Principle in management of poisoned patient

What to do, and in what order to do it?!

Alaa malkawi

Poisoning in Jordan

- Period during 2006-2008 at the National Drug and Poison Information Center (NDPIC) (poisoning emergency no. 109)
- The problem is underestimated and sometimes unreported
- The most common reason of poisoning was unintentional (49.39%), followed by suicidal attempts (23.94%)
- The highest incidence was in children less or equal to 5 years (34.9%), then 20-29 years (~23%)

بالدراسة هاي ← الـ Results كانت 50٪ تبسم من غير قصد و 24٪ منهم كانت محاولات انتحارية

الـ Unintentional كانت غالباً بالأطفال

Poisoning in Jordan

* السبب الرئيسي كان للـ poisoning كانت الدوا الكتر في الـ acetaminophen بعدها الـ Sedative - Hypnotics

- The major cause of poisoning was due to drugs (42%) of all exposures, where **acetaminophen** products were responsible for most of the cases within this category (13.4%) then **benzodiazepines**, **NSAID** and then **antihistamines**
- Bites and stings were relatively highly prevalent (23.7% of exposures), which is justified by the geographical nature of Jordan

← كان ممكن يكون من الحيوانات مثل الحية او النملة مثلاً

- Then household products, hydrocarbons and pesticides

← كان ممكن يكون من المنظفات

How Does the Poisoned Patien

اول شي بصير CNS toxicety المريض بيفقد الوعي ويبطل قادر يتنفس

- Many toxins depress the central nervous system (CNS)...coma
- A comatose patients frequently lose their airway protective reflexes and their respiratory drive
- .....may die as a result of airway obstruction by the
  - flaccid tongue, → بالع لسانه
  - aspiration of gastric contents in the tracheobronchial tree, or
  - respiratory arrest → بيصير بسبب الأدوية
- .....most commonly due to overdoses of narcotics (1) and sedative-hypnotic drugs (2) (eg, barbiturates and alcohol)

← لازم يكون هو قادر يتنفس

← فقد الوعي وبلش يستفرغ ورجعت رجوع للجهاز التنفسي

How Does the Poisoned Patien

يتصير بسبب عدة اشياء

- **Cardiovascular toxicity**.....Hypotension may be due to depression of cardiac contractility ①
- ② ✓ Hypovolemia resulting from vomiting, diarrhea → المريض فقد سوائل كبير — ممكن يكون بسبب Bleeding
- ③ ✓ Peripheral vascular collapse due to blockade of -adrenoceptor-mediated vascular tone → CCB / B.B اذا اخذ يتعمل Block ال
- ④ ✓ Lethal cardiac arrhythmias.....overdose of ephedrine, amphetamines, cocaine, digitalis, and theophylline → over dose من ادوية يتكون قاتلة
- ⑤ ✓ Hypothermia or hyperthermia can also produce severe hypotension حرارة المريض يترتفع بسبب

PVC ← Vasodilation بالتالي

Toxicty فيصير معين Medication

↳ Hypotension → Cardiovascular collapse

How Does the Poisoned Patien

- Seizures may cause pulmonary aspiration, hypoxia, brain damage
- Cellular hypoxia may occur in spite of adequate ventilation (poisons that interfere with transport or utilization of oxygen cyanide, HS, CO..)
- Other organ system damage may be delayed in onset..... acetaminophen or certain mushrooms / paraquat
- Finally some patients may die because the behavioral effects of the ingested drug may result in traumatic injury (alcohol/sedative hypnotic drugs)

Principle in management of poiso patient

- While the majority of poisoned patients are awake and have stable vital signs, some may present unconscious or in shock.....so....:

1. Always assess the condition of the patients "ABCD"...clinical evaluation
2. Decide what must be done and in what order
3. Once the patient is stabilized, *and only then*, try to identify the poison, the quantity involved and how much time has been elapsed since exposure
4. Then, proceed with antidoting the poison

Airway.....Ensure airway and protect cervical spine

- Airway Assessment:
  - Consider to breath and speak to assess air entry
  - Signs of obstruction (flaccid tongue, vomitus....)
  - Apnea, dysphonia, cyanosis, airway distress
- Management Goals:
  - Prevent aspiration
  - Permit adequate oxygenation
- Basic Management
  - Simple positioning in the lateral decubitus position
  - Chin lift to open the airway
  - Sweep and suction to clear mouth of foreign material

Oral axis
Pharyngeal axis
Tracheal axis

SOURCE: Copyright, American Heart Association, *Instructor's Manual for Basic Life Support*. Dallas: American Heart Association, 1987.

