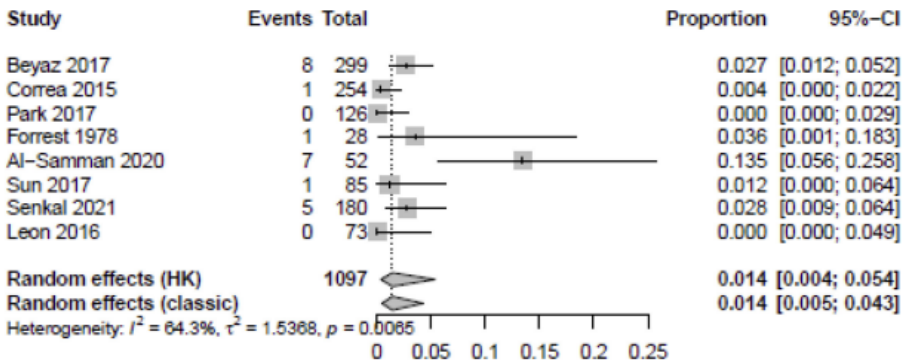


Figure 3 Incidence of dural puncture among people living with chronic spine pain following receipt of an interventional procedure. HK, Hartung-Knapp.

Nízká míra jistoty důkazů naznačuje, že několik běžných intervenčních postupů u chronické bolesti páteře vykazuje riziko hluboké infekce, punkce dury, dočasné změny úrovně vědomí a prodloužené bolesti nebo ztuhlosti. Jiná poškození jsou nejistá kvůli velmi nízké míře jistoty důkazů a katastrofální následky nebyly v malých studiích, které přispěly k našim analýzám, hlášeny.

Adverse event	Types of interventional procedures administered (no. of studies)	No. of studies (range of follow-up)	No. of patients	Incidence (95% CI)	Reasons for downgrading	Certainty of evidence
Deep infection	► Joint radiofrequency ablation (n=3). ► Epidural injection of corticosteroid and local anaesthetic (n=1). ► Joint corticosteroid injection (n=1).	5 (12–90 weeks)	539	0.7% (0.3% to 2.0%)	Risk of bias* Imprecision†	Low‡
Dural puncture	► Epidural corticosteroid injection (n=5). ► Joint radiofrequency ablation (n=2). ► Nerve blocks (n=1).	8 (12–52 weeks)	1097	1.4% (0.5% to 4.3%)	Risk of bias* Imprecision†	Low‡
Temporary altered level of consciousness	► Epidural steroid injection (n=9). ► Joint corticosteroid injection (n=1).	10 (12–52 weeks)	1021	2.1% (1.1% to 4.0%)	Risk of bias*	Low§
Prolonged (>48 hours) sensory deficits	► Dorsal root ganglion radiofrequency (n=2). ► Joint radiofrequency ablation (n=2). ► Joint radiofrequency ablation with corticosteroid injection (n=1).	5 (12–104 weeks)	363	6.8% (2.3% to 18.6%)	Risk of bias* Imprecision†	Very low§
Prolonged (>48) pain or stiffness	► Dorsal root ganglion radiofrequency (n=3). Joint radiofrequency ablation (n=12). ► Joint radiofrequency ablation with corticosteroid injection (n=1).	16 (8–105 weeks)	1132	8.6% (6.3% to 11.6%)	Risk of bias*	Low§

*Uncertain representativeness of the study population and/or accuracy of the assessment of adverse events.
†The associated estimate of precision includes the patient-important threshold (ie, 1% for serious fatal adverse events, such as deep infection and dural puncture; 5% for moderate adverse events).
‡Certainty of evidence began as high based on a strong association between the intervention and observed harm and plausible confounders or other biases increasing confidence in the estimated effect.
§Certainty of evidence began as moderate based on a moderate association between the intervention and observed harm.
GRADE, Grading of Recommendations Assessment, Development and Evaluation.

