

Pain



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Internal Medicine, Palliative Medicine



Objectives

- To be able to define pain
- To be able to evaluate pain
- To be able to classify types of pain
- To learn appropriate use of opioids
- To list the types of adjuvant pain medications



Case Study

- John P. was a 54 y.o. recently diagnosed with lung cancer and brain metastases
- He has just completed a course of radiotherapy to the brain when he presents to the E.R. with a pain crisis.



Definition of Pain

- What is pain?
- “an unpleasant sensory or emotional experience associated with actual or potential tissue damage, or described in terms of such damage”



Evaluation of Pain

- What do we want to know about John's pain?
 - Location
 - Aggravating and relieving factors
 - Duration
 - Characteristic
 - Quantification (Pain scale)
 - Interference with ADL's
 - Medications previously tried
 - Meaning



Case Study

- Located in lower back and down his right leg
- Worse with movement, nothing makes it better
- Started 3 days ago and is worsening
- Severe back ache with sudden shooting pains down leg
- Unable to sleep, eat, talk to family
- Morphine 5mg IV q1h in ER ineffective

Evaluation of Pain

Visual analog scale (VAS)

none ●—————● worst
0 10

Likert scale

0 1 2 3 4 5

Edmonton Symptom Assessment System



**Edmonton Symptom Assessment System:
Numerical Scale**
Regional Palliative Care Program

Please circle the number that best describes:

- No pain 0 1 2 3 4 5 6 7 8 9 10 Worst possible pain
- Not tired 0 1 2 3 4 5 6 7 8 9 10 Worst possible tiredness
- Not nauseated 0 1 2 3 4 5 6 7 8 9 10 Worst possible nausea
- Not depressed 0 1 2 3 4 5 6 7 8 9 10 Worst possible depression
- Not anxious 0 1 2 3 4 5 6 7 8 9 10 Worst possible anxiety
- Not drowsy 0 1 2 3 4 5 6 7 8 9 10 Worst possible drowsiness
- Best appetite 0 1 2 3 4 5 6 7 8 9 10 Worst possible appetite
- Best feeling of wellbeing 0 1 2 3 4 5 6 7 8 9 10 Worst possible feeling of wellbeing
- No shortness of breath 0 1 2 3 4 5 6 7 8 9 10 Worst possible shortness of breath
- Other problem 0 1 2 3 4 5 6 7 8 9 10

Patient's Name _____

Date _____ Time _____

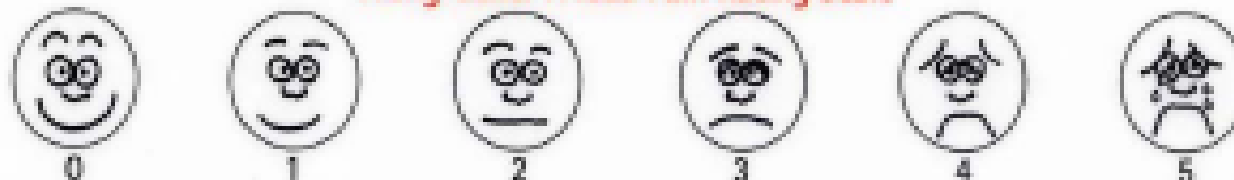
Complete by (*check one*)

- Patient
 Caregiver
 Caregiver assisted

WHAT IS YOUR PAIN LEVEL?



Wong-Baker FACES Pain Rating Scale



Instructions for use: Face-0 is happy because he/she has no pain. Face-1 hurts just a little bit. Face-2 hurts a little more. Face-3 hurts even more. Face-4 hurts a lot. Face-5 hurts as much as the patient can imagine, although they may not be trying to feel this bad. Explain to the patient that the face at the start of the scale shows someone who feels happy because he/she has no pain (hurt). The faces gradually show a change in the face to show the feelings of pain. The face becomes sad because the person has some or a lot of pain. Ask the patient to choose the face that best describes how they feel. The visual rating scale is recommended for persons age 3 and older.



