

EFIKASNO UKLANJANJE BOLA JE KLJUČ USPEŠNOG HIRURŠKOG ISHODA

Univerza v Ljubljani



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BANJA LUKA & TUZLA 28. / 29. novembar 2019

Project number: 585927-EPP-1-2017-1-RS-EPPKA2-CBHE-JP (2017 – 3109 / 001 – 001)

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DEFINICIJA AKUTNOG BOLA

- Akutni bol kao što je bol nakon traume ili hirurškog zahvata predstavlja signal svesnom delu mozga o prisustvu štetnih draži i/ili aktuelnom oštećenju tkiva.
- Ovaj akutni bolni signal je koristan i adaptivne je prirode, upozorava jedinku na opasnost i potrebu za izbegavanjem ili traženjem pomoći.
- Akutni bol je neposredna posledica nokse i kao takav se klasifikuje kao simptom postojećeg oštećenja tkiva ili bolesti.

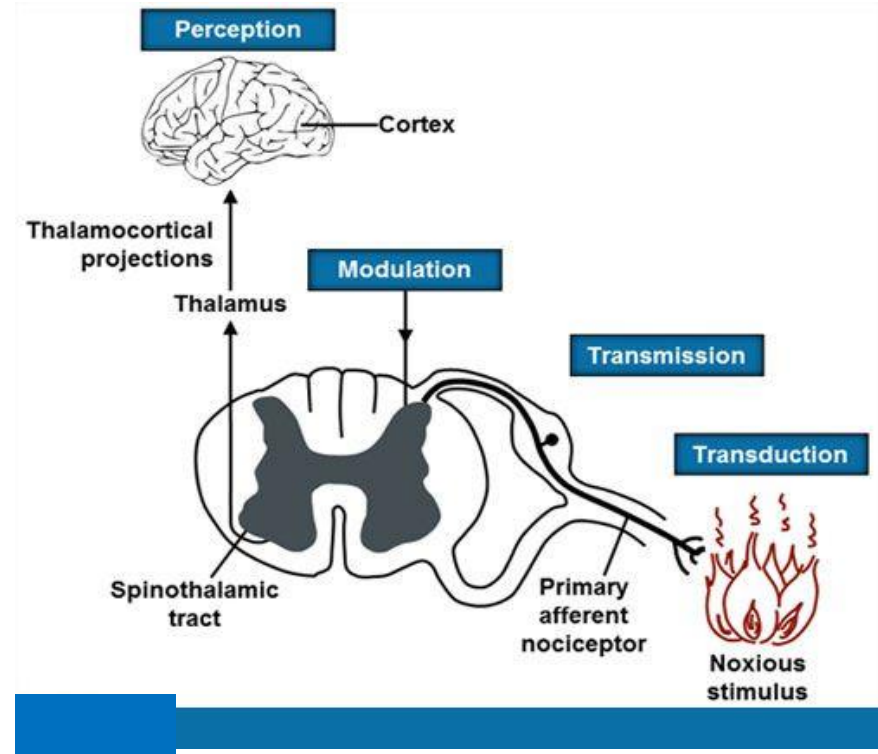
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AKUTNI BOL

Akutni bol predstavlja signal svesnom delu mozga o prisustvu štetnih draži i/ili aktuelnom oštećenju tkiva.

Na percepciju bola utiče emotivna modulacija.



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Rawal N. Current issues in postoperative pain management.

EJA 2016;33:160-71.

POSTOPERATIVNI BOL NIJE USPEŠNO LEČEN

- Kontrola postoperativnog bola u Evropi i SAD nije optimalna
- Pismeni protokoli u samo 60% bolnica koje služe kao nastavne baze
- Medicinskim sestrama nije dozvoljeno da prilagođavaju terapiju
- Postoperativnu analgeziju propisuju najčešće hirurzi

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EFEKTI NEUČINKOVITOG TRETMANA POSTOPERATIVNOG BOLA

- Povećan morbiditet
- Razvoj hroničnog postoperativnog bola
- Prolongirana upotreba opioida
- Narušena pokretljivost i postoperativni oporavak
- Smanjen kvalitet života
- Povećani zdravstveni troškovi

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MORBIDITET

Loše kontrolisan postoperativni bol uzrokuje **poremećaj fizioloških funkcija:**

- kardiovaskularnih (koronarna ishemija, infarkt miokarda)
- pulmonalnih (hipoventilacija, smanjen vitalni kapacitet, plućne infekcije)
- gastrointestinalnih (smanjen motilitet, ileus, mučnina, povraćanje)
- renalnih (povećan tonus sfinktera i retencija urina, oligurija)
- imunske funkcije i zarastanje rana
- koagulacije (hiperkoagulabilnost: trombotične komplikacije)

