

Strengthening Capacities for Higher Education of Pain Medicine in
Western Balkan Countries - HEPMP

Invanzivno lečenje hroničnog bola

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HEPMP
HIGHER EDUCATION PAIN MEDICINE PROJECT

Lečenje hroničnog bola u Srbiji

- Nakon nepotpune rezolucije hroničnog bola (npr. bol u leđima) izabrani lekar upućuje bolesnika neurohirurgu/neurologu/ortopedu
- Pacijenti takođe traže opcije: kiropraktičar, homeopatija..
- Hirurzi- hirurški zahvat- efikasnost krajnje kontroverzna

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Mogući ishodi lečenja

- Epiduralna fibroza nakon op uobičajena- bol i ishemija nervnih korenova
- bol na susednim nivoima kičme skoro neizbežan, skoro nemoguće lečiti bilo kojom metodom
- produženo bolovanje, neželjeni efekti lekova..

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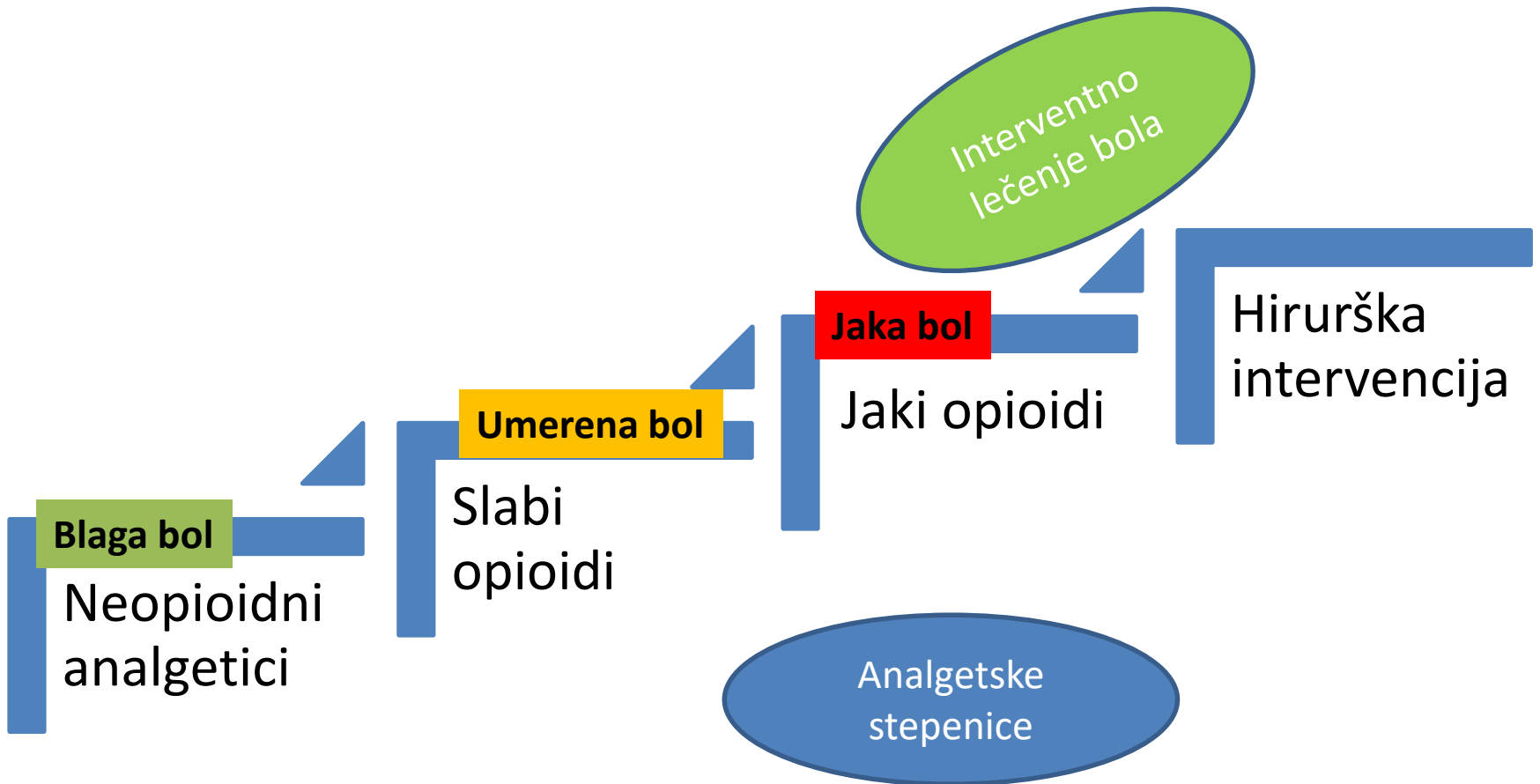
Strengthening Capacities for Higher Education of Pain
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- Hirurška intervencija loša opcija