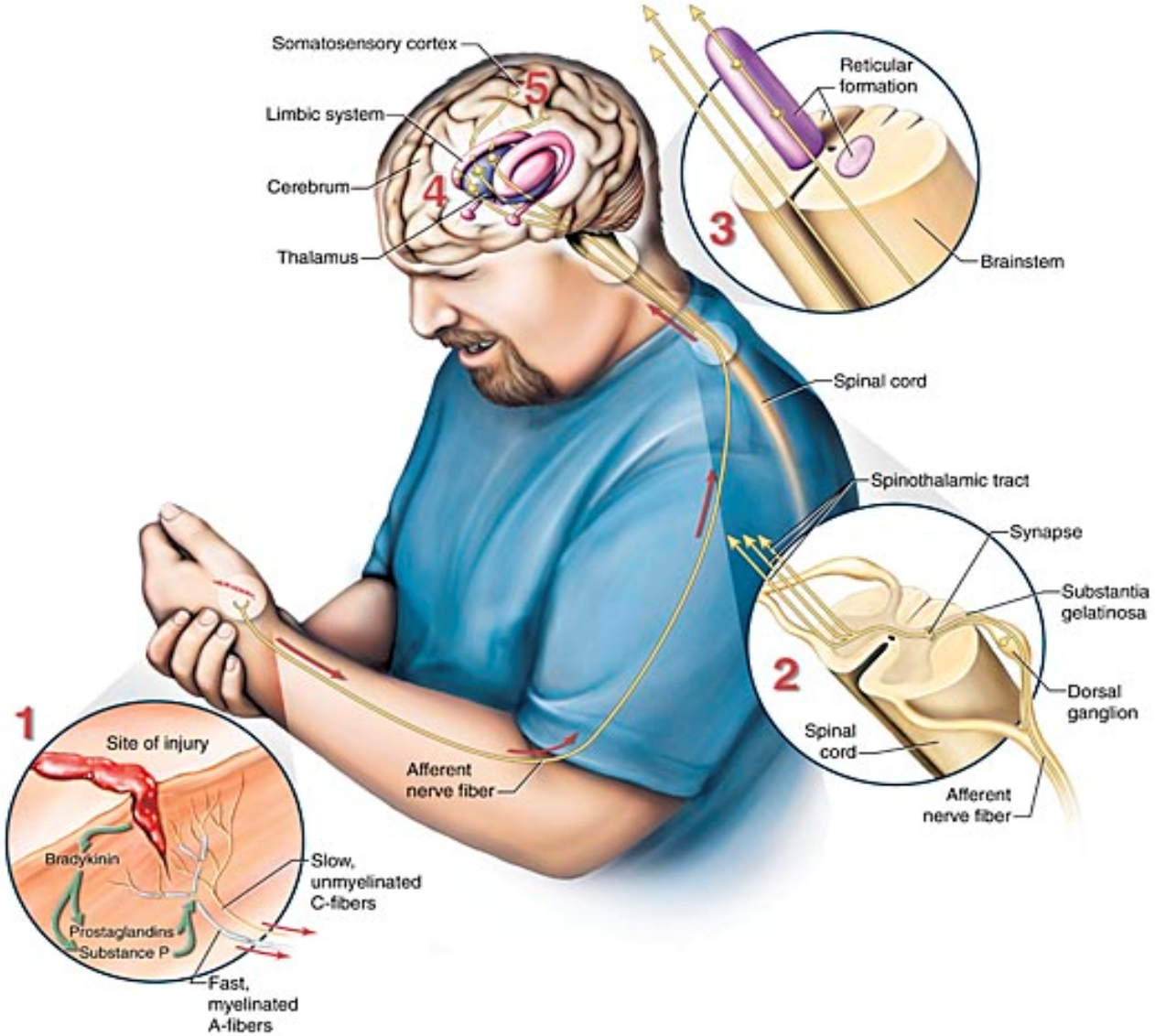
" Does it hurt when I do this . . ? "