RAPID RECOMMENDATIONS

Commonly used interventional procedures for non-cancer chronic spine pain: a clinical practice guideline

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Box 2: Categories of interventional procedures administered for chronic spine pain that were considered in the *BMJ* Rapid Recommendations review

- Epidural injection of local anaesthetic
- Epidural steroid injection
- Epidural injection of local anaesthetic and steroids
- Joint-targeted injection of local anaesthetic
- Joint-targeted steroid injection
- Joint-targeted injection of local anaesthetic and steroids
- Intramuscular injection of local anaesthetic
- Intramuscular injection of local anaesthetic and steroids
- Dorsal root ganglion radiofrequency
- Dorsal root ganglion radiofrequency with epidural injection of local anaesthetic
- Dorsal root ganglion radiofrequency with epidural injection of local anaesthetic with steroids
- Joint radiofrequency nerve ablation
- Joint radiofrequency nerve ablation with joint-targeted injection of local anaesthetic and steroids

Population

This recommendation applies only to people with these characteristics:

✓ Adults with chronic spine pain (≥3 months duration)

Cervical spinal level

✓ Axial pain



✓ Radicular pain



Lumbar or sacroiliac spinal level

✓ Axial pain



✓ Radicular pain



Does NOT
apply to:

✗ Acute spine pain
<3 months duration

✗ Chronic spine pain secondary to
cancer inflammatory arthropathy

Strong recommendations AGAINST

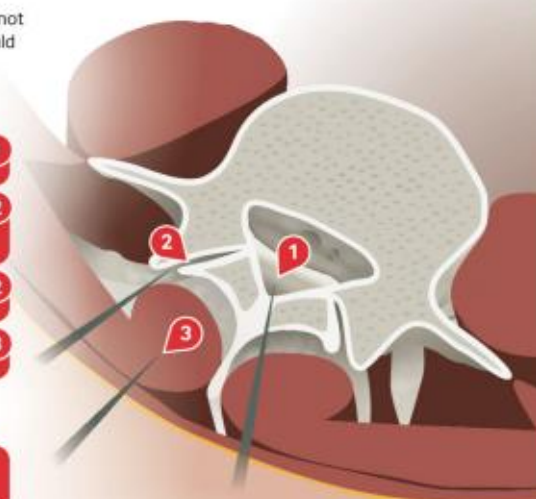
All or nearly all well-informed people would likely not want such interventions. Such interventions should therefore not be offered outside of a clinical trial

Chronic axial spine pain

- ✗ Epidural injection of local anaesthetic, steroids, or their combination (1)
- ✗ Joint radiofrequency ablation with or without joint targeted injection of local anaesthetic and steroids (2)
- ✗ Joint-targeted injection of local anaesthetic, steroids, or their combination (2)
- ✗ Intramuscular injection of local anaesthetic with or without steroids (3)

Chronic radicular spine pain

- ✗ Dorsal root ganglion radiofrequency with or without epidural injection of local anaesthetic, or local anaesthetic and steroids
- ✗ Epidural injection of local anaesthetic, steroids, or their combination (1)