Šta je interventno lečenje bola?

- Primena minimalno invazivnih tehnika u cilju smanjenja ili eliminisanja bola od strane specijalno obučениh specijalista

Mesto interventnih procedura, ranije



Sada: Analgetski lift

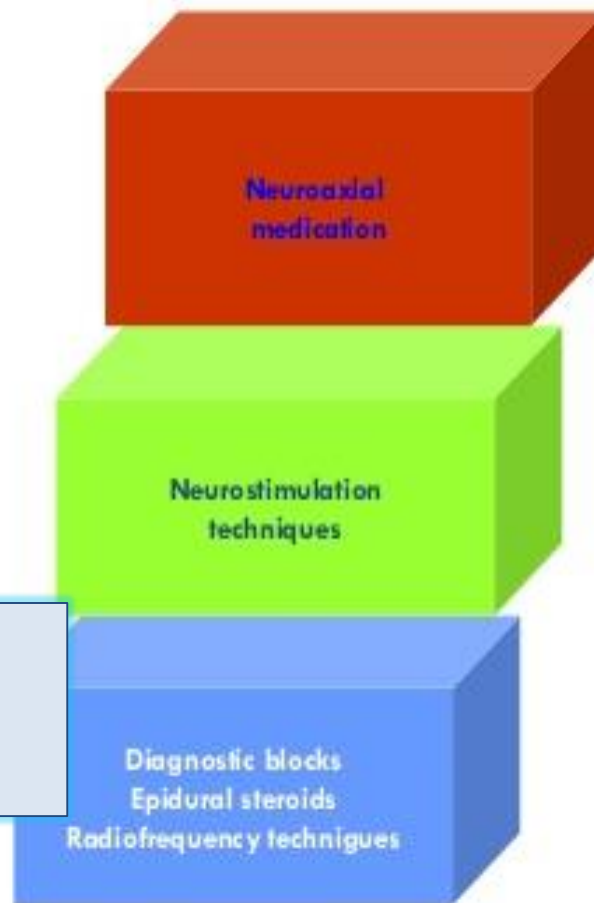
The Chronic Pain Treatment Continuum



ANALGETSKI LIFT

Jaki opioidi i invazivne procedure ODMAH u odnosu na intenzitet bola

Interventional Therapies



Interventno lečenje bola u Srbiji

- **Nedostatak obučenih specijalista za ove procedure**
- Nedostatak obučenih radioloških tehničara (asistiraju prilikom fluoroskopije) i sestara koje prate oporavak bolesnika
- Nedostatak prostora, opreme i lekova
- Koncept Jednodnevne (ambulantne) “hirurgije” ?

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Tri ključna koncepta ILB

- Identifikacija i tretman uzroka bola, po algoritmu minimalno invazivnih procedura
- Adekvatno tretiranje simptoma (medikamentozna, fizikalna Th)
- Edukacija i promena stila života bolesnika, fizikalna Th u cilju maks funkcije i sprečavanja recidiva bola

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Vrste intervencija u okviru ILB

- Prekid prenošenja bolnog signala
- Aplikacija leka na mesto dejstva (pumpe)
- Neuroaugmentacija-stimulacija kičmene moždine, periferna nervna stimulacija
- Korigovanje patološkog supstrata

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Interventno lečenje bola

Osnovne

- Blokada triger tačaka
- Periferni nervni blokovi
- Epiduralne injekcije i neuroaksijalni nervni blokovi
- Blok gangliona stelatuma
- Neurolički blokovi

