
بسم الله الرحمن الرحيم

ACUTE PAIN MANAGEMENT

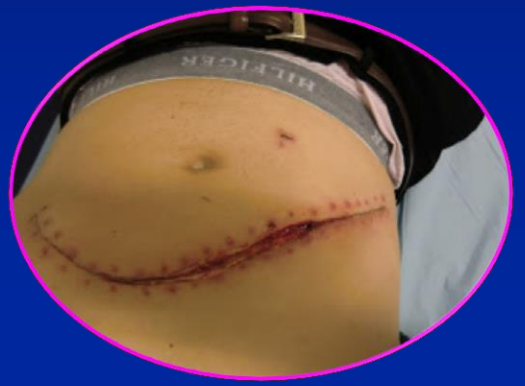
Salah N. El-Tallawy

Prof. of Anesthesia and Pain Management

Faculty of Medicine - Minia Univ & NCI - Cairo Univ - Egypt

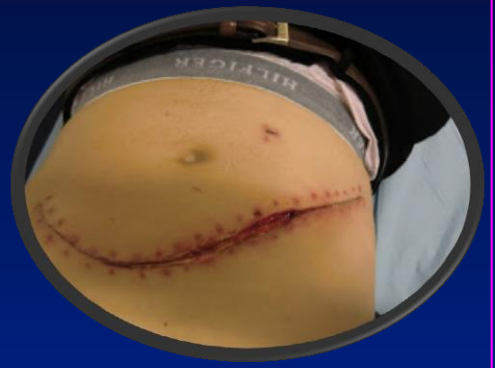
Assc Prof. KKUH, King Saud Univ., KSA

http://faculty.ksu.edu.sa/salaheltallawy



OBJECTIVES

1. Introduction
2. Classification
3. Assessment of Acute Pain
4. Management of Acute Pain
5. Summary



1. INTRODUCTION TO ACUTE PAIN

DEFINITION & CAUSES & TYPES

What is the definition of pain?

- **Pain:**

"Sensory and/or emotional experience associated with actual or potential tissue damage or expressed in such terms"

(Ready & Edwards, 1992). IASP Press

(2) Classification of Pain

A) According to the "Duration"

1. **Acute pain:**
   - Pain of Recent onset,
   - Limited duration,
   - Has an Identifiable Cause.
2. **Subacute pain**
3. **Chronic Pain**

Classification of Pain

B) According to the "Pathophysiology"

1. **Nociceptive pain**
2. **Neuropathic pain**
3. **Idiopathic**
4. **Mixed Pain**

- Identifiable stimuli
- Subtypes:
  - Somatic
  - Bony
  - Visceral e.g.

Dull, diffuse, Referred, ± N/V

Classification of Pain

C) According to the "Cause"

1. Postoperative pain,
2. Labor pain,
3. Trauma,
4. Sickle cell crisis,
5. Cancer,
6. LBP,
7. Musculoskeletal pain,
8. Others.

What are the causes of "Post-operative Pain" ?

▪ Incision	Skin & SC. tissue
▪ Deep	Cutting, Coagulation, Trauma
▪ Laparoscopic	CO_2 Insufflations
▪ Positional	Nerve compression, traction & bed sore.
▪ IV site	Needles, extravasation, venous irritation
▪ Tubes	Drains, NGT, catheters,…
▪ Respiratory	ETT, coughing, deep breathing
▪ Rehab.	Physiotherapy, movement
▪ Surgical	Complication of surgery
▪ Others	Cast, dressing too tight, urinary retention

What is the importance of APP Relief?

