respiratory rate ← بزيد

HYPERVENTILATION

→ Some toxicant can cause hyperventilation and others hypoventilation

- Rapid respirations are typical of toxins that produce metabolic acidosis or cellular asphyxia..

1- Salicylates (like aspirin toxicity)

2- Carbon monoxide

3- Ethylene glycol

4- Hydrocarbons

respiratory rate ← بقل

(respiratory depression ممكن يعمل)

HYPOVENTILATION

← لما المريض يدخل العملية
لازم ال dose تكون محسوبة بدقة

GA

1- Anesthetics (generalised anesthetics)

2- Cyanide (respiratory ← والمريض بدخل ب cardiovascular collapse therby death)

3- Ethanol

4- Sedative hypnotics (أكثر barbiturate overdose)

5- Opioids (narcotics)

*

TEMPERATURE

- HYPERTHERMIA (>40°C):
  1- Sympathomimetics
  2- Amphetamines
  3- MAOI
  4- Anticholinergic (atropine) أشهر مثال
  5- Drugs producing seizures or muscular rigidity

تابع * It's not infection, can not be controled by NSAID, Because it's not prostaglandin related

لا يوجد علاج بعطيه

other tretment for symptomes control + muscle relaxent + Cooling

generalised anesthetics (GA) ممكن تسبب *

malignant hyperthermia (body temperture ارتفاع + muscle rigidity)

fever ما تكون ال (toxicity induced fever) toxicity بسبب ال

NSAID ما بربط أعطيه

تابع فوق

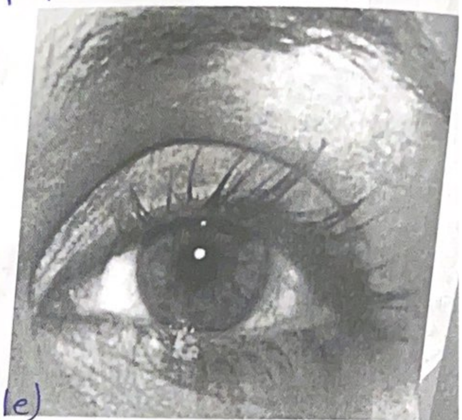
TEMPERATURE

- HYPOTHERMIA (<32°C):
  1) CNS depressants (barbiturates, opioids, ethanol, TCA...),
  2) Hypoglycemic agents
  3) Drugs that cause vasodilation → لانه vasodilation تزيد من heat loss
  Cold weather خاصة في
- .....(especially if accompanied by cold environment)
- N.B: commonly accompanied by hypotension and bradycardia → they can reduce body temperture

EYE FINDINGS

(تضييق)
كلمة أصغر

Miosis: (Constricted pupil)



1- Cholinergic agonist
سواء indirect or direct

2- Clonidine

(organophosphate)

3- Insecticides

opoid toxicity في حال

4- Narcotics (pin point pupile)

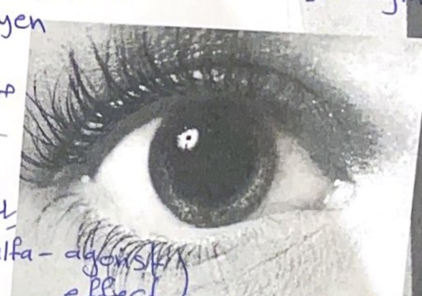
5- Phenothiazines
(Cholinergic agonist)

EYE FINDINGS

(توسع حدقة العين)
كلمة أكبر

Mydriasis:

- Anticholinergic (atropin)
- Sympathomimetic (يعمل activation for sympathetic nervous system على الها alfa- agonist effect)
- Withdrawal states
opoid / pethidine
→ alfa stimulation on the eye → mydriasis
alfa blocking " " → Miosis



Nystagmus: بتعكس nerve function (rapid oscillating eyen movement) حركة عين أفقية سريعة جداً