Loše kontrolisan postoperativni bol može da **poremeti san** i ima negativne **psihološke efekte**, kao što su demoralizacija i anksioznost

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PERZISTENTNI POSTOPERATIVNI BOL

bol koji nema drugih evidentnih uzroka i traje bar 2 meseca nakon operacije,
nakon očekivanog perioda zarastanja rane

Loše tretiran akutni postoperativni bol:

prisustvo i intenzitet akutnog postoperativnog bola su signifikantni prediktivni faktori rizika za razvoj hroničnog bola.

Prema pregledu literature perzistentni bol pogađa između 10 i 60% pacijenata nakon rutinskih operacija.

VODIČI DOBRE PRAKSE

- **uopštene preporuke** za upotrebu analgetičkih lekova i tehnika u **tretmanu bola**:
„jedna veličina odgovara svima“
- **PROSPECT vodiči**: primer preporuka zasnovanih na sistematskim pregledima literature za određenu hiruršku proceduru www.postoppain.org
- Schug SA et al. [Acute Pain Management: Scientific Evidence. 4th ed.](#) Melbourne: Australian and New Zealand College of Anaesthetists and Faculty of Pain Medicine; 2015.
- **svi vodiči se primenjuju u skladu sa intenzitetom bola**: **ocena bola je ključna!**
- **SLUŽBA ZA LEČENJE AKUTNOG BOLA**: **tim za terapiju bola – organizacija & edukacija**

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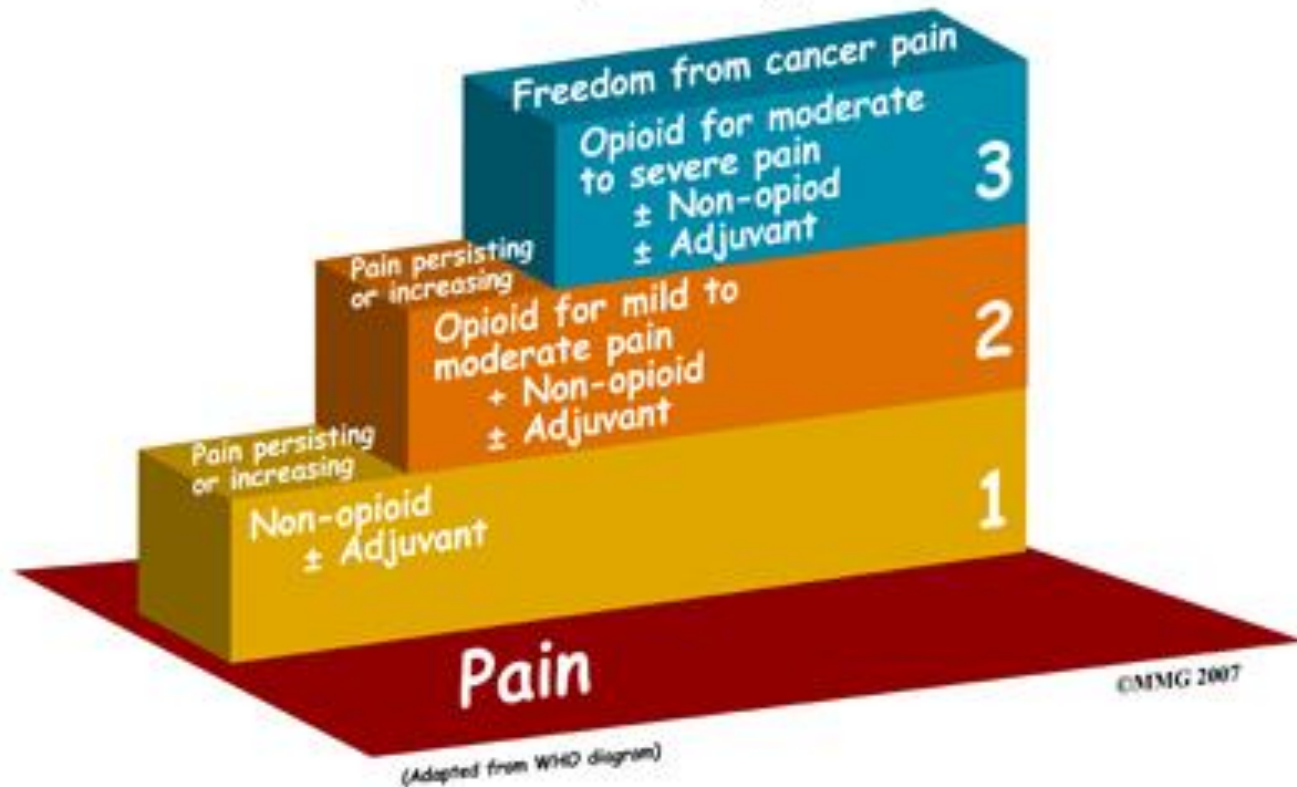
STANDARDIZOVANI PROTOKOLI ANALGEZIJE U SKLADU SA **LOKALNOM KLINIČKOM PRAKSOM** U ANESTEZIJI I HIRURGIJI

