


Opioidi u terapiji bola

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Klasifikacija opioida

Prirodni	Polusintetski	Sintetski
Morfin Codein Papaverine	Heroin Hidromorfin Hidrokodein Buprenorfin	Butorfanol Tramadol Metadon Pentazocin Meperidin Fentanyl Sufentanil Alfentanil

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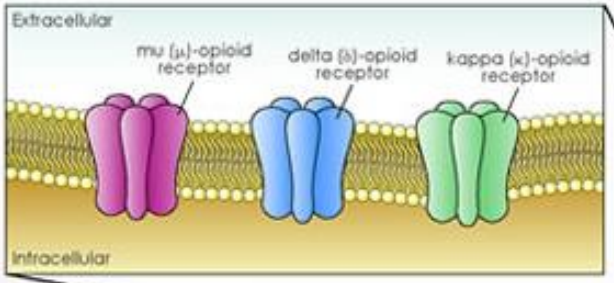
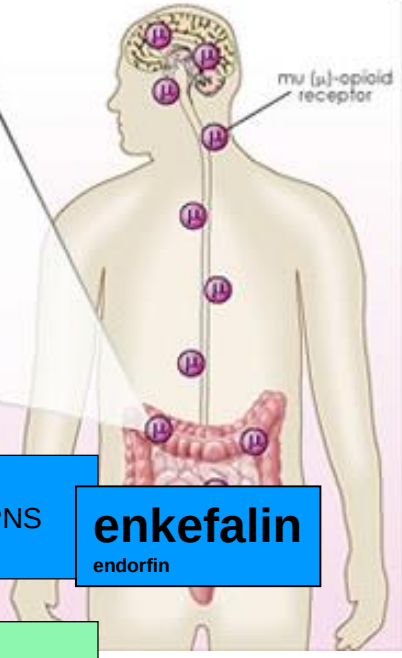
Receptori spregnuti sa proteinom G
40% homologni receptorima za somatostatin

Receptori za endogene opioide:
Endorfin, dinorfin, enkefalin, endomorfin, nociceptin





delta (δ_1 i δ_2), DOP, OP_1
pons, amigdale, olfaktorni bulbus, kora, PNS
analgezija, antidepresija, zavisnost

enkefalin
endorfin

kapa (κ_1, κ_2, κ_3), KOP, OP_2
hipotalamus, periakvaduktna siva masa
analgezija, sedacija, disforija, mioza

dinorfin

mi (μ_1, μ_2, μ_3), MOP, OP_3
MS, MO, kora, talamus, periakvaduktna siva masa, PNS, GIT
μ_1 analgezija, zavisnost
μ_2 euforija, zavisnost, mioza
μ_3 nepoznata

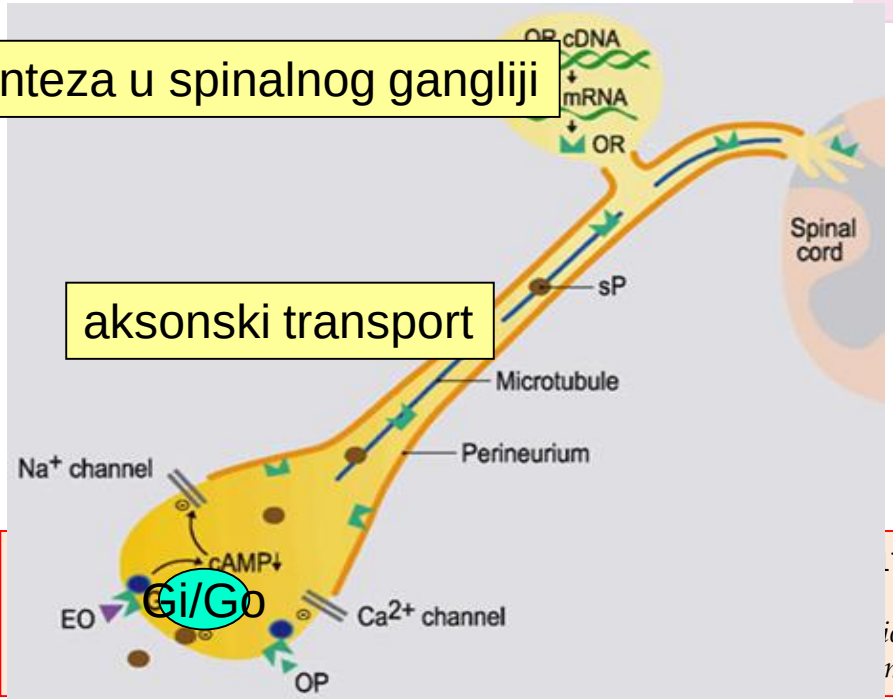
morfin

β endorfin
endomorfin
enkefalin
dinorfin

receptori za nociceptin (ORL_1), NOP, OP_4
kora, hipotalamus, hipokampus,
amigdale, MS,
anksioznost, depresija, apetit…