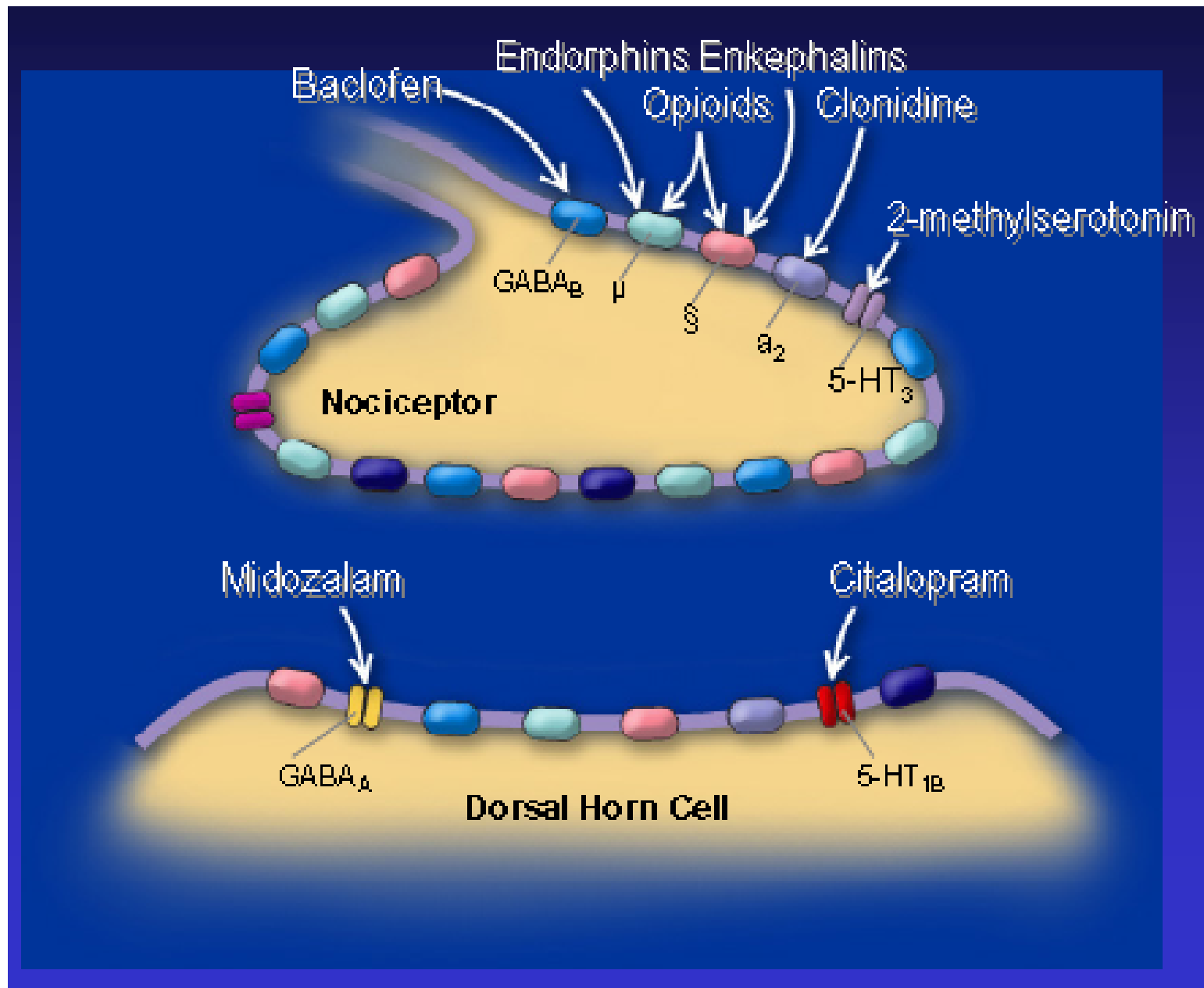
Case Study

- John rates his pain as an 8/10 constantly and a 10/10 when it shoots down his leg
- On examination:
 - John is tachycardic, hypertensive, curled up in pain, brow furrowed and occasionally moans, especially with movement
- CT reveals metastatic tumor to L-spine with nerve root compression at L5

Pain Pathway



Dorsal Root Ganglion



Opioid Receptors

Classically, opioids active on CNS receptors
mu (μ) kappa (κ) delta (δ) receptors

Now found on:

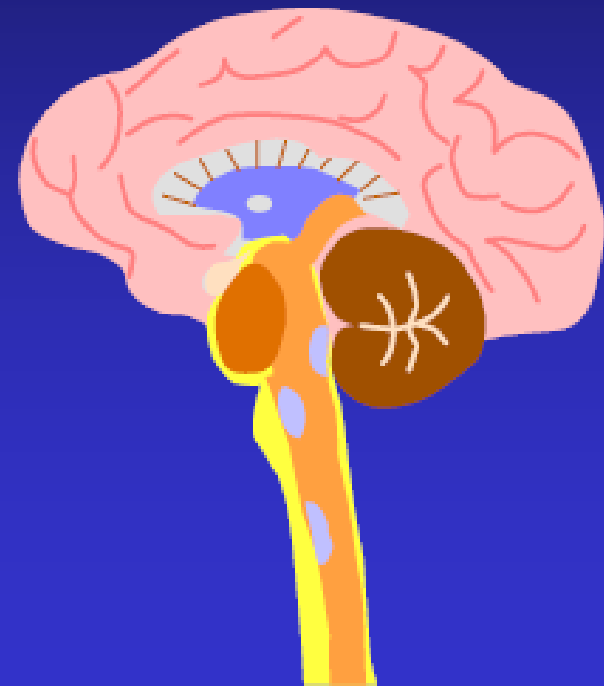
peripheral neurons

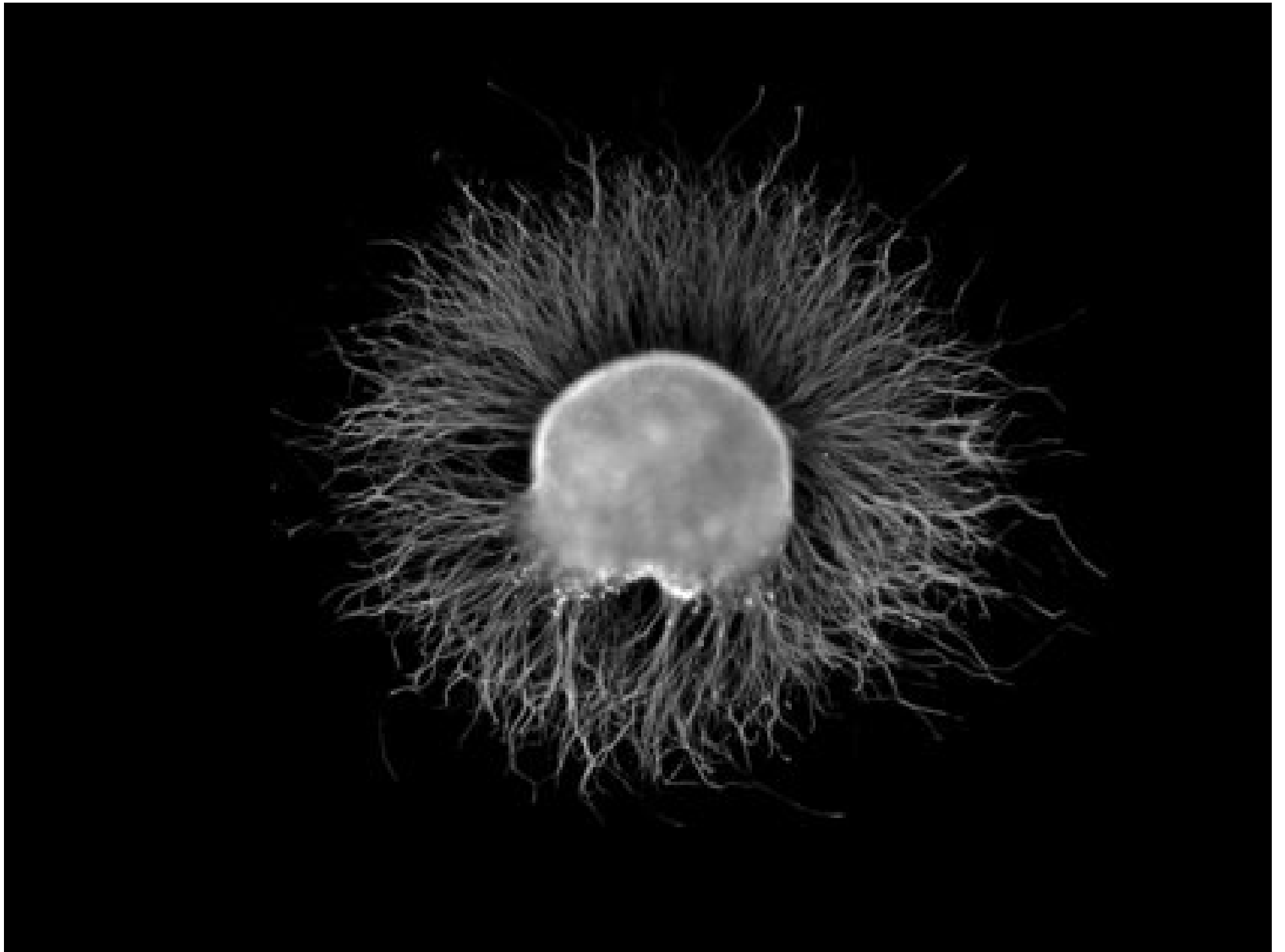
immune cells

inflamed tissue

respiratory tissue

GI tract



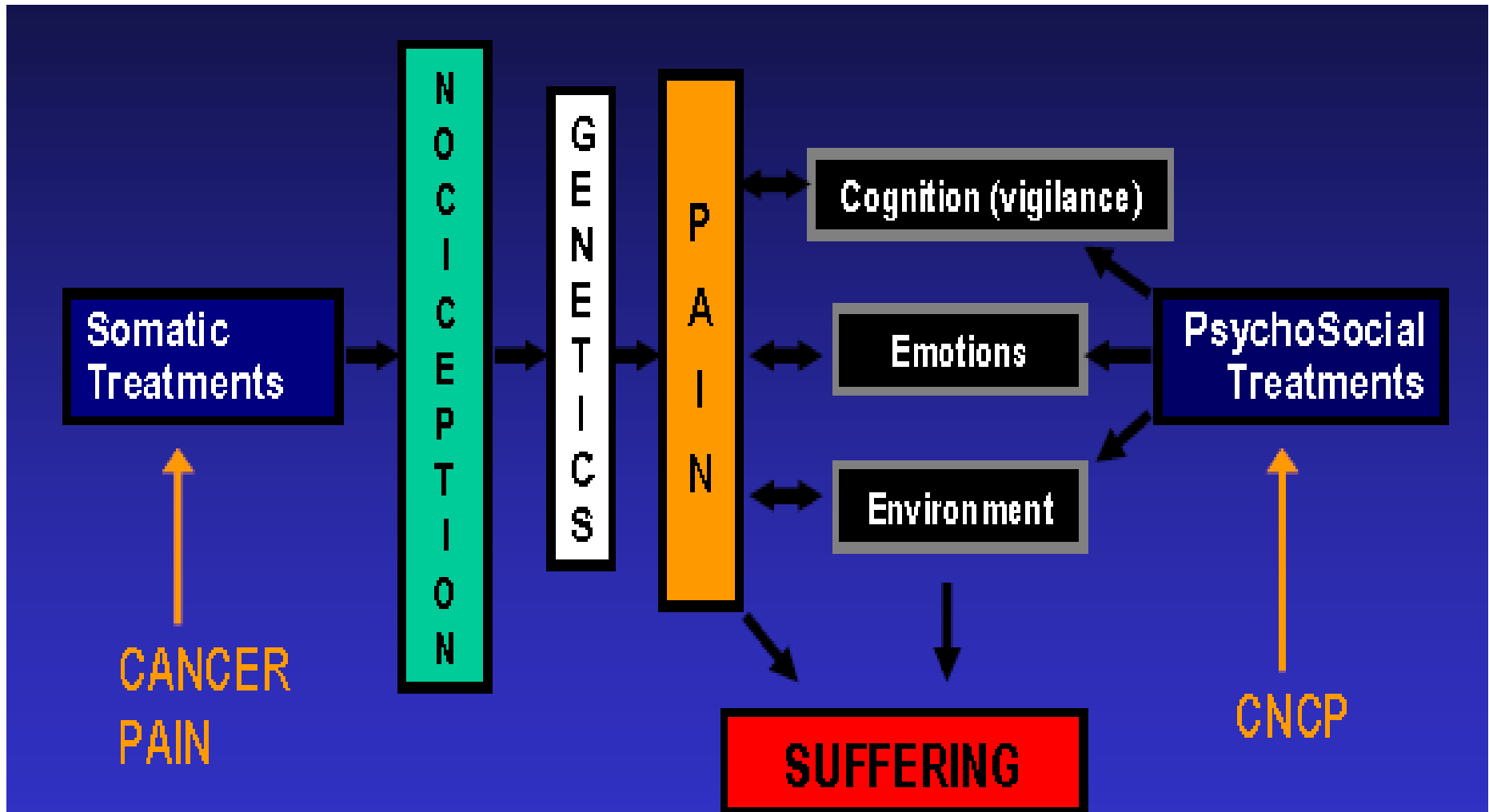




Case Study

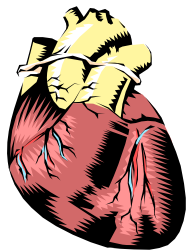
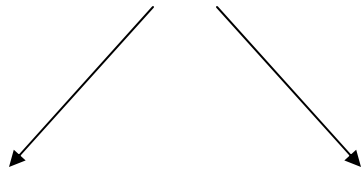
- Total morphine since admitted to ER has been 75mg morphine IV/24 hours.
- How are we going to manage John's pain?