IMPACTS OF UNCONTROLLED ACUTE PAIN

- *Clinical Perspective:*
  - Delayed wound healing
  - ↑ risk of pulmonary / CVS morbidity
  - ↑ risk of thrombosis
  - ↑ morbidity / mortality risk
  - Sustained neuro-endocrinal stress response

Traditional

- *Patient Perspective:*
  - ↑ Pt's suffering
  - Fear and Anxiety
  - Poor quality of life
  - ↑ length of hospital stay
  - ↑ Costs
  - ↑ Risk of CPOP

Non-Traditional

IASP Newsletter 2011;4:1-3

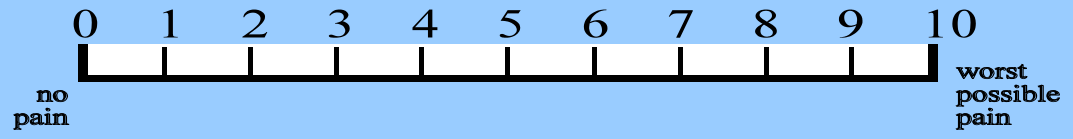
3. ASSESSMENTS of Acute Pain

PAIN MEASUREMENTS

Visual Analogue Scale (VAS)

0 ——————————— 10

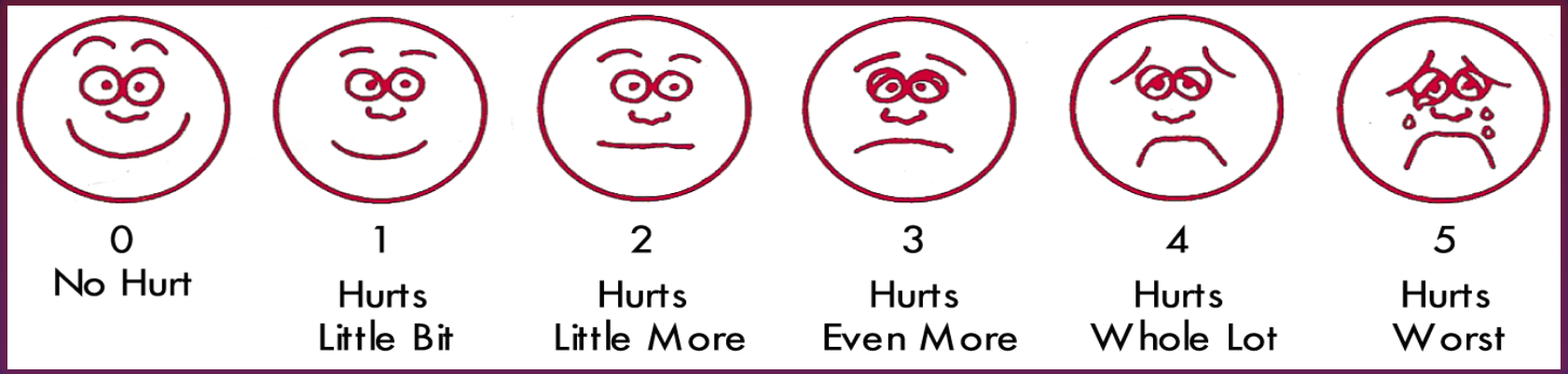
Numeric Rating Scale (NRS)

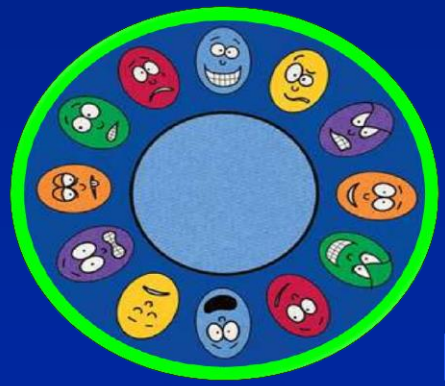


Verbal Rating Score

PAIN MEASUREMENTS

Pediatric Scores "Facial expression"





4. MANAGEMENTS of Acute Pain

Modalities of the "ACUTE PAIN MANAGEMENT"

Pharmaco -Therapy

1. **Non Opioid Analgesics**
   - NSAADs
     - ASA
     - Paracetamol
   - NSAIDs
     - Non-selective COX inhibitors
     - Selective COX-2 inhibitors
2. **Opioids**
   - Weak Opioids.
   - Strong Opioids.
   - Mixed agonist-antagonists
3. **Adjuvants**
   - α-2 Agonists
   - LA
   - SP inhibitors
   - NMDA inhibitors
   - Anticonvulsant / Antidepressants
   - Calcitonin
   - Relaxants
   - Cannabinoids
   - Others