Napredne

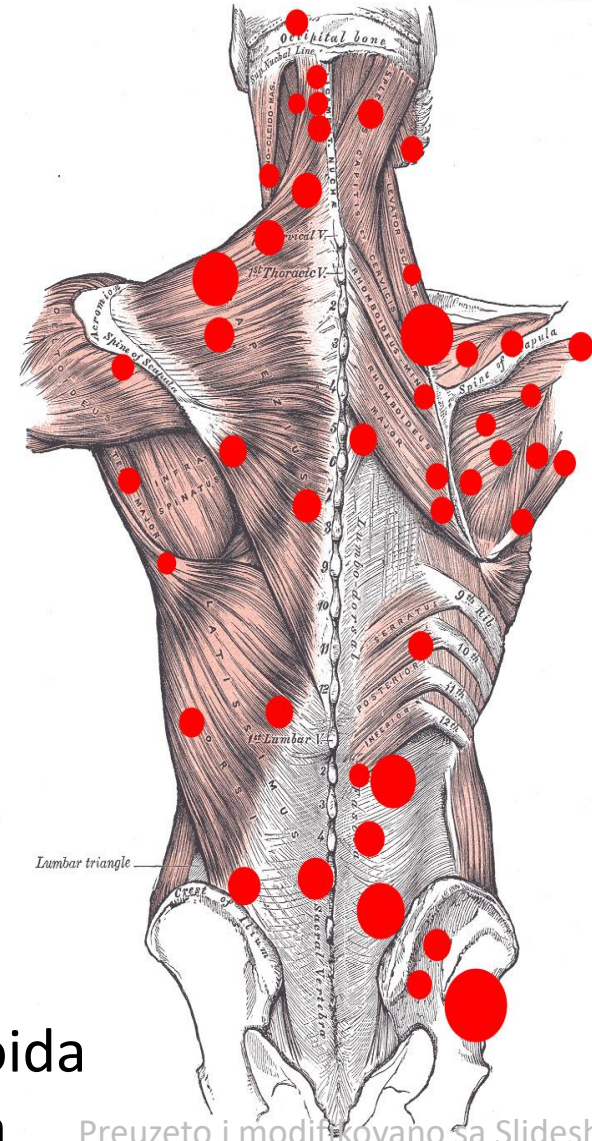
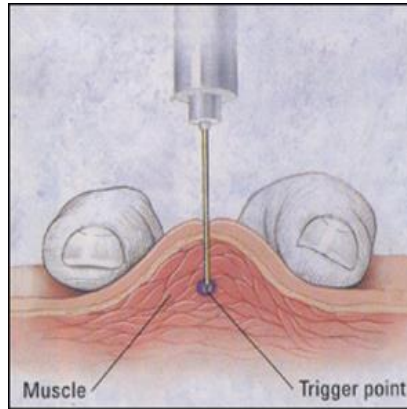
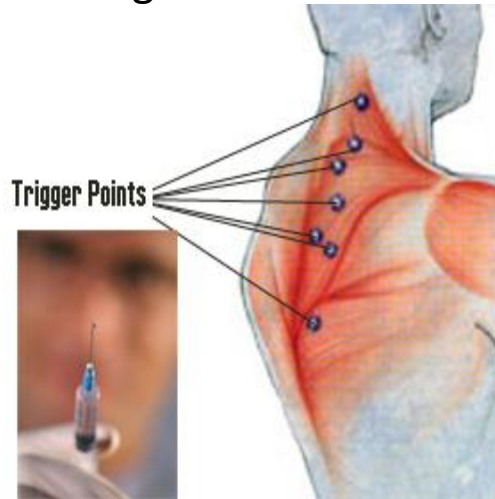
- Procedure na disku
- Radiofrekventna ablacija
- Epiduroskopija
- Stimulacija kičmene moždine
- Implantacija sistema za isporuku lekova

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Lečenje hroničnog bola

Muskulofascijalni bolni sindrom

Blokada triger tačaka



Injekcija lokalnog anestetika i kortikosteroida u tačku okidača bola, ponavlja se 3-7 puta

