

Acute opioid analgesics poisoning.

Acute paracetamol and salicylate poisoning.

antihypertensives and cardiac glycosides poisoning

## I. Pain –definition

- pathophysiological background
- inflammatory pathways
- peripheral and CNS receptors and modulation
- physiological and psychological effects of pain
- mechanism of action of NSAIDs and opioids

## II. Opioid toxicity

### 1. Opioid medications

- classes, mechanism of action
- common drugs in clinical practice and therapeutic ranges
- toxicokinetics
- toxicodynamics- opioid toxidrome

### 2. Diagnostic work up and toxanalysis

### 3. Therapeutic approach

#### 3.1. ABCDE

#### 3.2. GIT decontamination –precautions

#### 3.3. Specific antidote- naloxone, indications for use, dose regimen

#### 3.4. discharge criteria and special considerations when treating patients with iv drug abuse

## III. Paracetamol poisoning

### 1. Dose regimens in paediatric and adult patients

### 2. Toxicokinetics and toxicodynamics – pathophysiological mechanism of action and liver toxicity

-biotransformation

-NAPQI formation

-the role of the glutathione depletion

### 3. Clinical presentation- onset, progression of symptoms, stages and severity of the poisoning

-symptoms

-laboratory findings

- toxic dose ingested and grades
- acute liver failure- symptoms
- 4. Treatment approach
- ABCDE
- GIT decontamination
- symptomatic treatment
- specific antidote treatment
- \*treatment indication nomogram
- \*mechanism of action of N-acetylcystein oral and iv dosing regimen
- \*invasive detoxication
- \*non specific supportive therapy
- \*liver transplant

#### IV Salicylate poisoning

1. Commonly used drugs and indications
2. Basic toxicokinetics and dynamics of salicylates. GIT absorption
3. Clinical presentation
  - onset
  - stages
  - typical symptoms- pathognomic/ tinnitus/, effects on GIT, CNS, cellular metabolism
4. Metabolic acidosis – basics, aspirin as an example drug poisoning leading to MA, differential diagnose
5. Treatment
  - 5.1. ABCDE
  - 5.2. GIT decontamination
  - 5.2. symptomatic treatment
  - 5.3. Use of NaHCO<sub>3</sub>
    - to enhance the elimination
    - to treat the life threatening MA – formulas to calculate the total body bicarbonate deficit and dose of the bicarbonate
  - 5.4. invasive methods – hemodialysis

#### V. Antihypertensive drug poisoning

1. Classes of medications and basic mechanism of action
2. B-blocker and Ca<sup>2+</sup>-blocker toxicity
  - 2.1. CNS and cardiac toxicity
  - 2.2. clinical presentation and ECG interpretation
  - 2.3. treatment approach
    - ABCDE
    - GIT decontamination
    - symptomatic treatment – use of atropine
    - glucagon as non specific antidote

- intralipid infusion
- temporary pacing

#### VI Digitalis glycoside poisoning

1. Types of medication and clinical indication
2. Mechanism of action- basics
3. Clinical presentation
  - onset
  - CNS toxicity, cardiac toxicity- ECG changes
  - electrolyte imbalance
4. Treatment plan
  - ABCDE
  - symptomatic treatment in bradycardia/tachycardia
  - use of antiarrhythmics
  - use of specific Fab

#### Clinical case:

A 67 y/o male commits suicidal attempt by ingesting 20 tablets of slow release morphine sulfate. Resuscitated at scene by paramedics as found comatose and bradypneic ,and after an initial assessment in A&E is brought to the toxicology clinic

He adamantly refuses hospital admission understanding all the risks, but as he walks out of the clinic he collapses 100m away and is brought back by his family

- a) what do you think might have happened
- b) did he have the capacity to make an informed refusal to be admitted. What could be the legal pitfalls
- c) what dose and regimen of the antidote would be required
- d) what referral should you consider after patients discharge