Regional Techniques

1. Local infiltration
2. Wound perfusion
3. Intra-abdominal inj. of LA/Analg.
4. Intercostal & Interpleural
5. Paravertebral
6. USG-RA: e.g. TAP, Plexus & PNB
7. Neuraxial:
   - Epidural:
     - Thoracic
     - Lumbar
   - Spinal
     - Single shot
     - CSA
   - CSE

WHO Ladder System

Pain persists or increase

WHO III Strong opioids

± Adjuvant

Moderate pain (4-6)

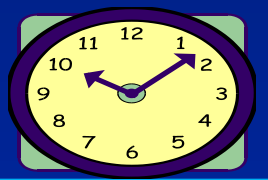
WHO class II Weak opioids

± Adjuvant

Mild pain (0-3)

WHO class I NSAIDs

± Adjuvant



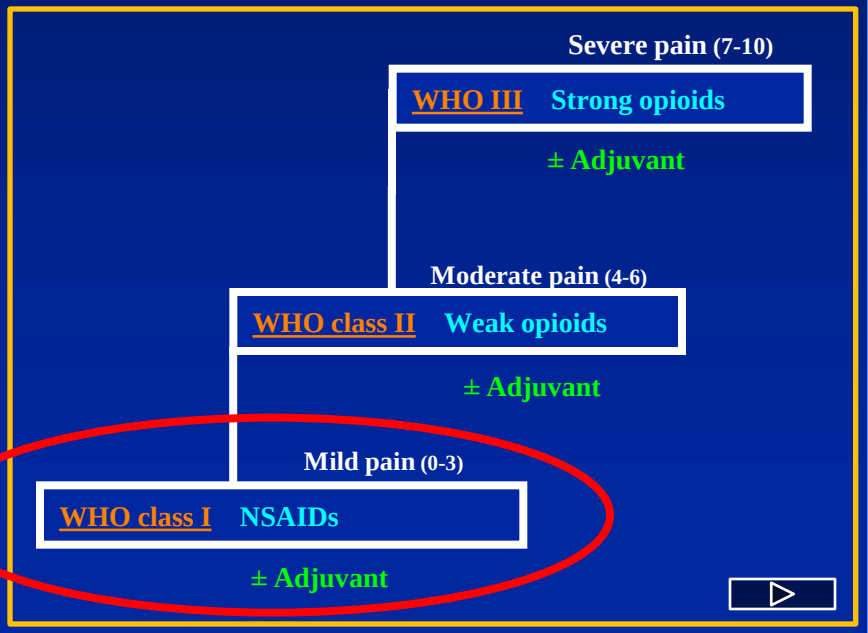
- ✓By the mouth
- ✓By the clock
- ✓By the ladder

WHO (I) Non Opioid Analgesics

1. Non Opioid Analgesics

- NSAADs
  - Analgesic / Anti-inflam / Antipyretic / Anticoagulant
    - *ASA*
  - Analgesic / Antipyretic
    - *Paracetamol*

- NSAIDs
  - Non-selective COX inhibitors:
    - *Diclofenac & Ketoprofen*
  - Selective COX-2 inhibitors
    - *Celecoxib & Rofecoxib*



Acute Pain Management - Scientific Evidence - AAGBI Guidelines 2010

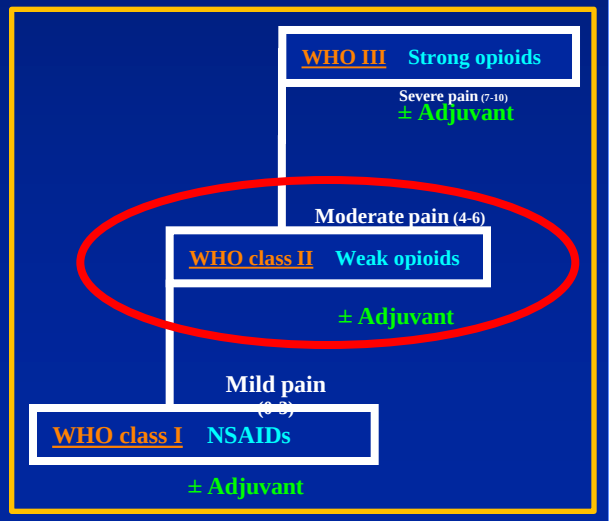
WHO Ladder II - Weak Opioids:

1. TRAMADOL: *(Tramal : Morphine = 1 : 10)*

- Dose: 20 – 400 mg/d
- It has a lower risk of respiratory depression *(Level II).*
- It is an effective treatment for NP pain *(Level I*
- Side effects: N/V

2. Codeine: *(Codeine : Morphine = 1 : 10)*

- A very weak mu-receptor agonist
- Metabolized to morphine.



