Opioid Intoxication

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OPIUM & OPIOIDS

ENDOGENOUS OPIODS

- Endorphine
- Encephline
- Dinorphine

Opioid receptors

- ***Mu***
  - mu 1 : high affinity for morphine, supraspinal analgesia, no complication
  - mu 2 : miosis, respiratory depression, uphoeia, physical dependency, bradicardia, decreased G.I Motility, urinary retention
- ***kapa*** *(1,2,3*):* miosis , dysphoria, Resp. depression, psychomimetic effects
- ***Delta*** *(1,2)* : spinal analgesia , Resp. Depression*
- ***Sigma***
- ***Epsilone***

- Opiates; class of drugs
- Opioids: natural & un-natural products of opium
- un-natural
  - Synthetic
  - Semi- synthetics

STRUCTURE

- Phenantren
  - morphine, heroin, codein, nalin, buprenorph.
- Diphenyleheptan
  - methadone
- Phenylepyridine
  - diphenoxylate, phentanyle, meperidine
- Benzomorphine
  - pentazocine
- Morphinone

- Pure Agonists
  - Morphine
  - Methadone
  - Phentanyle

- Pure Antagonists
  - Naloxan
  - Naltrexon
  - Nalmephen

Synthetic opioids

- Morphine / Pethidine
- Methadone
- Codeine/ Codone
- Propoxyphen / Paraguric/ Meperidine
- Buprenorphine / Temjesic/ Tedigesic
- Suboxone
- Tramadole

Kinetics

- V/d
- P.B

- 1-10 lit/kg
- Variable
  - 7% codone
  - 90% MTD

- Metabolization
- Half life

- Liver/CYP
- Variable

  HL Prolonged in toxicity

- Erythromycine increase opioid effects

Common opioids in Iran

- **Opium**
- **Heroin**: brown/white
  - Crack heroin
- **Combined**: Heroin + CNS stimulant (speed ball)

Manner of poisoning

- Accidental
  - Child: opium/ drugs
  - Medication
    - Underlying disease
    - Drug interaction
    - Acid-Base imbalance
- Intentional
  - Addict : after quit/ new substance
  - First user
  - Body stuffer or body packer

مواردی که بایستی بفکر مسمومیت با مواد مخدر بود

- در هر کودک با کاهش سطح هوشیاری
- در هر فرد زندانی با LOC یا دپرسیون تنفسی
- افرادی که با کوما به اورژانس آورده می شوند
- سابقه قبلی مصرف مواد مخدر
- بیماران با LOC پیدا شده در پارک
- مردمک های میوتیک

Aghabikloo 9/19/2022

Causes of poisoning

- First exposure
  - Accidental
  - Suicidal
- Recreational
- Changing in purity
- Body packer/ stuffer
- Iatrogenic

Presentation

- Altered mental status
  - Euphoria, lethargy to coma
- Pin point pupils
- Respiratory depression (hypoventilation)
- Decreased BS
- Normal or low BP & HR

Triad of Opioids Toxicity

LOC

Pin point pupil

Respiratory Depression

Opioids toxidrom (triad)

Pin point pupils

+

Bradypnea

+

LOC

Others symptoms & signs

- Meperidine; Seizure/ SS/ QTc prolong.
- MTD; delayed & recurrent apnea, QTc/Tdp
- Dexteromet.: SS
- Propoxy; IA antiarrhytmic effect/ QRS Widening/ cardiotoxicity
- Tramadol; Seizure
- Fentanyl; proserotenergic (SS)/seizure/muscle spasm

Diagnosis

- Is a clinical diagnosis
- Urine toxicology screen (**RIA**);
  - **is not routine/ a lot of false positive & negative result**
  - **For criminal purpose**
  - **In children**
- Positive test mean; **recent use not current intoxication**

DIAGNOSIS

- *Opioids Toxidrom*
  - *C.N.S Depression*
  - *Respi. Depression* (90%)
  - *Pinpoint pupil* (90%)
- ***Naloxan chalenge test*** *(1th user)*
- *Lab. Test :* *R.I.A , T.L.C*

Diagnostic evaluation

- B.S check
- CPK (if Hx of prolonged immobilization)
- CXR; ARDS, ALI, AP
- EKG; IHD, MTD or propoxyphene toxicity