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Nervni blokovi

- **Dijagnostički-** lokalni anestetik da se potvrdi mehanizam, odnosno simulira efekat terapije
- **Terapijski-** prekida se put prenosa bola, privremeno (lokalni anestetik) ili trajno (litički agens, krio, radifrekventna Th), ili se smanjuje inflamacija (kortikosteroidi)

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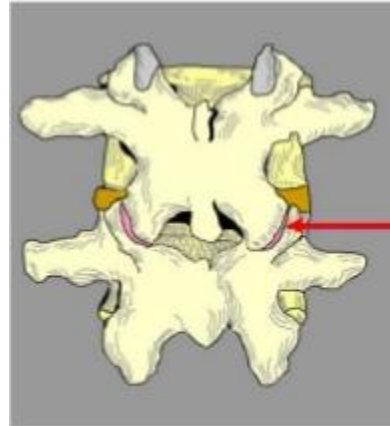
Bol u vratnom i leđnom delu kičme

Kod svih ljudi tokom vremena dolazi do degenerativnih oštećenja pokretnih segmenata kičmenog stuba

- **Fasetni zglob**
 - **Inervertebralni disk**
 - **Sakroilijačni zglob**
 - **Inflamacija nerava**
(radikularni bol)
- Postoje definisani protokoli postupanja zavisno od uzroka bola

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Basic functional units of spine—
motion segments—consist of two
posterior zygapophyseal (facet)
joints and an intervertebral disc,
forming a tri-joint complex



Zygapophyseal
joint

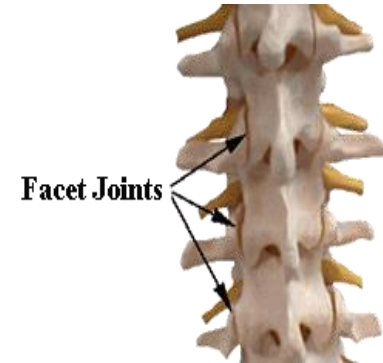
Examples of Disc Problems



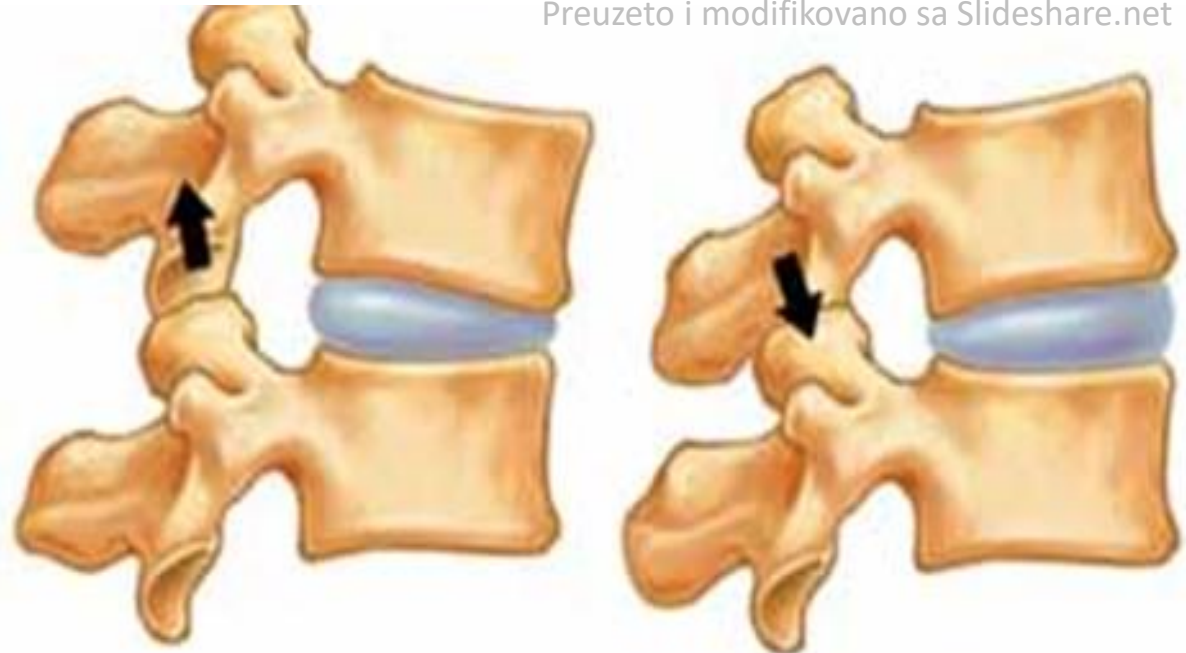
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Fasetni sindrom