Acute Pain Management - Scientific Evidence - AAGBI Guidelines 2010

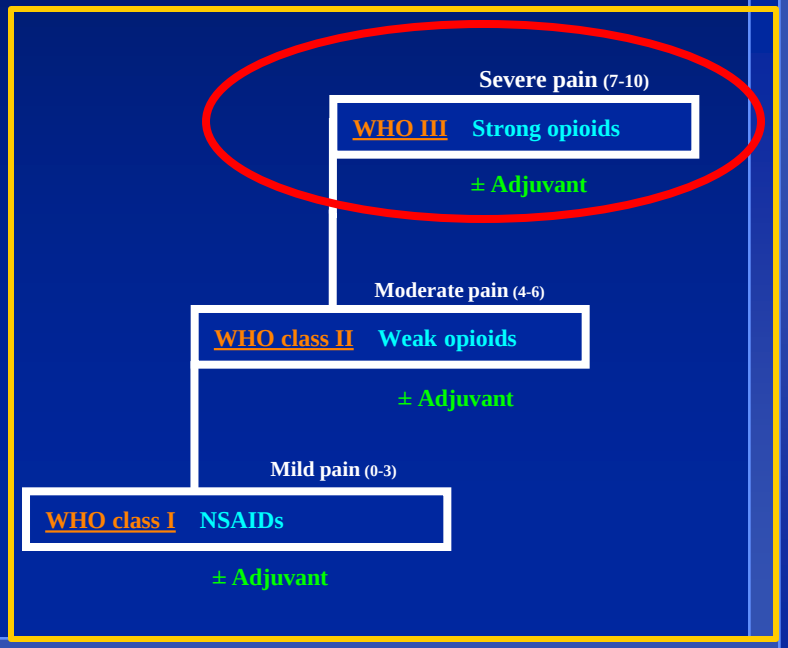
WHO Ladder III - Strong Opioids

1. Morphine:

- Standard opioid
- All route of administrations
- Metabolites: + M6G & - M3G
- Side effects:
  - Sedation,
  - PONV,
  - Respiratory Depression

2. Fentanyl: *(Fentanyl : Mophine = 1:10)*

- Commonly used in acute pain
- Rapid action & Short duration.
- Forms: iv, sc, transnasal, NXL, TTS