Treatment

TREATMENT

- *Effective oxygenation & ventilatoin*
  - 02 100% + peep for pul. edema
- *Hemodynamic support*
- *Opium Antagonist*
  - Naloxan
  - Nalmefen
  - Naltrexon

Assessment of ventilation
Indexes

- Respiratory rate
- End tidal Co2 (Capnography)
- PaCo2 (ABG)
- O2 saturation (pulse oxymetery)
- Pao2 (ABG)

The goal of therapy is

Adequate ventilation

Not normal mental status

Management

- Should be focused on support of the pt;s airway & breathing
- Attention should be paid to the dept & rate of ventilation
- G.I. Decontamination?
- Activated Charcoal?
- WBI ?
- Hemodialysis ?

G.I. Decontamination?

only for

- co-ingestion
- Suicidal large amount oral ingestion
- Body packer/Stuffer

Activated Charcoal?

- In children
- Co-ingestion
- Ingestion of large amount
- SDAC

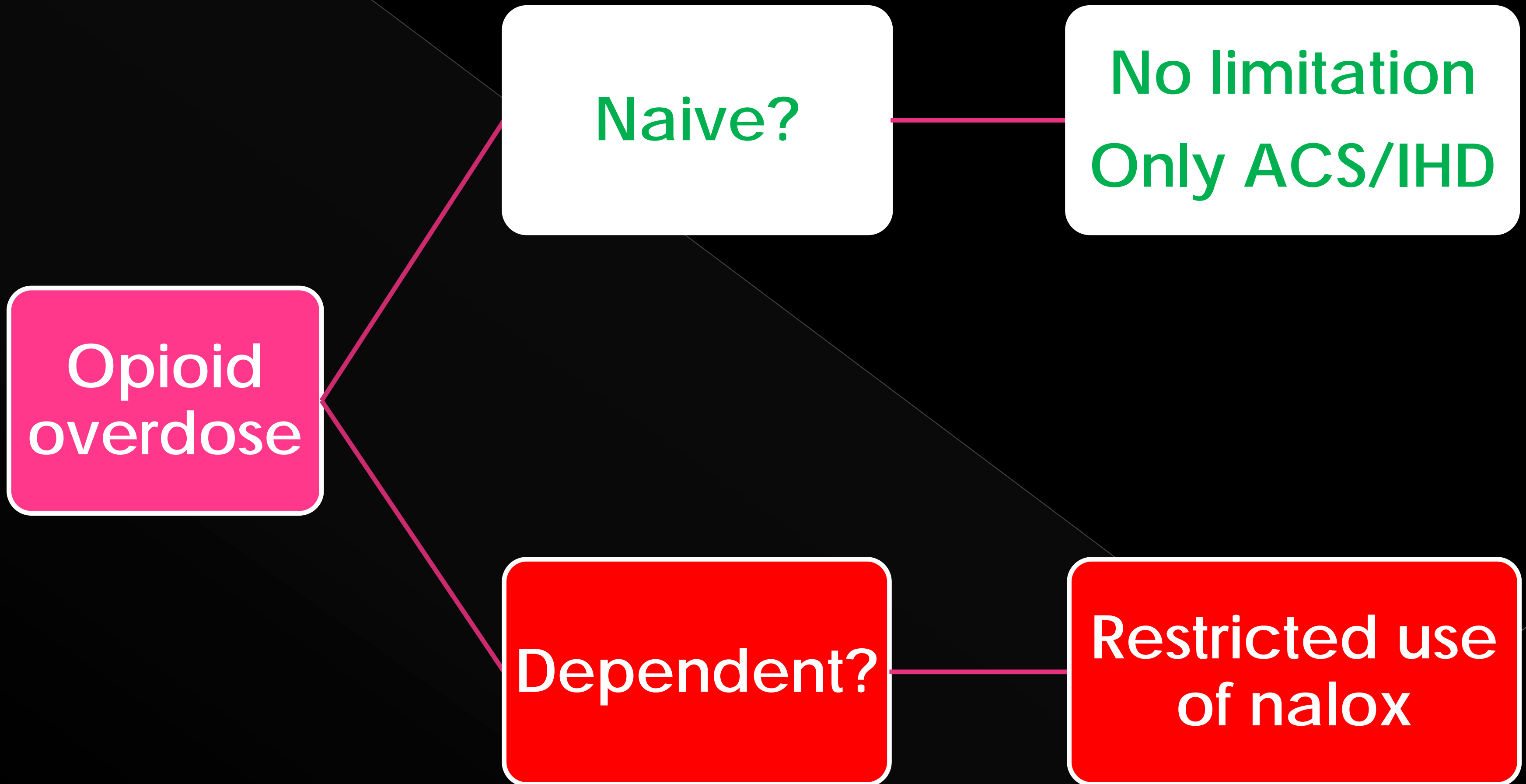
WBI ?