- STANDARDIZOVANI OPERATIVNI POSTUPCI (SOP) ZA POSTOPERATIVNU ANALGEZIJU
- NAPISANI OD STRANE ANESTEZIOLOGA TIMA
- POSEBNO ZA SVAKU HIRURŠKU SUBSPECIJALIZACIJU

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WHO Three-Step Analgesic Ladder



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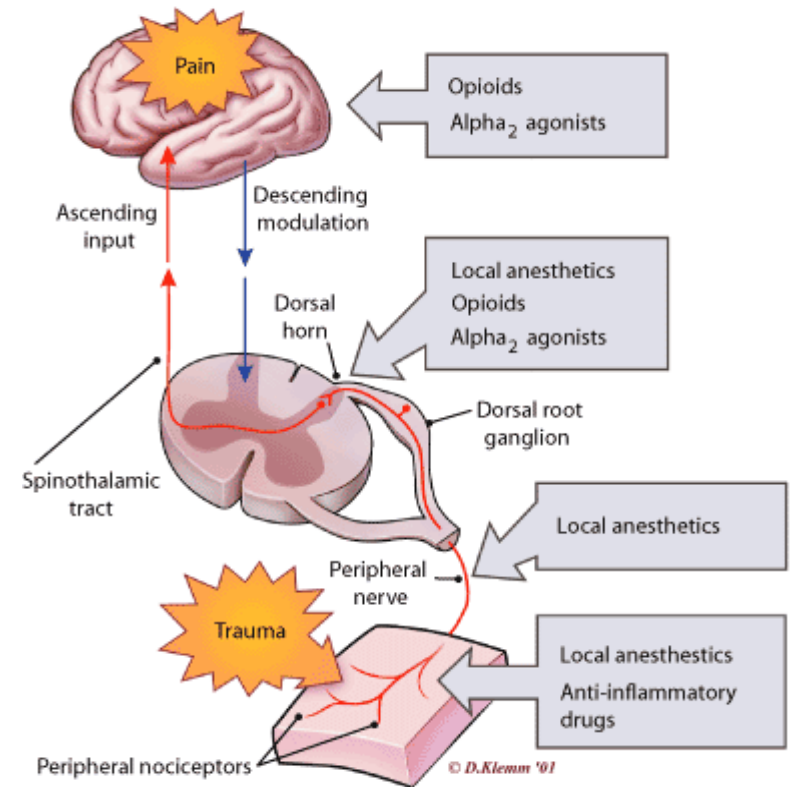
TERAPIJA POSTOPERATIVNOG BOLA

SISTEMSKE TEHNIKE

- IV analgezija
- Peroralna analgezija

REGIONALNE TEHNIKE

- Kontinuirana epiduralna blokada
- Periferni nervni blokovi
- Analgezija kateterom u rani



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MULTIMODALNA ANALGEZIJA kombinacija različitih tehnika i lekova

REGIONALNA TEHNIKA

regionalni blok ili infiltracija rane

PLUS

SISTEMSKA ANALGEZIJA

paracetamol / metamizol / NSAIL / opioid

CILJ:

POBOLJŠATI EFEKTIVNOST, MINIMIZOVATI POTREBE ZA OPIOIDIMA

Schug SA et al. *Acute Pain Management: Scientific Evidence*. 4th ed. Melbourne: Australian and New Zealand College of Anaesthetists and Faculty of Pain Medicine; 2015.