Nociceptin (orphanin FQ)

nteza u spinalnog gangliji



aksonski transport

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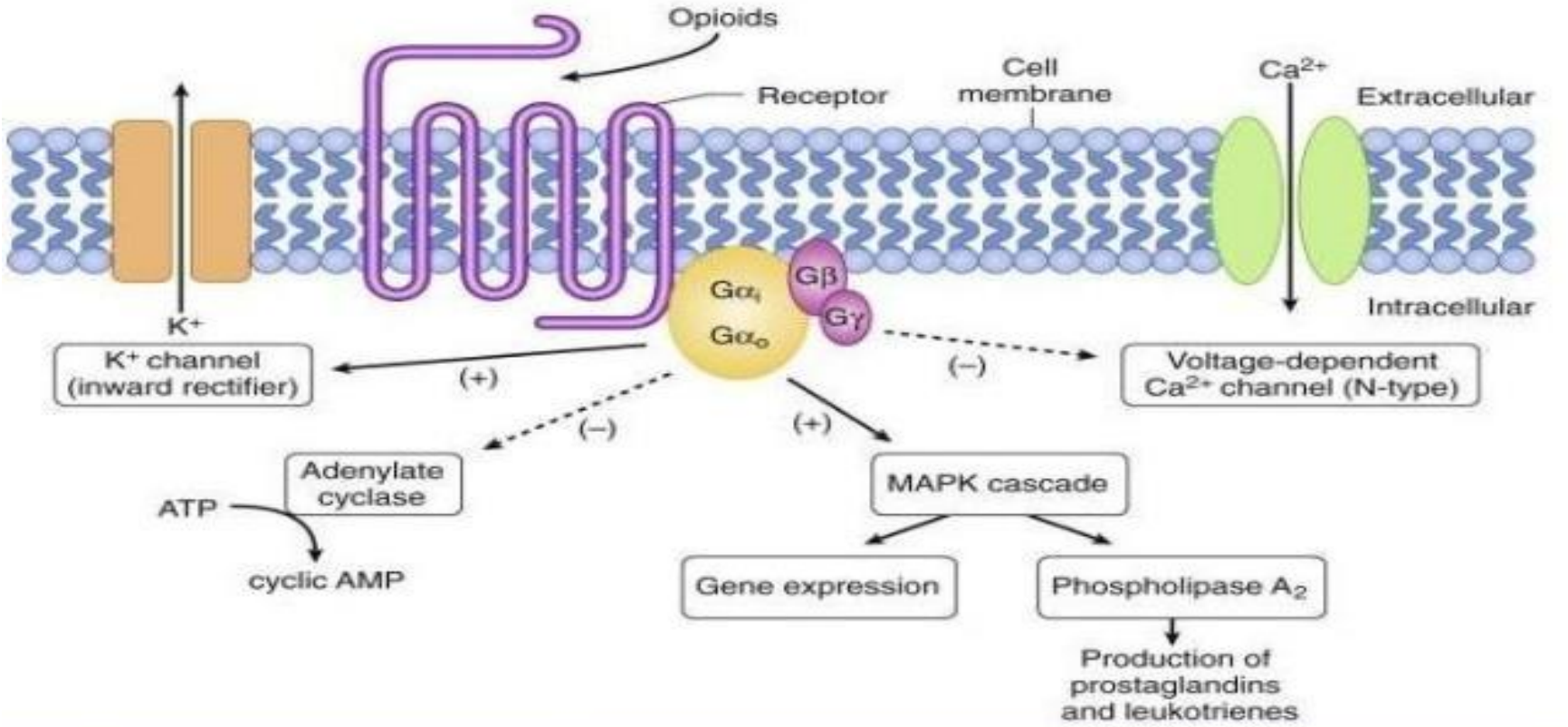
Mechanism of action of Opioid Receptors