- For body packing
- Suicidal large amount of opium or drugs

Antidotal therapy

- Indications
- Depend on cases
    - Non-addict person
    - Addicted
    - Underlying disease
    - Complicated
- Narrow half life
- Few contraindication: IHD/CAD

Dose of Narcan



Dose of Narcan

دوز نالوکسان در مسمومیت با مخدرها

بیمار غیروابسته (Naïve)

بجز در موارد ACS/IHD

محدويت در دوز تجويز آنتي دوت وجود ندارد

بیمار وابسته به اوپیوئیدها و یامعتاد

محدوديت جدي در مصرف نالوكسان(تجويز دوز حداقل) به جهت جلوگيري از بروز سندرم ترك

Doses of Narcan

- Low dose
- Full dose / Response dose/ Bolus
- Maint. Dose; Continues infusion
- Rout of administration ?

Response to Narcan ?

- Dramatic Response
- Partial response
    - Sepsis
    - Head injury
    - Sedative-Hypnotics toxicity

Pt. condition

- Is apneic (respiratory arrest)?
- Is in respiratory failure?

  (spont. respiration but hypoventilated)

Respiration?

Yes

NO
(Apnea/ arrest)

Adequate

Failure

Respiration?

Yes

Adequate

Failure

NO

(Apnea)

Ventil. With

O2 by bag-valve mask

+

Nalox

Intubation

آيا بيمار
تنفس دارد؟

Yes

تنفس نرمال دارد
(Adequate)

مانيتورينگ تنفسي
تجويز نالوكسان در صورت بروز نارسايي يا آپنه

اختلال تنفسي دارد

. تجويز نالوكسان
Low dose
. پايش تنفسي

NO
(آپنه)

.تجويز اكسيژن با
bag-valve mask
.تجويز فوري آنتي دوت نالوكسان

Intubation
در صورت عدم پاسخ به نالوكسان

Respiration?

Yes

NO

(Apnea/ arrest)

Adequate

Failure

Nalox for Apnea

- 0.2-2 mg, iv/iM
- Repeated q 30s-2min
- Max.; 25 Amp

Respiration?