- Uzrok bola u 40% slučajeva
- Stalni bolovi pogoršani rotacijom i istežanjem
- Bol zrači u nogu ili glutealni predeo,
- Osteljivost u predelu zglobova ,
- Paravertebralni grč mišića



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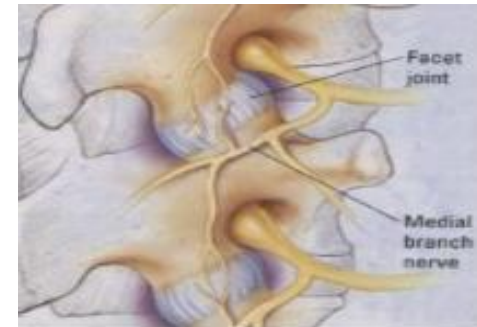


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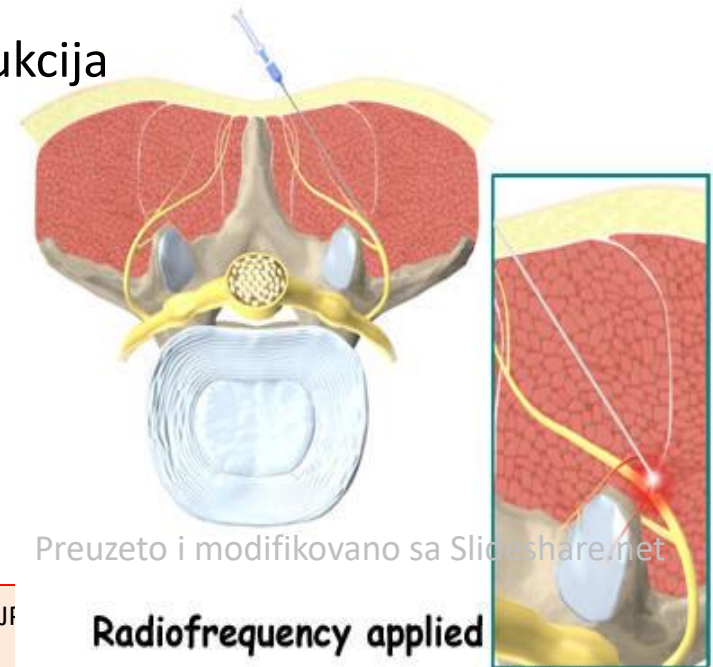
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Radiofrekventna ablacija nerava (RFA)

- **blokiranje** (anestetik), ili **radiofrekventna neurotomija (destruktivna)** dve medijalne grane dorzalnog spinalnog nerva koje inervišu svaki fasetni zglob. Polutrajno se prekida kondukcija bolnog impulsa kroz C vlakana
- Oporavak nerva nakon 6-18 meseci
- Selektivna **pulsna radifrekventna TH (nedestruktivna)** određenog nervnog korena