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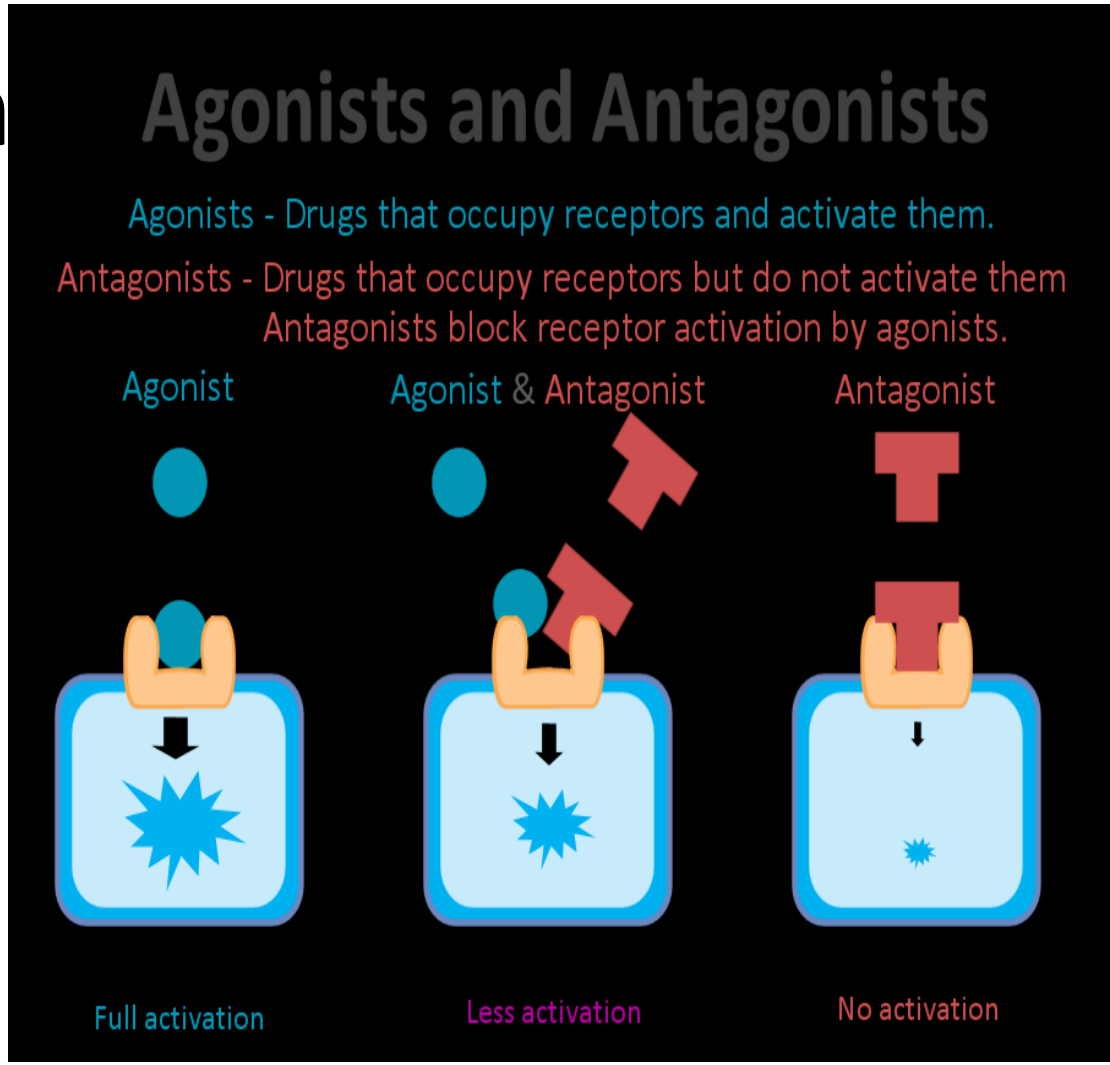
Način