Yes

Adequate

Adequate Ventilation

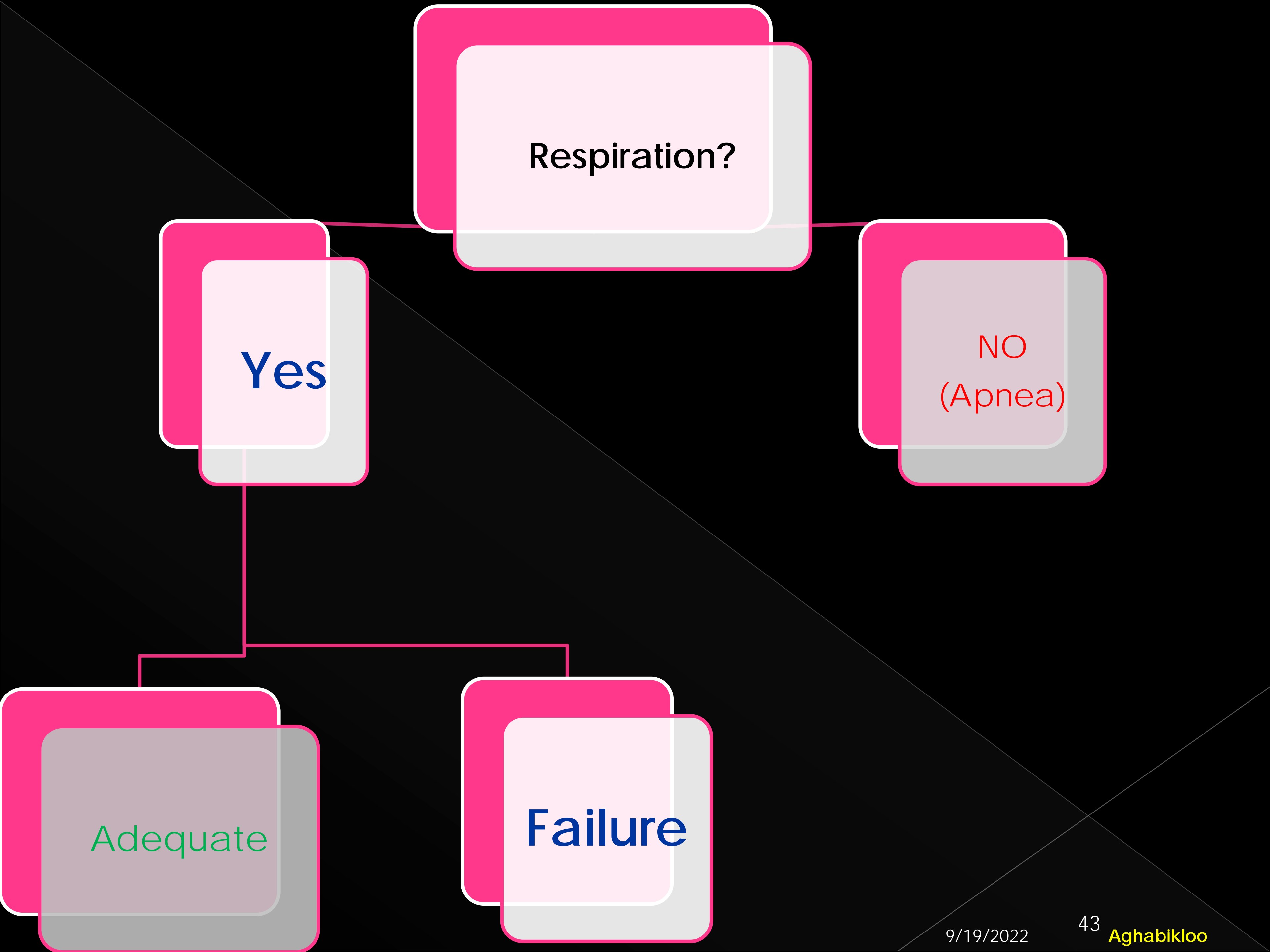
clinic

- RR>12/min + PCO2<5,
- O2 Sat.>90% + GCS>8

Therapy

- No intervention

- Just monitoring ventilation
- RR/Capnography/ABG/Pulse oxymetery

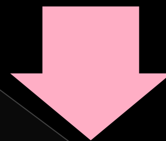

Respiration?
Yes
NO
(Apnea)
Adequate
Failure

Respiratory failure

Spont. Breath

but

O2 Sat.<90% or/and RR<12 or/and pco2>50

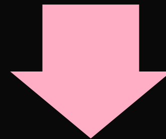


O2 therapy

+

Nalox

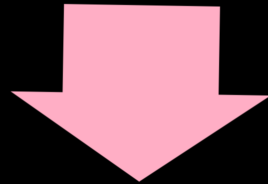
0.05 mg iv or im, repeat until adequate vent.



Max. dose 10mg

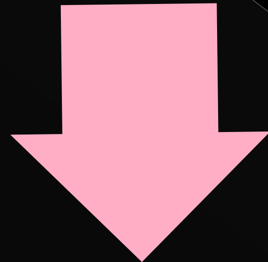
Nalox

0.5-2 mg iv/sc/im



Repeated doses of Nalox

if needed depending on amount & Duration of action



Nalox infusion

2/3 of total response dose/8-10 h

Nalox infusion

- Develop WS
  - Stop infusion
    - If toxicity return
      - Restart infusion %50 initial rate
- Respiratory depression
  - Readminister %50 initial bolus q few min until improvement
    - Increase infusion rate by %50 initial rate