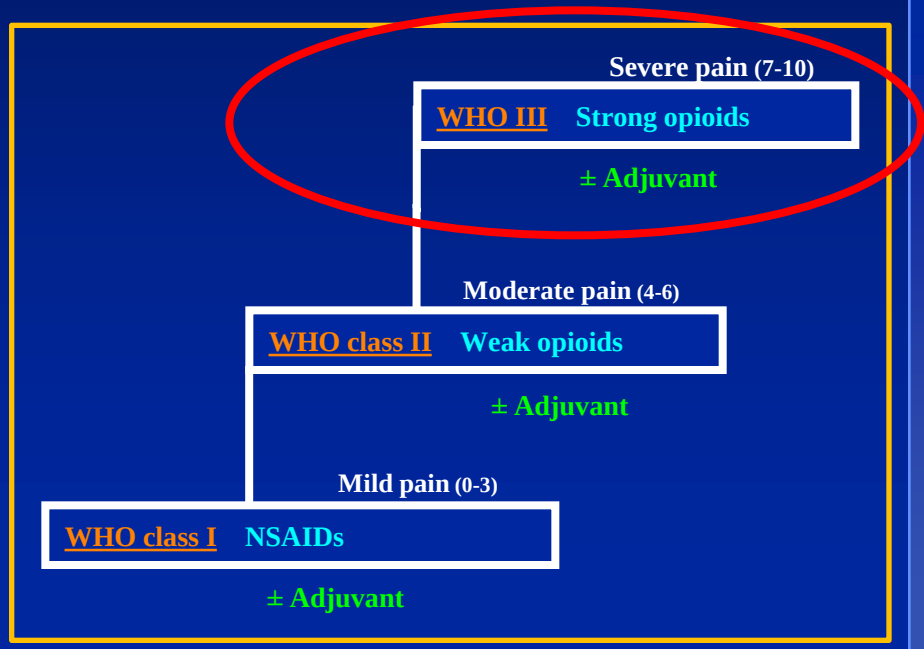
WHO Ladder III - Strong Opioids

3. Pethidene: *(Pethidine : Morphine = (1:10)*

- May be used ⇒ postop. shivering
- Side effects:
  - Active metabolite: ↑ t½ .
  - More N/V > morphine

4. Hydromorphone:

- Powerful > Morphine (1 : 5)
- Rapidly acting.
- ↓ PONV
- ↑ Respiratory ---



OPIOID THERAPY - Prescribing Principles

1. Drug selection
2. Route of administration
3. PCA
4. Dose Adjustments
5. Treating side effects

OPIOID THERAPY: 1. Drug Selection

1. **Right:** ***Analgesic, Dose, Route & Schedule***
2. **At any given time:**
   - **Only one long acting opioid should be ordered.**
3. **Increase the dose** ***(but not the number of opioids)*** **until:**
   - **Adequate pain relief, or**
   - **Intolerable side effects occur.**
4. **Anticipate & Prevent:**
   - **Side effects.**
   - **Breakthrough pain.**
5. **If ++ side effects ⇒** ***Opioid Rotation.***

2. Routes of Administration

- Oral
- Rectal
- S.C.
- Intranasal
- Sublingual
- IM
- IV
- TTS
- Neuraxial
  - Spinal
  - Epidural
- Others

3. Methods of Administration

- Continuous infusion
- Regular

- Boluses (on-demand analgesia):
  - Physician / Nurse
  - Patient
- Combined → → →

3. Patient Controlled Analgesia "PCA"

- **Systemic:** IV & SC
- **Regional:** Neuraxial, Plexus & PNB.
- **Sitting:**
  - Pre-set by the physician.
  - Activated by the patient.
  - Programming modalities include:
    1. Loading dose or infusion.
    2. Demand bolus dose.
    3. Constant background infusion rate.
    4. Lock-out interval.
    5. Maximum hourly dose.

} Safety

Roman S et al. Perioperative Care & Pain Management in Weight Loss Surgery. OBESITY RESEARCH 2005;13(2):254-266

OPIOID THERAPY: 5. Side Effects in Opioids

- **Sedation / Dizziness** (49-70%)
- **Nausea / Vomiting** (31-48%)
- **Respiratory depression** (20-41%)
- **Itch / Rash** (0.5-5%)
- **Tolerance ***
- **Urinary retention**
- **Drug interactions**
- **Constipation (30-70%)**
- **Dependence**
- **Addiction**
- **Opioid induced pain**

WHO Ladder IV – Regional Anesthetic Techniques

1. Local infiltration
2. Wound perfusion
3. Intra-abdominal LA
4. Intercostal
5. Interpleural
6. Paravertebral
7. USG - PNB: BPB, TAP, Femoral
8. Neuraxial:
    - Epidural:
        - Thoracic
        - Lumbar
    - Spinal
        - Single shot
        - CSA
    - CSE

Summary

&

Conclusions

SUMMARY – *Scientific Evidence*

- **WHO Ladder System should be followed.** (Evidence III)
- **Analgesia should be selected depending on the initial *Pain Assessment*.** (III)
- **If the disease is not controlled on a given step ➔**
  ➔ *Move directly to the Next Step*. (III)
- **For continuous pain:**
  - ***Analgesics should be prescribed on a Regular Basis.***
- **Only one strong opioid should be ordered at a given time.**

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Thank You

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