- Horizontal......phenytoin, alcohol, barbiturates + Carbamazepine
- Both vertical & horizontal: strongly suggest phencyclidine poisoning

abuse هي من المواد يلي بيعملوا
وبعمل hallucination, غير مستخدم كدواء حالياً

OTHERS

Cholinergic system ← ربما علاقة بال

- **Absent bowel sounds:** paralytic ileus.....anticholinergic intoxication or perforation coz of acid ingestion
- **Hyperactive bowel sounds**, abdominal cramping and diarrhea....organophosphates, *A muscaria* ← ممكن أعراض حادة كمثال
- Determine if **bladder distention** and **urinary retention exist**.....anticholinergic intoxication — intestinal obstriction أو
- **Skin appearance**: red, white, blue, warm, cool, dry, moist, piloerection (opioid withdrawal) — حادة Cholinergic antagonist

كمثال depression for bowel motion

absent bowel sounds بالتالي ما في حركة

Decontamination

how to overcome or decontaminate this toxin ?

1. Gastric exposure
2. Inhalation exposure
3. Dermal exposure
4. Ocular exposure

1 Inhalation exposure

- Dangerous because of high surface area and high vasculature for absorption...systemically to vital organs
- **Irritant gases exposure**!! mainly in industry, but also after mixing cleansing agents at home, or smoke inhalation in structural fires
- **Health care providers should protect themselves from contamination**
- Eg.: "organophosphate, fumes of H_2S, cyanide, ammonia, formaldehyde"

أكثر Contamination ممكن تنتقل by inhalation

لـ مثلاً الكلور و الفلاش بالتنضيف بعطو غازات ضارة ورائحة قوية

1 Inhalation exposure

Treatment:

- ☐ Immediate removal from hazardous environment
- ☐ 100% humidified O2
- ☐ Assisted ventilation
- ☐ Bronchodilators
- ☐ Observe for edema of respiratory tract, or noncardiogenic pulmonary edema. Early signs and symptoms include **"dyspnea, tachypnea, hypoxemia"**
- ☐ Monitor arterial blood gases or oximetry, chest x-ray, and pulmonary function

pulse

لـ عشان أقيس نسبة الإشباع

Dermal exposure

- Attendant should wear protective gear "gloves, goggles, shoe cover"
- Remove contaminated clothes, contact lenses and jewelry and place them in a plastic bag
- Gently rinse and wash skin with copious amount of water for at least 30min....start with lukewarm water "vasoconstriction"
- Use soap to remove oily substances
- Caustic contamination may need prolonged irrigation

(limited blood supply) ← VasoConstriction عمل بردنا

lipid soluble

Dermal exposure

2

- Some **substances may react with water**, should be **brushed off** e.g. chlorosulfonic acid, Ca oxide, titanium tetrachloride

(yellow liquid)

titanium oxide ← H_2O +

- For some substances, **local application of certain chemical compound as soaks may be useful**
  - Hydrofluoric acid...calcium gluconate 2.5%
  - Oxalic acid...calcium gluconate.

(F) flor ← + H_2O removed by

Ca^{+2}

bone

hypocalcemia

So some toxins can't be removed or deContaminated by water we need to use specilised Chemical for it

3 Ocular exposure

- At least 15-20min irrigation with fully retracted eyelids
- Don't neutralize acid or alkali; continue irrigation until pH of the tear is neutral
- After irrigation examine the eye for corneal damage
- Ophthalmogist consultation: لازم يراجع طبيب عيون
  - Ophthalmogist may instill topical cycloplegic agent, e.g. 5% homatropine or 2% scopolamine to prevent spasm of ciliary body
  - Topical antibiotic (sulfisoxazole or gentamicin)
  - Apply a sterile patch

لو واحد صارعنده إصابة بالعين بـ acidic media أكيد ما بنغسلها بمادة basic media لازم نستخدم مادة neutral

Decontamination

- Gastric Decontamination
- Inhalation exposure
- Dermal exposure
- Ocular exposure