Discharge criteria

1. When V/S are stable
2. Normal ventilation more than **1 h** after stopping Naloxone

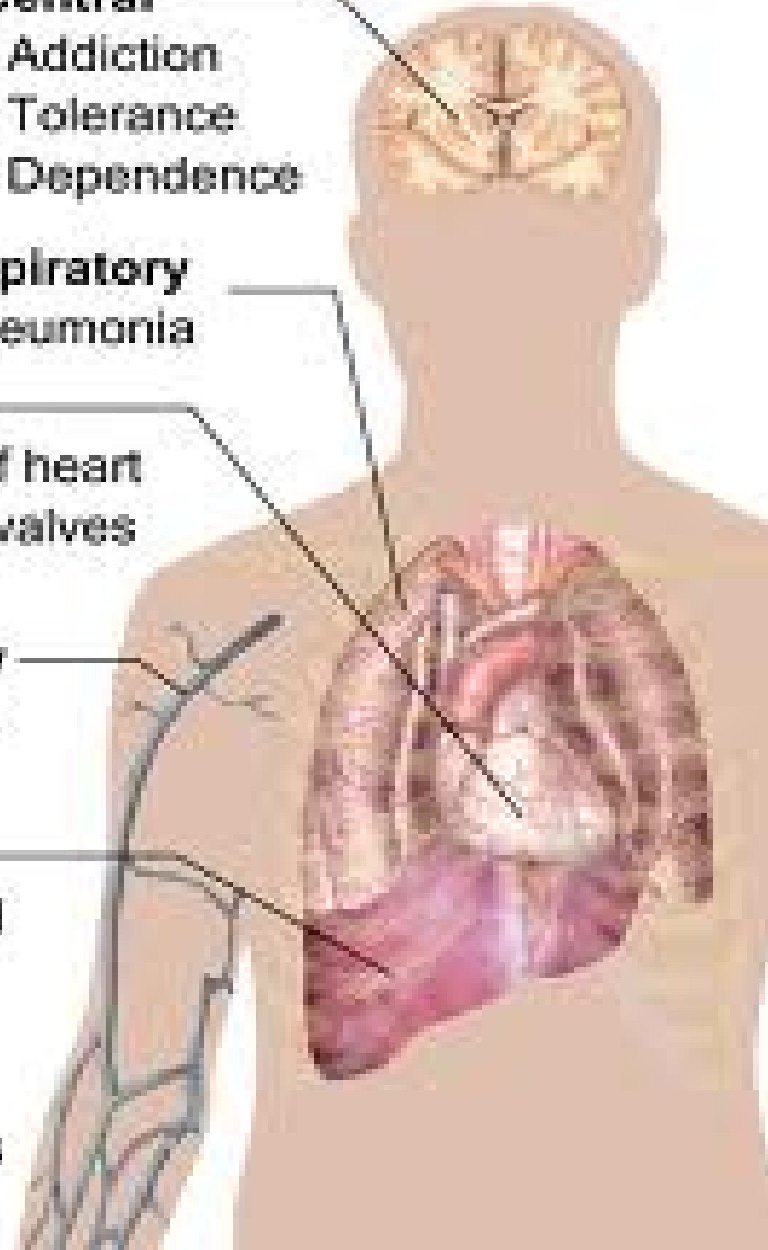
DD;

- Toxicologic
  - Co & Cyanide
  - BNZP
  - Barbiturate
  - Sedative Hypnotics
  - Phenothiazines
  - Mushrooms
  - Nut meg
  - Alcohol
  - Clonidine
  - Tramadol
- Non-toxicologic
  - CVA
  - Metabolic dis.
  - H.T
  - CNS infection
  - Sepsis
  - Electrol. Imbalance
  - Pontine hemorrhage

Complicated Opioid Overdose

- Head trauma
- Co-ingestion
- Underlying diseases; IHD/COPD/Asthma
- concurrent dis.
- Aspiration Pneumonia
- ALI/ARDS
- Rhabdomyolysis
- ARF
- Hypoglycemia
- Hypothermia
- Ischemic-hypoxic encephalopathy
- Iv drug Abusers & its complications

complications



Admission Criteria

- *Use of large amount*
- *Complicated form*
- *Toxicity in non- addict person*
- *Suicidal cases*
- *Hemodynamic & Respiratory disorder*
- *Coincident injury*
- *poisoning with prolong half-life substance*

Thanks