Total Pain and Suffering

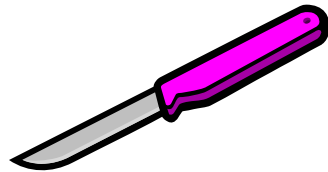


Classification of Pain

Nociceptive

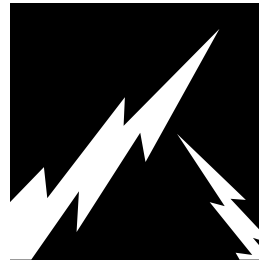
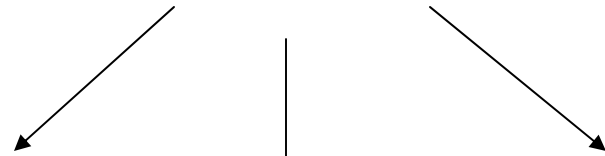


Visceral



Somatic

Neuropathic



Neuralgic

Hyperalgesia



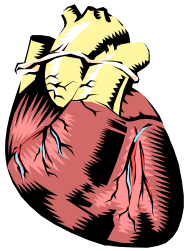
Dysaesthetic

Classification of Pain

Nociceptive

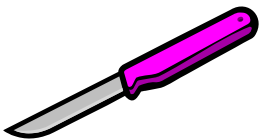
■ Neuropathic (nerve destruction)