Microelectrode inserted

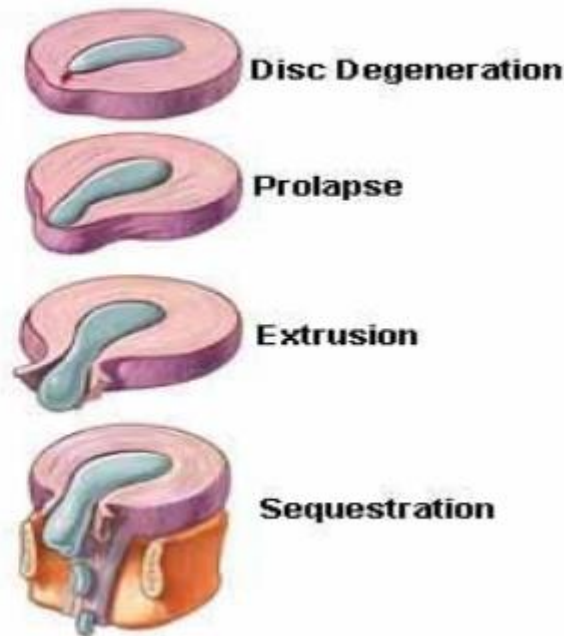


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Diskopatija



- Uzrok bola u 20% slučajeva

Hernijacija- iritacija okolnog tkiva- inflamacija

Protruzija- pritisak na kičmenu moždinu , nervni koren

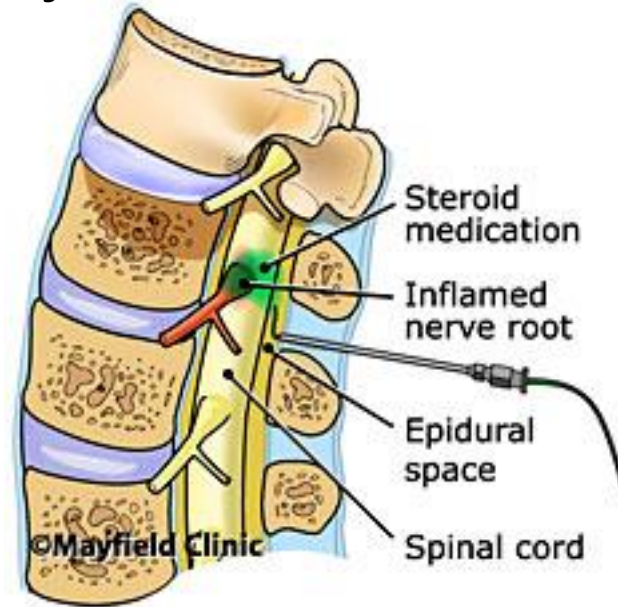
Pucanje fibroznog prstena- hemijska iritacija, edem

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Bol u leđima

Epiduralna injekcija steroida

- Smanjuje inflamaciju
- Translaminarni ili transforamenski pristup uz fluoroskopsko navođenje – precizna aplikacija na mesto patološkog procesa



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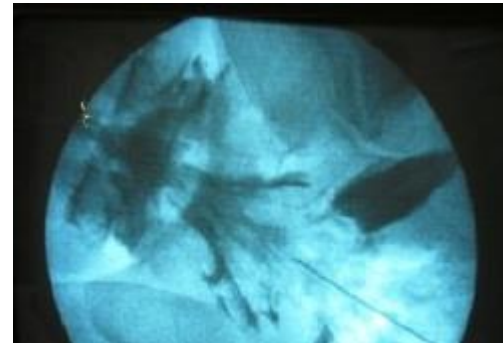
Dg:diskografija+ Th

- Ubrizgavanje kontrasta u disk uz rendgensko navođenje-morfologija diska, provokacija bola
- Postproceduralna RTG ili CT dokumentuje leziju diska
- Kandidat za intradiskalnu **elektrotermalnu Th**, anuloplastiku, nukleoplastiku, ozon nukleoliza, minimalno invazivna perkutana dekompresija diska (sitni se nuklus pulposus i isisava napolje)

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Epiduroлиза

- Epiduralna adhezioliza nakon potvrde fibroze epidurogramom ili tokom epiduralne endoskopije. Aplikira se fiziološki ili hipertoni NaCl rastvor, sa ili bez hijaluronidaze



Normalni epidurogram-obrnuto božično drvo
Kontrast ulazi u duralne ekstenzije oko svakog
nervnog korena. Defekt- fibroza

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Blok sakroilijačnog zgloba

- Uzrok bola u donjem delu leđa u 13-20% slučajeva
- Perkutana **radifrekventna neurotomija**
- **Injekcija kortikosteroida** u sakroilijačni zglob obezbeđuje dugotrajno oslobađanje od bola