- Agonisti
- Antagonisti
- Mješovito dejstvo



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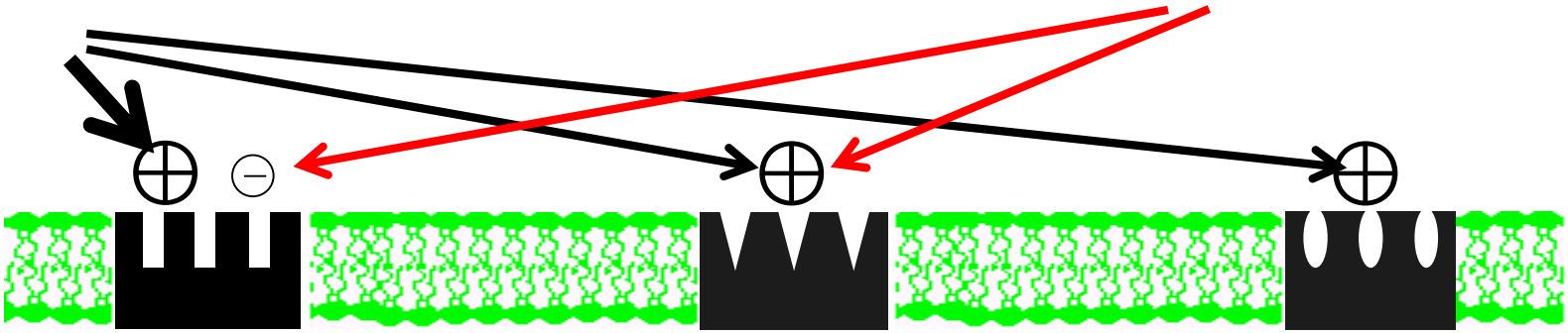
Uglavnom agonisti μ receptora, ali djeluju i na druge receptore
- Morphine
- Heroin
- Codeine
- Fentanyl

Agonist na κ receptore, sa djelimičnom antagonist. djelov. na μ receptore
- Pentazocine



μ opioidni receptor

Analgezija
Respiratorna depresija
Euforija/sedacija
Psihička zavisnost
Smanjnje GI motiliteta
Mioza

κ opioidni receptor

Analgezija
Sedacija
Mioza

δ opioidni receptor

Analgezija

Antagonist djeluje na μ, κ, δ receptore
- Naloxone
- Naltrexone

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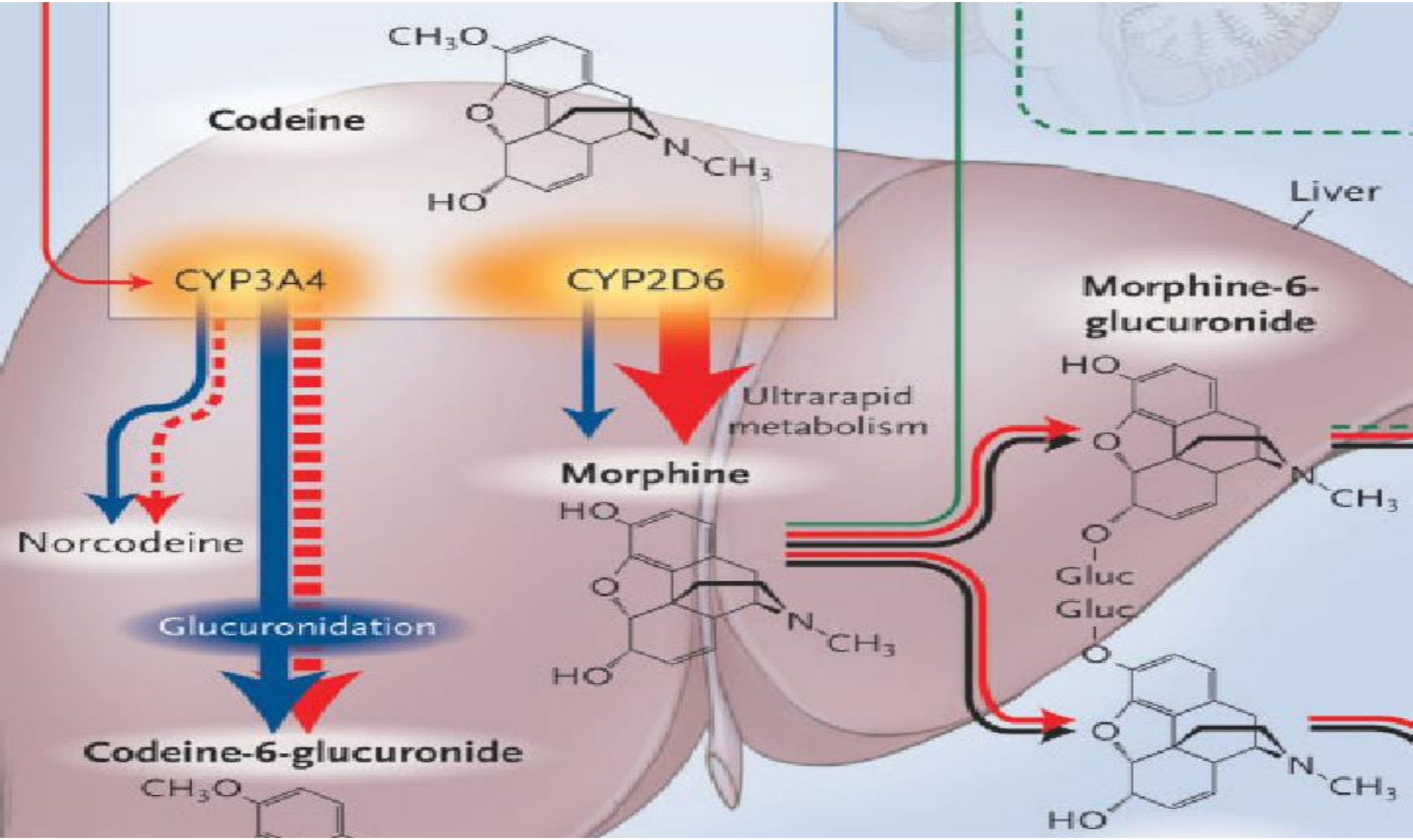