Low Back Pain A Review

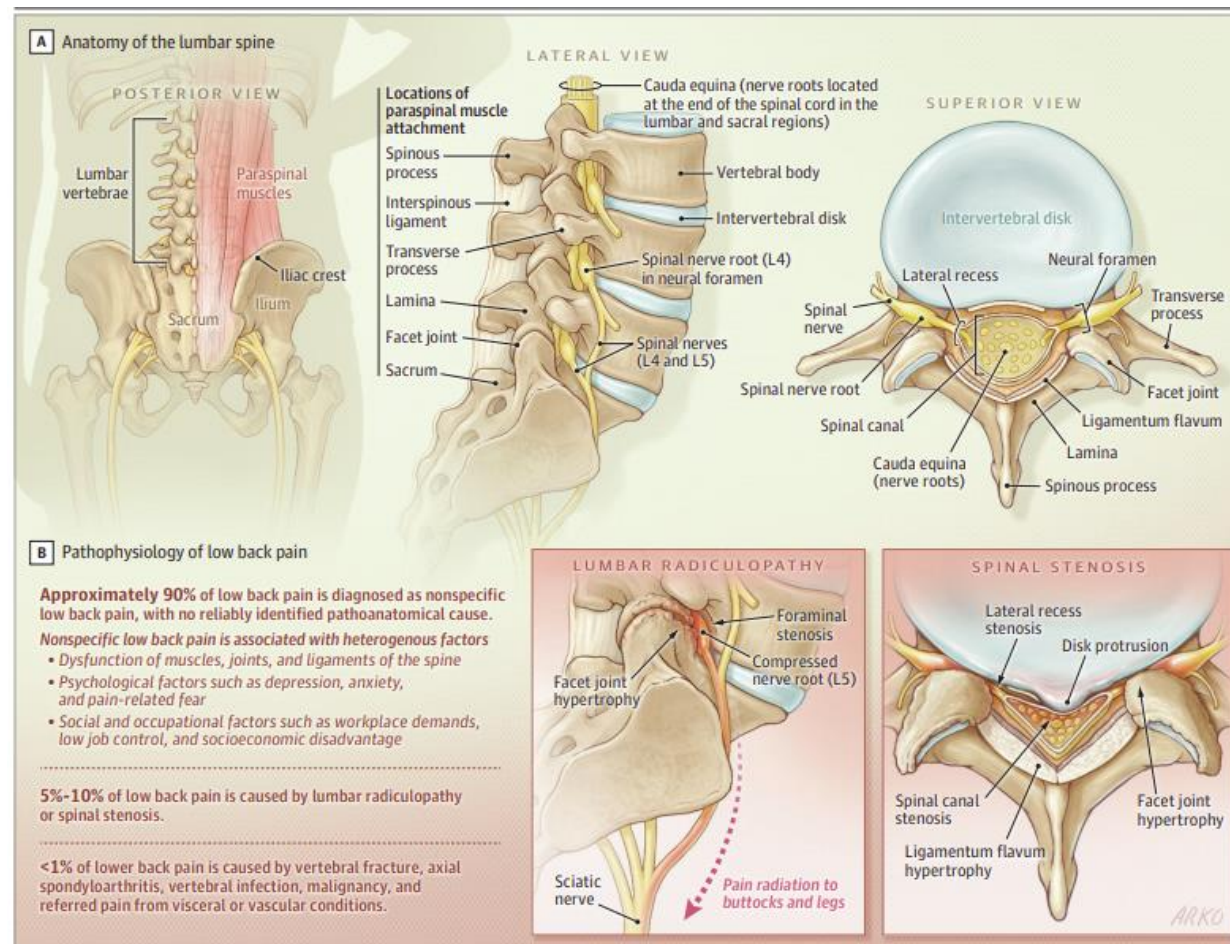
Aidan G. Cashin, PhD; Roger Chou, MD; Melissa B. Weimer, DO, MCR; James H. McAuley, PhD

JAMA. doi:10.1001/jama.2026.9631

Published online June 15, 2026.

Conclusions

Low back pain is a leading cause of disability worldwide. Acute non-specific low back pain is often self-limited, whereas chronic non-specific low back pain has a less favorable prognosis. For patients with acute nonspecific low back pain, first-line treatments include selected nonpharmacological therapies and medications (such as NSAIDs and skeletal muscle relaxants). For patients with chronic nonspecific low back pain, first-line treatment consists of exercise, psychological therapies (such as CBT), and combined multidisciplinary care.



Otázky

- Ize považovat zhoršení bolestí v rámci chronických bolestí za akutní?
- Jak přistupovat k epidurálním zákrokům v rámci předimplantační fáze u SCS?
- Jsou podskupiny pacientů s chronickými bolestmi, které by profitovaly z EDSI?

Take home message

- na chronickou bolest zad nepoužívat blokády
 - používat nepartikulární kortikoidy (dexametason)
 - pro transforaminální přístupy a jiné než bederní interlaminární a kaudální rozhodně
 - používat spíše nižší dávky, vyšší nevedou k zlepšení výsledku
 - neaplikovat kortikoid méně než 1 měsíc (lépe 3) před operací
 - maximálně 3 aplikace během 6 měsíců
-
- Dexametazon 2-4-8 mg
 - (Metylprednizolon acetát 20-40 mg pro bederní interlaminární a kaudální přístup)

Děkuji za pozornost