■ Visceral



- crampy, pressure, squeezing
- Poorly localized

■ Somatic



- Sharp, knife-like
- Well localized

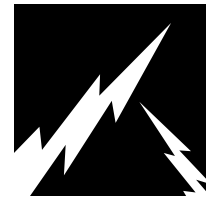
■ Dysaesthetic

- Buring/tingling
- Radiating, constant



■ Neuralgic

- Shooting/lacinating
- Shocking
- Paroxysmal



■ Hyperalgesia

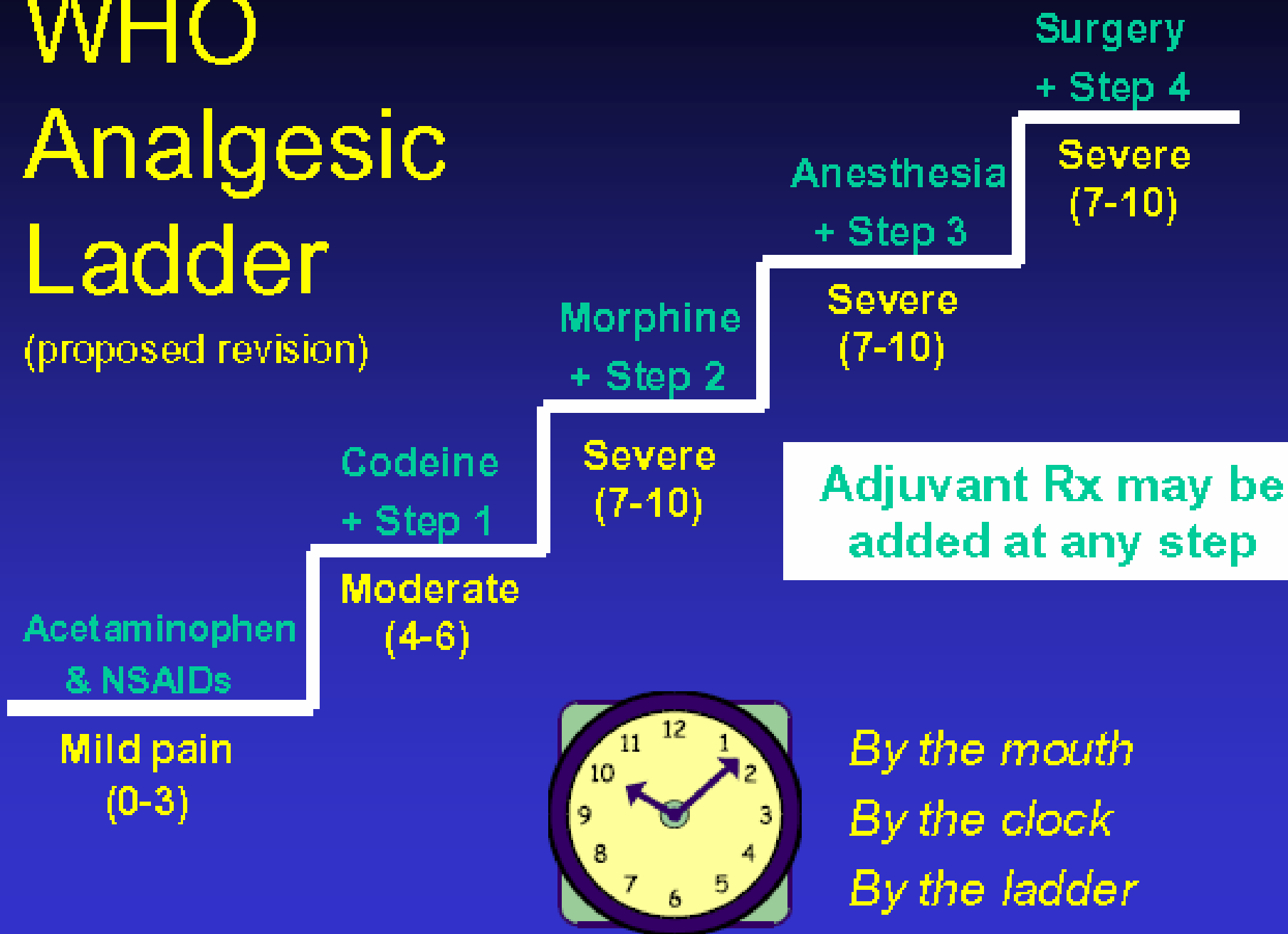
- Pain out of proportion

Spectrum of Pain Therapies

PHYSICAL	PSYCHOLOGIC	PHARMACOLOGIC	SURGICAL
Normal activities	Hypnosis	OTC medication	Orthopedic
Aqua-fitness	Stress Management	Alternative therapy	Neurotomy
Physio	Cognitive Behavioural	Topical medications	Neurectomy
• Passive	Family therapy	NSAIDs	Implantable stimulators
• Active	Psychotherapy	Tricyclics	Implantable pain pump
Stretching	Mirror Visual Programming	Anticonvulsants	
Conditioning		OPIOIDS	
Weight training		Local anesthetics	
TENS		• Blocks	
TCNS		• Oral congeners	
Massage		Muscle relaxants	
Chiropractic		Sympathetic agents	
Acupuncture		NMDA blockers	

WHO Analgesic Ladder

(proposed revision)



Opioid Equivalency

<u>Opioid</u>	<u>PO</u>	<u>IV/SC</u>
Codeine	100 mg	50 mg
Morphine	10 mg	5 mg
Oxycodone	5 mg	2.5 mg
Hydromorphone	2 mg	1 mg
<hr/>		
Methadone	1 mg	
Fentanyl		50 mcg
Sufentanil		5 mcg
Tramadol?		

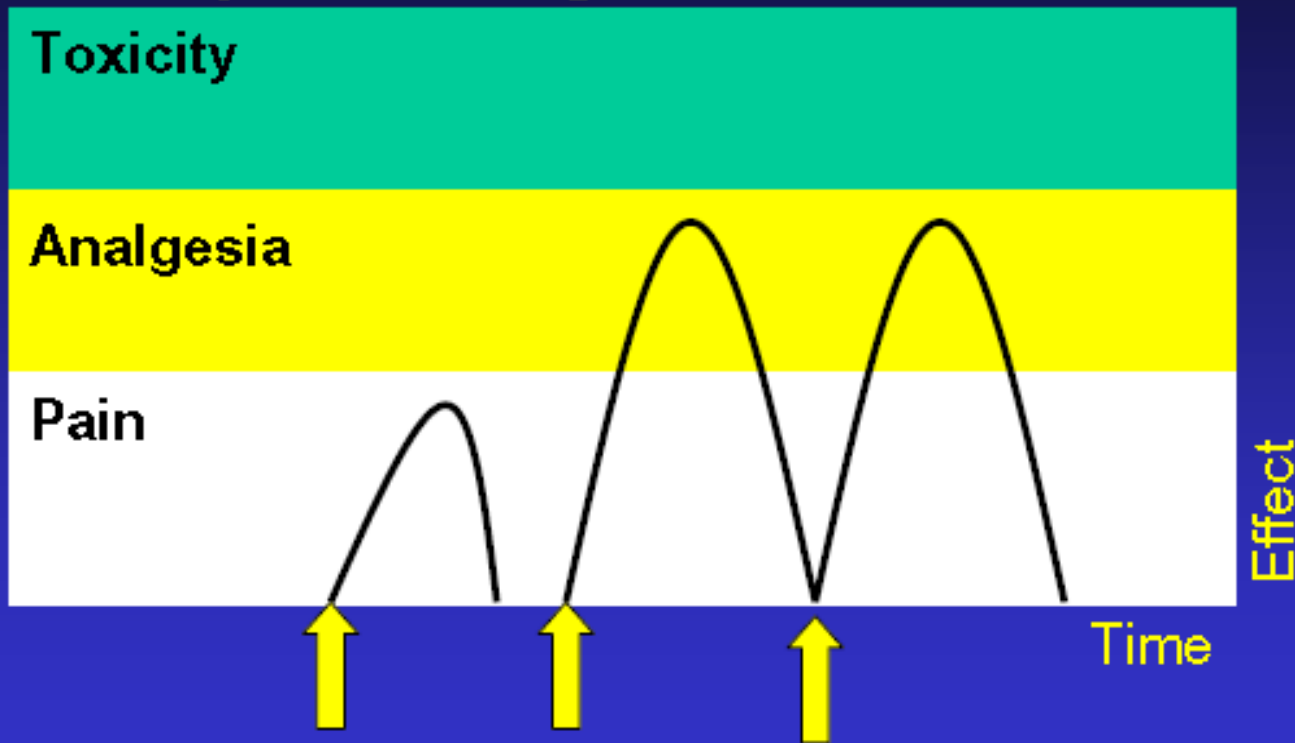


Opioid Dosing

- Dose immediate release formulations “IR” q4h
 - morphine, hydromorphone, codeine, oxycodone
- Dose controlled release formulations:
 - “Contin” or “Meslon” q8-12h
 - “Kadian” q24h
- Dose fentanyl patch q2-3 days