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VRLO JAKI OPIOIDI	JAČINA
-Sufentani	1000
-Fentanil	100-300
-Remifentanil	200
-Alfentanil	40-50
-Buprenorfin	10-40
JAKI	
-Butorfanol	8-11
-Hidromorfon	7-10
-Metadon	1,5
-MORFIN	1
SLABI	
Kodein	0,3
Petidin	0,2
VRLO SLABI	
-Tramadol	0,05-0,09
MORFIN = 1	

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MODERATE

UNIVERSAL PAIN ASSESSMENT TOOL

This pain assessment tool is intended to help patient care providers assess pain according to individual patient needs. Explain and use 0-10 Scale for patient self-assessment. Use the faces or behavioral observations to interpret expressed pain when patient cannot communicate his/her pain intensity.

Verbal Descriptor Scale	NO PAIN	MILD PAIN	MODERATE PAIN	MODERATE PAIN	SEVERE PAIN	WORST PAIN POSSIBLE
WONG-BAKER FACIAL GRIMACE SCALE						
	Alert Smiling	No humor serious flat	Furrowed brow pursed lips breath holding	Wrinkled nose raised upper lips rapid breathing	Slow blink open mouth	Eyes closed moaning crying
ACTIVITY TOLERANCE SCALE	NO PAIN	CAN BE IGNORED	INTERFERES WITH TASKS	INTERFERES WITH CONCENTRATION	INTERFERES WITH BASIC NEEDS	BEDREST REQUIRED
SPANISH	NADA DE DOLOR	UNPOQUITO DE DOLOR	UN DOLOR LEVE	DOLOR FUERTE	DOLOR DEMASIADO FUERTE	UN DOLOR INSOPORTABLE
TAGALOG	Walang Sakit	Konting Sakit	Katamtamang Sakit	Matinding Sakit	Pinaka-Matinding Sakit	Pinaka-Malalang Sakit
CHINESE	不痛	輕微	中度	嚴重	非常嚴重	最嚴重
KOREAN	통증 없음	약한 통증	보통 통증	심한 통증	아주 심한 통증	최악의 통증
PERSIAN (FARSI)	بدون درد	درد ملایم	درد معتدل	درد شدید	درد بسیار شدید	بدترین درد ممکن
VIETNAMESE	Không Đau	Đau Nhẹ	Đau Vừa Phải	Đau Nặng	Đau Thật Nặng	Đau Đớn Tận Cùng
JAPANESE	痛みがない	少し痛い	いくらか痛い	かなり痛い	ひどく痛い	ものすごく痛い