Decontamination

④ Gastric decontamination *(decrease absorption)*

- Dilution
- Emesis → بخلي المريض يستفرغ
- Gastric lavage
- Activated charcoal → الفحم النشط حتى يعمل adsorption
- Cathartics → مسهّل
- Whole bowel irrigation → toxic لل material

* بحكيلك إزا مر وقت طويل (أكثر من ساعة) ممكن يكون عالقا من Emesis / dilution / gastric lavage عن طريق gastric emptying اني اعمل gastric lavage بس مع هيك المستشفيات بعملوهم وخاصة بسمم

④ Gastric Decontamination

- **Controversy** about the roles of emesis, gastric lavage, activated charcoal, and cathartics to decontaminate the gastrointestinal tract
- **Little medical support** for gut-emptying procedures, especially after a **delay of 60 minutes** or more very little of the ingested dose is removed by emesis or gastric lavage
- Moreover, **simple oral administration of activated charcoal without prior gut emptying seems to be as effective as the traditional sequence of gut emptying followed by charcoal**

Gastric Decontamination

- However, in some circumstances, aggressive gut decontamination may potentially be life saving, even after more than 1-2 hours

- Examples: ingestion of highly toxic drugs (eg, calcium antagonists, colchicine), ingestion of **drugs not adsorbed to charcoal** (eg, **iron, lithium**), ingestion of **massive amounts of a drug** (eg, **150-200 aspirin tablets**), and ingestion **of sustained-release or enteric-coated products**

Decontamination

- Gastric decontamination *(decrease absorption)*
  - Dilution
  - Emesis
  - Gastric lavage
  - Activated charcoal
  - Cathartics
  - Whole bowel irrigation

DILUTION → أخفف تركيز المادة الموجودة بالمعدة

- Dilution of the poison:
  1. 1-2 cupfuls of water to children
  2. 2-3 cupfuls of water to adult
  3. A better rule to give a quantity comfortable swallowed
- Water??
  1. Reduce gastric irritation
  2. Add bulk to the stomach needed later for emesis
- Carbohydrated beverages??....NO!! ← ما يعطى كمية كبيرة منه
  - CO2 distension of the stomach....opening pyloric sphincter
- Milk??....NO!!
  - Increase absorption of lipophilic toxicant...&....delay emetic action of ipecac

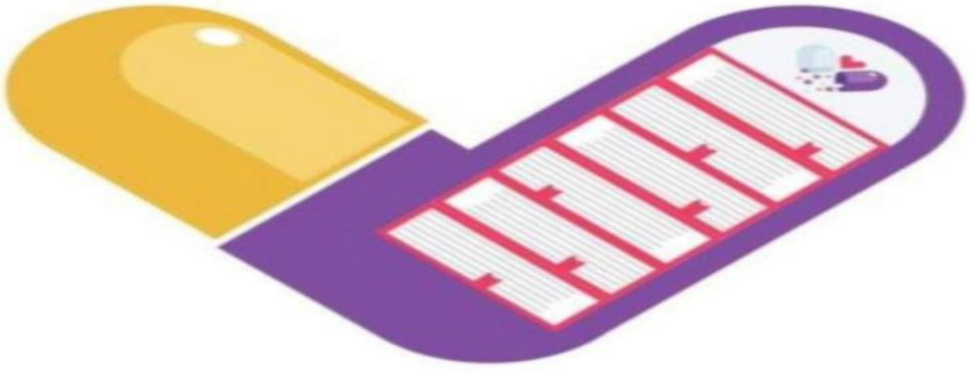
← اذا المادة lipid Soluble وبتذوبه حليب راح يزيد الامتصاص

- * .....water is the BEST and ONLY fluid to used when a poison is unknown.

- * Excessive water will distend the stomach, pyloric sphincter relaxation, emptying gastric content into the duodenum....more difficult to remove the poison

- * Emesis successful only if there is fluid in the stomach....water dissolve the poison and provide a vehicle for expulsion

Sara Jammain



Artery Academy