★ *Figure 2-5. Head-tilt/chin-lift technique of opening airway.*

Airway

- The airway can also be maintained with artificial oropharyngeal or nasopharyngeal airway devices

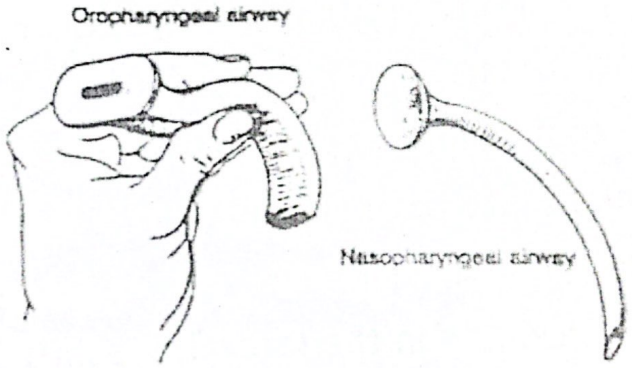


Figure 1

* هوان بيستخدموا اجهزة عشان ال airway يضل فاتح

بس مواي حد يتحامل معهم لأنه ممكن لو حد مو Trained يدخلها خطأ او يأدي انه aspiration لزيد ال او يأدي الى Bleeding

Airway

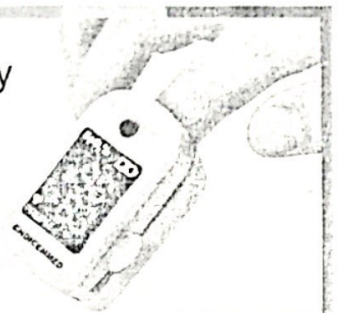
- **Endotracheal intubation:** *attempted only by those with training*
- Complications: vomiting with pulmonary aspiration; local trauma to the oropharynx, nasopharynx, and larynx; inadvertent intubation of the esophagus or a main-stem bronchus; and failure to intubate the patient after respiratory arrest has been induced by a neuromuscular blocker
- *Indications:* متى بنحتاج هياب الطرديه
  - ✓ Unable to protect airway
  - ✓ Inadequate spontaneous ventilation
  - ✓ Arterial blood gases ($pCO_2 > 60\%$) → High CO_2 means in ability to breath

to reduce the pH of the Blood - which leads to respiratory acidosis وده ارتفاع الـ CO_2 في الدم

Breathing →

اتأكدنا انه
ال airway فاتح
بس المريض يتنفس او لا!!

Pulse Oximetry



- By observation and oximetry (monitor the saturation of pt's Hb)
- Ventilatory failure.....most common cause of death in poisoned patients:
- Hypoxia.....brain damage, cardiac arrhythmias, and cardiac arrest
- Hypercarbia or hypercapnia.....acidosis (may contribute to arrhythmias)

ممكن يكون واضح
Chest ال يتطلع
يرتفع وينزل اذا
اه يتنفس
او صوت النفس
كهان

زيادة CO_2 بالدم ← acidosis

من مضاعفات ارتفاع ال CO_2

- → LOOK for mental status, chest movement, respiratory rate
- → LISTEN for air escaping during exhalation, sound of obstruction
- → FEEL for the flow of air, chest wall for crepitus
- → ASSESS tracheal position, auscultation of all lung fields

ممكن يكون في اسباب ال airway فاتح بس المريض مايم
CNS بال respiratory depresion, paralysis يتنفس ممكن بسبب
$\downarrow PO_2 \leftarrow \downarrow O_2$ ← Hypoxia هاد نوع يؤدي الى
(Oxg saturation)
Hypercapnia ← $\uparrow PCO_2$ ← conc ← وين توصل للخلايا Hemoglobin كمية ال Oxg الي رح تشبع