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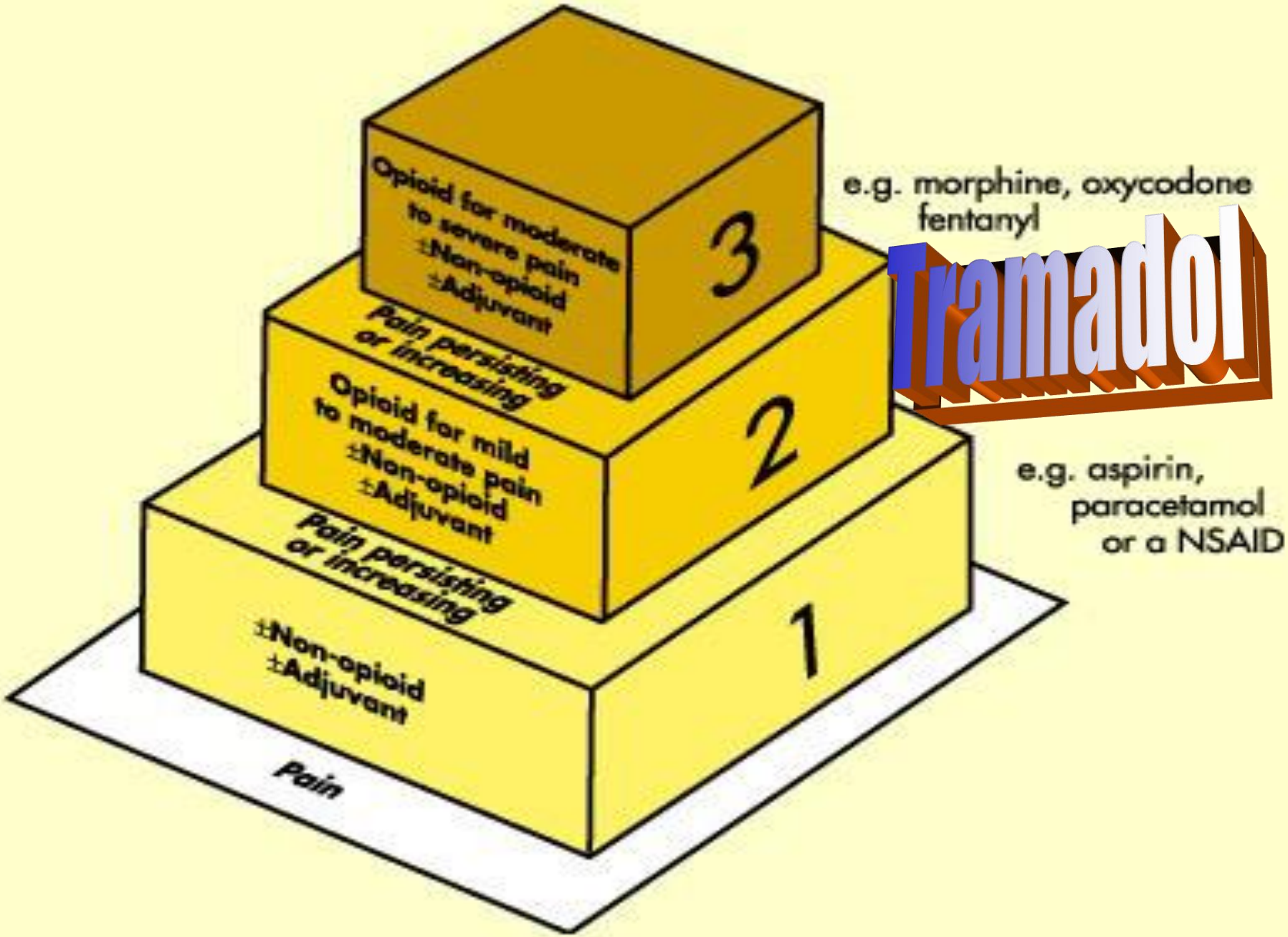
3
Opioid for moderate to severe pain
±Non-opioid
±Adjuvant
Pain persisting or increasing
2
Opioid for mild to moderate pain
±Non-opioid
±Adjuvant
Pain persisting or increasing
1
±Non-opioid
±Adjuvant
Pain
e.g. morphine, oxycodone
fentanyl
Tramadol
e.g. aspirin,
paracetamol
or a NSAID

Analgezija samo opijatima

- The harder we “push” with single mode analgesia, the greater the degree of side-effects

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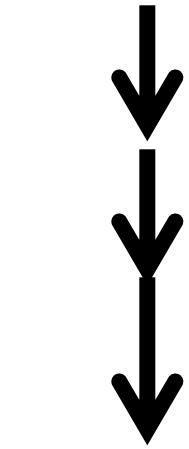
Multi-modalna Analgesia

- "With the **multimodal analgesic approach** there is additive or even synergistic analgesia, while the side-effects profiles are different and of small degree."