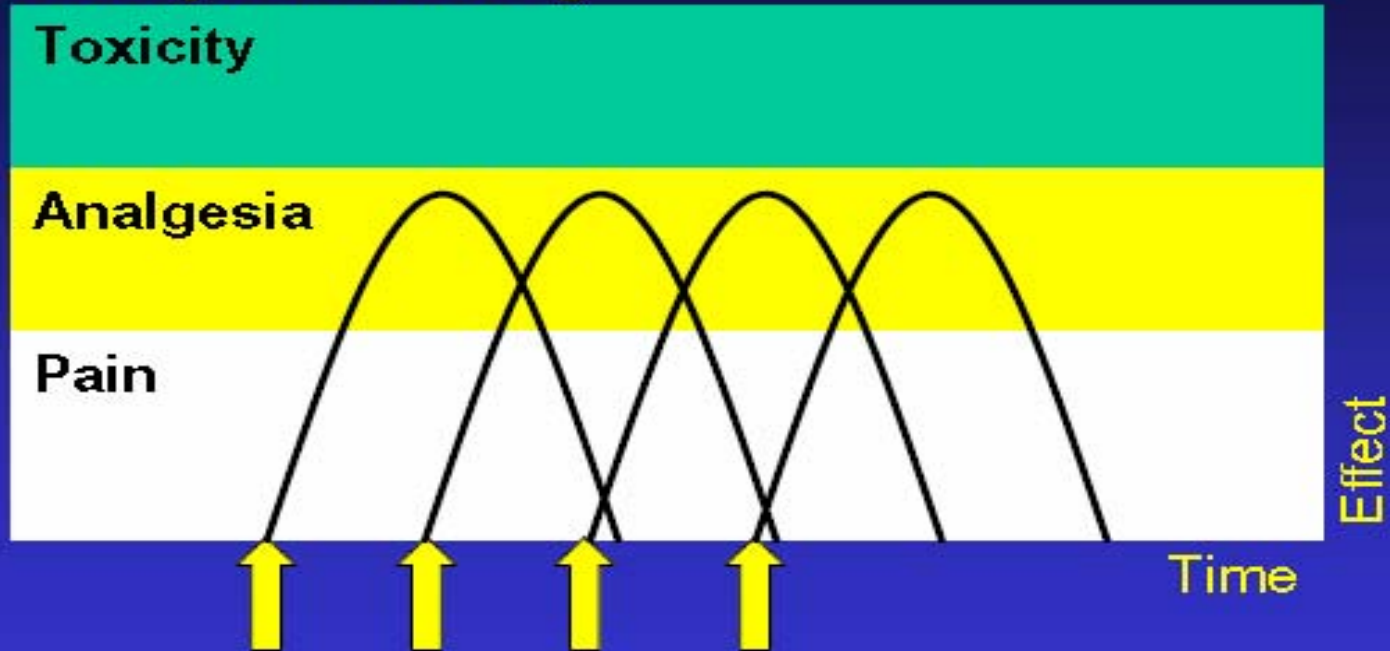
Opioid Dosing

Opioids *Inadequate dosing*



Opioid Dosing

Opioids *Adequate dosing*





Case Study

- How do we classify John's pain?
- Nociceptive - somatic
- Neuropathic - neuralgic



Case Study

- John has his 24h dose added up and divided by 6 for q4h dosing and then increased incrementally for increased analgesia
- PRN medication given for patient to take for “Breakthrough” pain as needed
- Morphine 30mg po or 15mg IV/SC q4h and q1h prn ordered and was titrated up daily



Case Study

- Pain improves to 5/10 at rest but remains worse with movement and is 10/10 for shooting pain down leg
- Any other ideas?

Incident Pain

Subtype of “breakthrough” pain

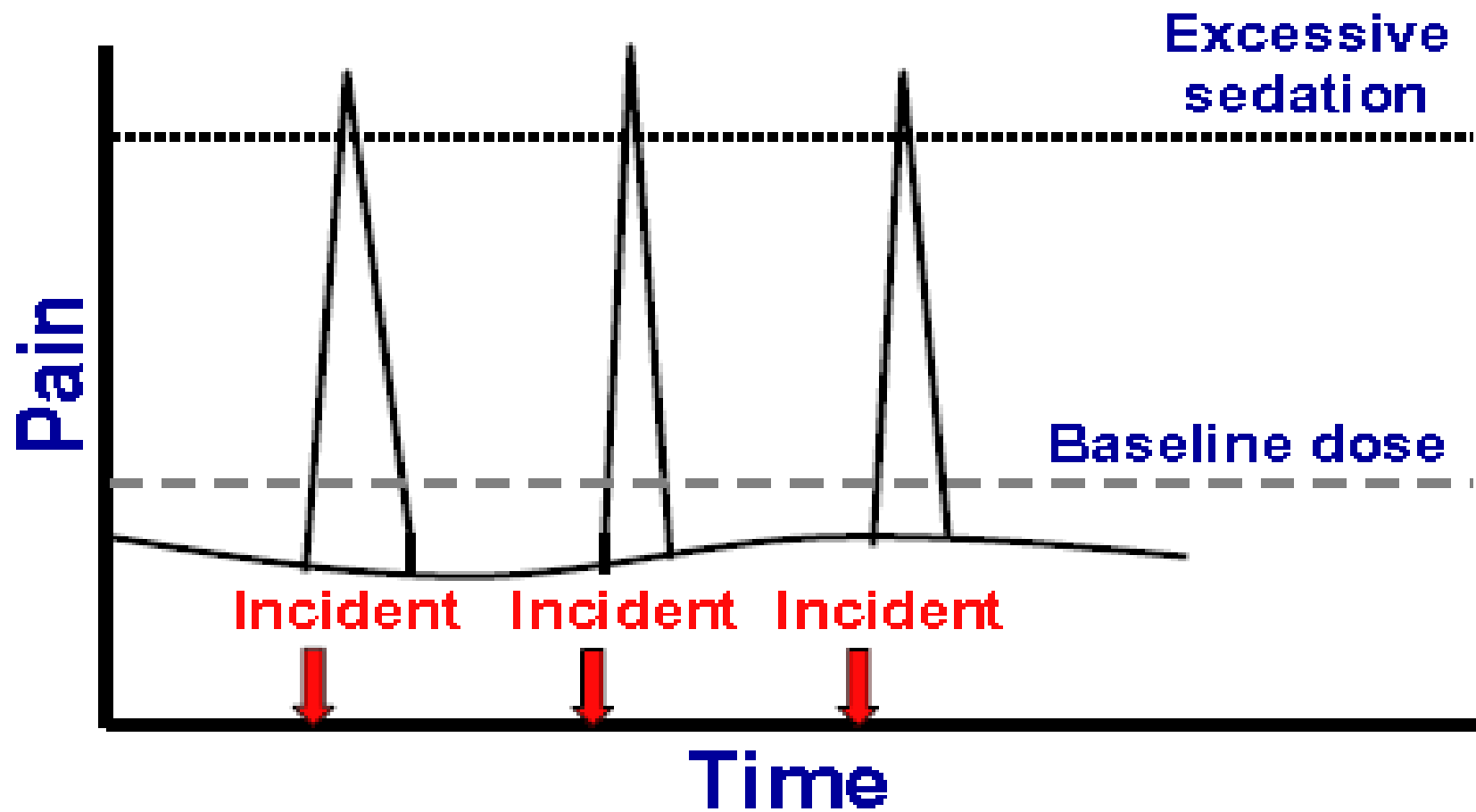
Severe transitory increase in pain on
baseline of moderate intensity or less