Circulation →

* بدنا نتأكد على
of maintaining Blood ~~[illegible]~~ in the Circulation → عن طريق نتأكد من ال Pulse rate + B.P

* نتأكد انه Heart rythme ال regulave or not

- ☐ Check skin color, temperature, capillary refill
  - ازرق ← Cianose — شاحب ← pale
- ☐ Check blood pressure and pulse rate and rhythm
- ☐ Management: stop major external bleeding
- ☐ Begin continuous ECG monitoring

Disability

To The patient respone to my commands

- Assess level of consciousness by AVPU method
  - A.....ALERT ← بحكي مع المريض وبرد علي
  - V.....responds to VERBAL stimuli → يتحكيله ارفع ايدك برفعها
  - P.....responds to PAINFUL stimuli ← يتعشي شيء على ايده او يدشر عليها عشان تشوف ازا بيتوجع
  - U.....UNRESPONSIVE → Because of comatose ممكن
- Size and reactivity of pupils → لما اسلط على العين الضو المفروض يصير constriction لحدقة العين ← ازا سلطت الضو وماني استجابة معناته في مشكلة بالعصب
- Movement of upper and lower extremities → central or peripheral لانه هين اي بحس بالألم؟ sensory neurons ال

* هاد الشي reflects if there's a neuronal damage or not

Neurological status

Forrr surrec
* مو للحفظ *

Depression	Symptoms
Stage 0	Asleep; drowsy but accountable; respond to verbal
Stage 1	Gag reflex, DRT present, respond to pain
Stage 2	DRT present, gag reflex present, no response to pain
Stage 3	DRT absence, no response to pain
Stage 4	Stage 3 symptoms + cardiovascular and respiratory compromise

Hamer ← الـ شاعت الدكاترة

DRT → اعطى ضربة ما معناة response اي في مشكله

DRT: deep tender reflex

Neurological status

Excitation	Symptoms
Stage 1	Restlessness, insomnia, tachycardia, flushed face, mydriasis
Stage 2	Stage 1 symptoms + convulsion, mild pyrexia
Stage 3	Arrhythmia, delirium, mania, HTN, hyperpyrexia
Stage 4	Stage 3 symptoms + convulsion and/or coma

اعلى درجة

The DONT Cocktail

* المريض يعاني من حمدول وهاد Thiamine deficiency هيوطط ب Syndrome ال

- Given to prevent or treat Wernicke-Korsakoff syndrome (encephalopathy & psychosis) resulting from thiamine deficiency in alcoholic patients (poor diet) and others with suspected vitamin deficiencies (100 mg, in the IV bottle or intramuscularly)

- Naloxone: All patients with CNS depression and respiratory depression should receive naloxone!

anti dot for opiods overdose

- *Caution:* may precipitate abrupt opioid withdrawal

يتكون symptoms مميزه لـ poison معين

The DONT Cocktail

* ٣ أعراض مميزه بتعرف انه الشخص عنده opiod overdose
1. pinpoint pupils (Miosis)
2. loss of consciousness
3. respiratory depression

* ٥ organophosphate poisoning
1. diarrhea 2. urination
3. Bradycardia 4. vomiting

- DOSE:
- 0.4 mg IV (may also be given intramuscularly)
- If there is no response within 1-2 minutes, give naloxone, 2 mg IV
- If there is still no response and opioid overdose is highly suspected give naloxone, 10-20 mg IV

X ارقام

Exposure

- Remove clothes and other items that interferes with a full evaluation

* remove any contaminated clothes *
وبيتغسل ~~الحاجه~~ اطريضن كمان

History

- Historical data should include the type of toxin ← يعرف نوع المادة
- Route of administration (e.g. ingestion, inhalation, intravenous) ← وطريقة اخذها
- Also ask about prior suicide attempts or psychiatric history ← ويعرف حتى اخذها

ازا كان يحاول ~~ينتحر~~ ينتحر

Identify the toxicant

- Patient history
- SATS
  - S: substance (name, ingredients, regular acting or sustained release, enteric coated?)
  - A: amount ingested
  - T: time ingested/exposure
  - S: symptoms (relate time ingestion to symptoms)