Analgesia

Side-effects

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Acute Pain

- Acute pain presents most often with a clear cause, relatively brief in duration and subsides as healing takes place.
- Acute pain is often accompanied by observable objective signs of pain

–increased pulse rate

–increased blood pressure

–Non-verbal signs and symptoms such as facial expressions and tense muscles.

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Pain Assessment

- Initial Pain Assessment should include:

–Location(s)

–Intensity

–Sensory quality

–Alleviating and aggravating factors

- Any new onset of pain requires a new comprehensive pain assessment.

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Pain Reassessment

- Every 8 hours minimally
- Following the administration of pain medications to determine the effectiveness of the medication and/or need for further intervention.

–IV within 15 mins of administration

–PO/IM/SC within 1 hour of administration

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Multimodal Analgesia

- This term describes the use of multiple modalities that are used to provide pain relief with various parts of the pain pathway targeted.

–Decreased dependence on single modality agents decreases the risk of side effects.

–May include

•Pharmacological (opioids, NSAIDS, gabapentanoids)

•Relaxation techniques (biofeedback, deep breathing)

•Regional analgesia (nerve blocks, epidural catheters)

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Responsible Opioid Prescribing

- Assess risk for opioid abuse or diversion prior to prescribing opioid.
- Risk factors for misuse or abuse of opioids include the following

–Males between 18 and 45.

–A personal history of substance abuse

–A family history of substance abuse

–A personal history of preadolescent sexual abuse

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- Short term opioids improve function and pain scores for acute pain
- Little evidence of benefit for chronic opioids (few studies)
- 2005: 3%-4% of all patients have a chronic prescription
- 2014: more than 1 prescription per capita in US

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1. Determining when to initiate or continue opioids
2. Opioid selection, dosage, duration, follow-up, and discontinuation
3. Assessing risks and addressing harms

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1. Determining when to initiate or continue opioids

a)Opioids are not first-line therapy

b)Establish goals for pain and function

c)Discuss risks and benefits

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2. Opioid selection, dosage, duration, follow-up, and discontinuation

a) Use immediate release when starting

b) Use the lowest effective dose

c) Prescribe short durations for acute pain

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World Health Organization (WHO)

- 3- Step Ladder approach to pain management

- Step 1- Mild Pain (1-3/10)
- Nonopioid
- Add adjuvant analgesic agent
- (i.e.) Ice, heat

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WHO cont'd

- Step 2 Mild to moderate pain (4-7/10)
- This step builds on step 1
- Treat with opioid combination drug
- (hydrocodone/acetaminophen)
- Watch ceiling effect of adjuvant drug
- Peds are dosed by weight
- Watch special needs patients/elderly

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WHO cont'd

- Step 3- Severe pain (8-10/10)
- Use opioids
- Add adjuvant (i.e.)anti-anxiety,anti-emetics, muscle relaxants
- Start with short acting opioids to determine pain relief, breakthrough needs and frequency.
- Switch to long acting use equianalgesic dosing chart for conversion

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POINTS TO REMEMBER

- The pain intensity determines the step at which to begin.
- Opioids are the only group of analgesics with no ceiling on dose with careful titration.
- Most opioid side effects resolve within a few days.
- Exception>>>>Constipation-- need to write for this immediately

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Commonly used first line opioids

- Codeine
- Morphine
- Hydromorphone
- Oxycodone

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Share the following characteristics

- Half-life of immediate release preparations is 2 to 4 hours
- Duration of analgesic effect between 4 to 5 hours when given at effective doses.
- Sustained release formulations have duration of analgesic effect of 8 to 12 hours

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Morphine

- Onset: 15 to 60 minutes
- Peak Effect: 30 minutes to 1 hr
- Half Life: 1.5 to 2 hr
- IV: 0.05 to 0.1 mg/kg
- 5 minutes prior to procedure; max: 15 mg/dose

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Fentanyl

- Fentanyl is 80 to 100 times more potent than morphine.
- Studies report less constipation and somnolence in patients using transdermal fentanyl compared to those using SR morphine.

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