Caused by movement (voluntary or
otherwise), cutaneous wounds, dressing
changes, toileting, cough, etc.

Due to somatic, visceral, neuropathic pain

Related to baseline pain
mechanism/cancer

Incident Pain



Steps of the Incident Pain and Incident Dyspnea Protocol

Step	Medication	Dose SL (50 µg/ml)
1	Fentanyl	50
2	Sufentanil	25
3	Sufentanil	50
4	Sufentanil	100 *

*100 µg requires 2 ml of the 50 µg/ml (large vol). Recommend it be given in two portions of 1 ml each, 10 - 15 minutes apart. The planned activity (dressing change, moving the patient, etc.) should wait until 10 - 15 minutes after the second portion.

WRHA Palliative Care Subprogram,
courtesy of Dr. M Harlos



Adjuvant Pain Medications

- Drugs whose initial use was not for pain
- Include:
 - Antidepressants
 - Anticonvulsants
 - Steroids
 - Clonidine
 - NMDA (N-methyl D-aspartate) receptor antagonists
 - Bisphosphonates
 - ? Cannabinoids
- Useful for Neuropathic Pain



Adjuvant Pain Medications

- Antidepressants

- Amitriptyline
- Nortriptyline
- Desipramine
- Imipramine
- Venlafaxine
- Duoxetine

- Anticonvulsants

- Gabapentin
- Pregabalin
- Carbamazepine
- Lamotrigine
- Topiramate



Adjuvant Pain Medications

- Corticosteroids
 - Decrease peritumoral edema
 - Decrease inflammation
 - Decrease spontaneous nerve depolarization
- NMDA Antagonists
 - Ketamine
 - Dextromethorphan
 - Methadone
- Bisphosphonates
 - For bony pain
 - Breast cancer and MM

Palliative Radiotherapy



- Useful for pain:
 - bone pain secondary to cancer deposits
 - Relieving pressure of tumor on nerves



Case Study

- Dexamethasone is added
- Gabapentin is added and titrated up
- Morphine dose is gradually increased
- John undergoes radiotherapy to his L-spine

- John becomes drowsy, starts to hallucinate and pain control remains suboptimal



Opioid Adverse Effects

GI

Constipation, nausea, vomiting, GE reflux (rare)

Autonomic

Dry mouth, urinary retention, postural hypotension

CNS

Drowsiness, delirium, respiratory depression (rare)

Cutaneous

Itch, sweating



Case Study

- John is rotated to methadone with improvement hallucinations, drowsiness and in baseline pain - down to 3/10
- Neuropathic pain remains debilitating (10/10) despite max doses of gabapentin and dexamethasone
- What now?



Don't Forget!

- Many components to pain
- Involve multidisciplinary team
 - PT – exercise, ambulation aids, TENS
 - OT - home modifications
 - Social work and Spiritual Care
 - Psychologist

off the mark

by Mark Parisi

w w w . o f f t h e m a r k . c o m

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MOUSE CHIROPRACTORS

Case Study



- John is transferred to palliative care and a chronic epidural catheter is placed.



Case Study

- Despite his epidural and systemic treatment, pain continues and the patient is offered sedation.
- John spent the last 3 days of his life sedated
- Any thoughts or comments?



Summary

- Pain and suffering is complex – involve the MDT
- Use opioids appropriately – no need to be scared with careful titration
- Use adjuvants for difficult or neuropathic pain
- Consider radiotherapy for bony pain or nerve compression
- Consider interventional anesthetic techniques for difficult pain
- Consider other/alternate pain therapies