Identify the toxicant

- AMPLE
  - A: allergies, age, gender, wt
  - M: medication (including prescription drugs, OTC medication, vitamins, and herbal preparation)
  - P: past diseases, substance abuse or intentional ingestion
  - L: last meal....influence absorption
  - E: events leading to current condition

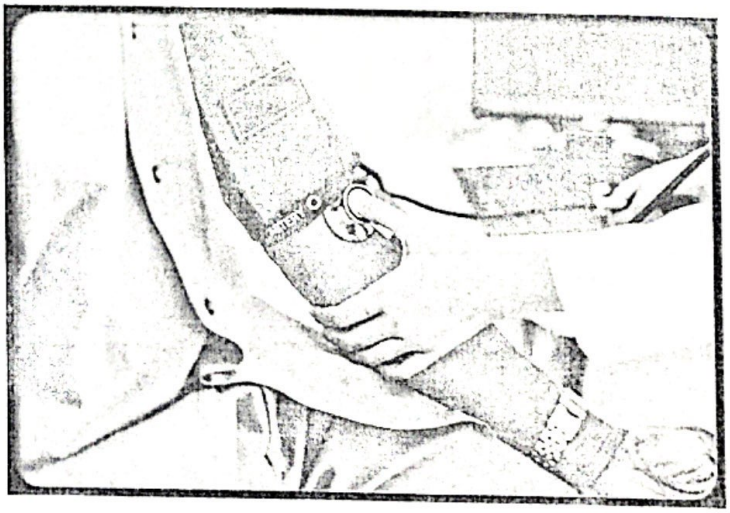
عشان نعرف اذا ماخد oral كيف بتأثر على rate of subs absorption from the GI

2. Physical Examination

- During the collection of data (history), a brief **physical examination** should be performed, emphasizing those areas most likely to give clues to the toxicologic diagnosis

- These includes: **vital signs** (BLOOD PRESSURE, PULSE, RESPIRATIONS AND TEMPERATURE), **eyes** and **mouth**, **skin**, **abdomen**, and **nervous system**

Blood Pressure



ادوية متوقع تعمل

HYPERTENSION ?

- Sympathomimetics
- Amphetamines
- Cocaine
- MAOI
- Nicotine

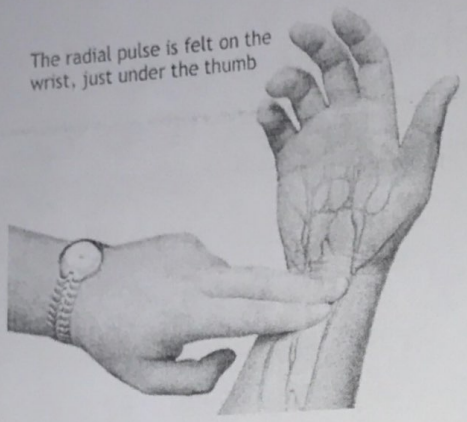
ادوية متوقع تعمل

HYPOTENSION ?

* اي دوا اله α-Blocking effect رح يعمل Hypotension
* وكمان ال Anti Histamine → α- Blocking

- Antipsychotic
- Beta blockers
- Calcium channel blockers
- Ethanol
- Nitrates → vasodilaters
- Opioids
- Sedative-hypnotics
- Tricyclic antidepressants *(with tachycardia)*

Pulse



الادوية اي تسبب

TACHYCARDIA ?

* اي دوا يعمل direct / inderect activation for the sympathitic nervous system

Blocking او يعمل for cholinergic system

+ اي دوا يعمل vasodilation رح يعمل reflex tachycardia مثل ال nitrates

- Amphetamines
- Atropine
- Antihistamines
- Caffeine
- Cyanide
- Nitrates

ادوية ممكن تعمل

BRADYCARDIA ?

- Beta blockers
- Calcium channel blockers
- Clonidine
- Digitalis
- Mushrooms
- Organophosphates
- Sedative hypnotics

* اي دوا الـ Cholinergic agonist effect