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ŠTA MOŽEMO UČINITI

DA BI SMANJILI POSTOPERATIVNI BOL
DA BI SMANJILI UPOTREBU OPIOIDA
DA BI SMANJILI INCIDENCIJU HRONIČNOG POSTOPERATIVNOG BOLA

- **PREDOPERATIVNO: PREEMPTIVE ANALGEZIJA**
- **INTRAOPERATIVNO: MULTIMODALNA ANESTEZIJA**
- **POSTOPERATIVNO: MULTIMODALNA ANALGEZIJA**

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PREDOPERATIVNO PRIMENJIVANJE ANALGETIKA UNAPRED: PREEMPTIVE ANALGEZIJA

- **I.V. PARACETAMOL PRE OPERACIJE:**

Zahn PK, Schug SA et al. **Paracetamol for perioperative analgesia. Old substance - new insights.** [Anaesthesist](#). 2010 Oct;59(10):940-52

Schug SA et al. 2019 In press

- **NSAR , GABAPENTIN PRE OPERACIJE:**

Nir RR et al. **Preoperative preemptive drug administration for acute postoperative pain: A systematic review and meta-analysis.** [Eur J Pain](#). 2016 Aug;20(7):1025-43.

- **PREGABALIN PRE OPERACIJE:**

Mishriky MB et al. **Impact of pregabalin on acute and persistent postoperative pain: a systematic review and meta-analysis.** [Br J Anaesth](#). 2015 Jan;114(1):10-31

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MULTIMODALNA ANESTEZIJA: MANJI BOL PO OPERACIJI

- **REGIONALNA ANESTEZIJA: kad god je moguće!**

Richman JM. Does continuous peripheral nerve block provide superior pain control to opioids? A meta-analysis. [Anesth Analg](#). 2006 Jan;102(1):248-57

- **KETAMIN u kontinuiranoj infuziji:**

akutni nevropatski bol, opioidno tolerantni pacienti

Laskowski K. A systematic review of intravenous ketamine for postoperative analgesia. [Can J Anaesth](#). 2011 Oct;58(10):911-23

- **LIDOKAIN u kontinuiranoj infuziji:**

za velike abdominalne / torakalne operacije bez epiduralne anestezije/analgezije

Sun Y. Perioperative systemic lidocaine for postoperative analgesia and recovery after abdominal surgery: a meta-analysis of randomized controlled trials. [Dis Colon Rectum](#). 2012 Nov;55(11):1183-94

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PREDNOSTI REGIONALNIH TEHNIKA ANALGEZIJE

POVEĆANJE BROJA KONTINUIRANIH PERIFERNIH NERVNIH BLOKOVA

Regionalna analgezija

lišena neželjenih efekata opioida:

sedacije, vrtoglavice, mučnine/povraćanja

Omogućava ranu mobilizaciju:

efikasna analgezija za fizioterapiju



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BROJ PACIJENATA SA RAZLIČITIM VRSTAMA ANALGEZIJE:

promenio se sa razvojem novih tehnika analgezije i novih hirurških tehnika

| GODINA | i.v. opioidna PCA analgezija | epiduralna PCEA analgezija | Kontinuirane periferne kateterske tehnike | Jednokratni periferni nervni blokovi | Analgezija kateterom u rani | Analgezija u palijativnoj nezi – elastomerske pumpe |
|--------|---------------------------------------|----------------------------------|--|--|-----------------------------------|---|
| 2009 | 3061 | 774 | 9 | ? | 75 | - |
| 2012 | 2803 | 622 | 12 | ? | 62 | - |
| 2014 | 3764 | 559 | 32 | ? | 83 | - |
| 2016 | 4023 | 426 | 202 | 343 | 175 | 50 |
| 2017 | 4051 | 409 | 403 | 458 | 144 | 73 |
| 2018 | 4060 | 340 | 505 | 912 | 208 | 120 |

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EFIKASNO UKLANJANJE POSTOPERATIVNOG BOLA U UKC LJUBLJANA 2018

| Vrsta analgezije | VAS/NRS 0 – 3 BLAG BOL | VAS /NRS 4 – 7 UMEREN BOL | VAS/NRS 8 -10 JAK BOL |
|--|-----------------------------------|--------------------------------------|----------------------------------|
| IV PCA | 93,7% | 6,2% | 0,3% |
| Epiduralna PCEA | 92,5% | 7,2% | 0,3% |
| Analgezija kateterom u rani | 95,5% | 4,5% | 0,0% |
| Kontinuirani periferni nervni blokovi | 87,7% | 11,7% | 0,4% |
| Jednokratni periferni nervni blokovi | 84,8% | 14,6% | 0,6% |

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CILJEVI TERAPIJE POSTOPERATIVNOG BOLA: DOSTIGNUTI?



- Zadovoljstvo pacijenta:
dobrobit pacijenta
dobar san i apetit
- Prevencija hroničnog postoperativnog bola
- Dobar hirurški ishod:
rana mobilizacija
dobro zarastanje rane
kraća hospitalizacija

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