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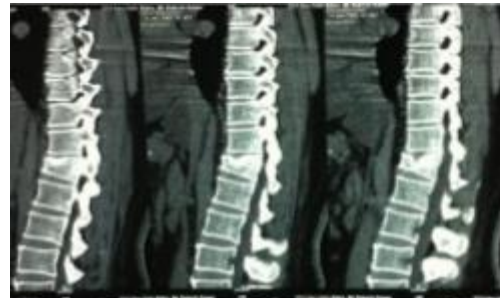


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Perkutana vertebroplastika

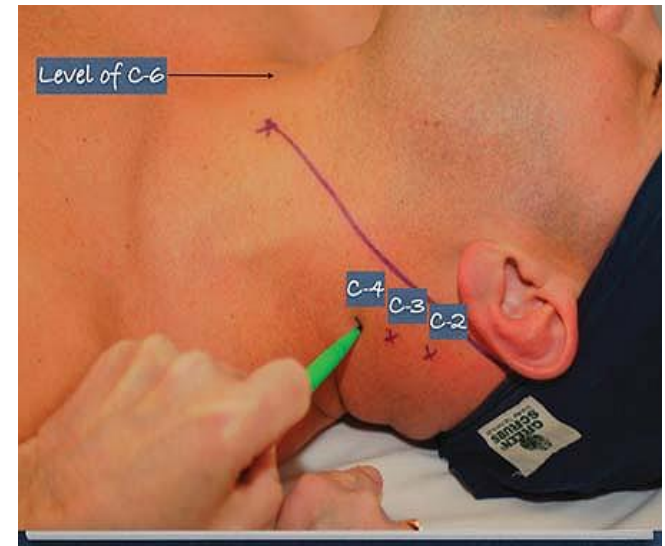
- Kod kompresivne **frakture pršljena** usled osteoporoze, karcinomskih metastaza, hemangioma
- Igla se pod rendgenom uvodi u pršljen i ubrizgava se viskozani **koštani cement**
- Cement ne sme da dođe u kontakt sa nervima
- Stabilizacija i oslobađanje od bola

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Blokovi za glavobolju: okcipitalni i blok C2 nervnog korena



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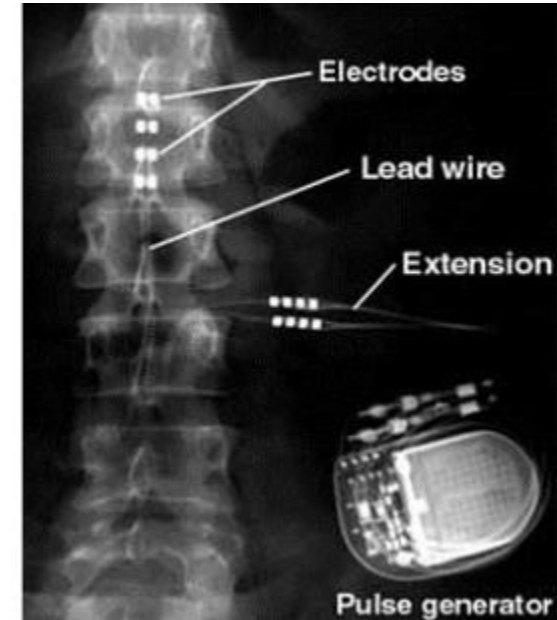
Simpatički blok

- ❑ Blokada simpatikusa u predelu vrata - Stellate ganglion ili u lumbalnoj regiji
- ❑ Uglavnom **dijagnostički** za potvrdu **kompleksnog regionalnog bolnog sindroma**
- ❑ **Terapijski:** KRBS gornjih i donjih ekstremiteta, vaskularna insuficijencija, refrakterna angina; Lokalni anestetik ili neuroлиза



Stimulacione (neuromodulacija) tehnike

- Stimulacija kičmene moždine
- Periferna nervna stimulacija



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zaključak

- Deo multimodalnog pristupa
- Ciljani tretman uzroka (mehanizma) bola
- Poštovati indikacije i kontraindikacije, obučeno osoblje, pažljiv monitoring-bezbednost pre svega
- Može olakšati rehabilitaciju kod hroničnog bola
- Manje rizika u odnosu na hirurgiju

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