Household poisons

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Content:

- Definition
- Non-toxic household ingestion
- Mild GIT irritating ingestions
- Low toxicity products
- Toxic household Products

Household poisons

❖ **Definition: Household poisoning** is the poisoning that occur due to exposure to **home products**, especial happened by **children**, and sometimes by adult (accidental or suicidal).

❖ **Route & sites of Exposure:**

- Ingestion (GIT) ►►(the most common rote)
- Inhalation (Lungs)
- Injection: intravenous, intramuscular, intraperitoneal
- Topical (Skin)
- Effectiveness of the Route:
  I.V > Inhalation > I.P. > I.M. > Ingestion > Topical

❖ **Some chemicals may be highly toxic by one route but not by others**

Non-Toxic ingestion of household Products

- **Why we need to identify non-Toxic substances?**

To avoid subjecting of patients to **potential harms** from unnecessary interventions and techniques indicated for serious exposures and to **decrease burden on healthcare giver.**

How to decide that any substance is non-toxic?

- Absolute identification of the product and its ingredients.

- The **history** ensures there is no possible **co ingestion** of unknown substances

- **Signal words** (CAUTION, WARNING or DANGER) **not appear** on the product label.

How to decide that any substance is non-toxic?

- Route of exposure (Some chemicals may be highly toxic by one route but not by others)

- Dose: **No product is Entirely safe** and all can produce symptoms if a large enough concentration is consumed

- Based on medical literature and clinical experience.

- The patient is asymptomatic or has developed the expected benign self-limited toxicity.

A) Example of non-toxic ingestions (unless very large amount):

- **Air freshener**
- **Aluminum foil**
- **Mercury (ingestion)**

Glass??

N.B: **Mercury vapor is toxic (inhalation)**

- **Silica gel**

- **Cat litter sand**

- **Cosmetics**

- **Matches**

- Baby lotion
- Calamine lotion
- Zinc oxide ointment

- **Dough (clay)**
- **Glitter**
- **Chalk**

- Wax colors
- marker colors
- Ink (water based)
- Pencil

B) Mild GIT irritating ingestions

- The items in this list usually have **little or no effect** in **small ingestions**.
- In **moderate to large ingestions**, gastrointestinal effects such as diarrhea, constipation, stomach cramps, or vomiting may occur.
- The effects are usually **mild** and **rarely** require medical intervention.

- Corticosteroids, Antibiotic and Antifungal creams/ ointments.
- Ear drops
- Glycerin
- Body lotion
- Hand soap
- Shampoo
- Shaving foam
- Dish soap
- laundry detergents

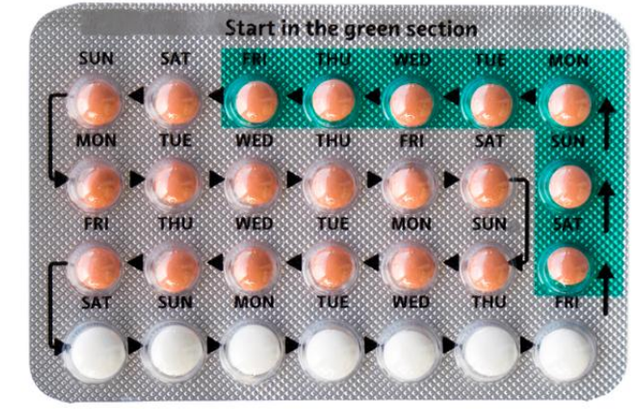
C) Low toxicity products:

- These products may contain **small amounts** **of potentially toxic ingredients**, but rarely cause problems because of the **small concentrations** or conditions of exposure.

- **Capsaicin sprays:** These **self-defense sprays** contain **capsaicin**, the main ingredient in chili peppers. Exposure causes intense **mucous membrane irritation** and **burning sensation.**

- **Cyanoacrylate glues: Ingestion** of the polymerized glue is **harmless**. **Corneal abrasions** may occur following **ocular** exposure. **Adhesion of skin and eyelids** is possible following **dermal** exposure.

- **Oral contraceptives:** Birth control pills contain varying amounts of **estrogens** and **progesterones.**
- **children's bodies** are **not ready** to respond to hormones.
- In excessive amounts (up to 20 pills) these may cause **stomach upset** resolved by it self.
- and **in females** (even prepuberty) may cause **transient vaginal spotting.**
- Some formulations may contain **iron (GIT upset).**



- **Fire extinguishers:**
- The 2 common types contain **sodium bicarbonate** (white powder) or **monoammonium phosphate** (yellow powder). **Small ingestions** result in little to **no effect**, **Mucous membrane irritation** is common.
- Major risk is **pneumonitis** after extensive **inhalation**.

- **Baby powders (talc):**

These products have **little or no** toxicity when **ingested**. However, if aspirated into the lungs, they can cause an inflammatory pneumonitis.

Toxic household Products

Acids	Alkalis	Volatile substances	other
Toilet cleaner (Flash)	**Bleaching agents:** • Sodium hypochlorite (chlorex) • Hydrogen peroxides	Perfumes	**Button battery**
Phenol		**Hydrocarbons:** • Kerosene • gasoline • Paint thinner	**Mercury (inhalation)**
Antiseptic solutions	Soap		
vinegar	KOH, NAOH, Ammonia		Pesticides &rodenticides
	Some detergents	**Mothballs (naphthalene)**	Medicines

Hydrocarbons (Kerosene, Gasoline)

Sources: Commonly used as a fuel for heating, cooking, machines and vehicles and in some industrial applications.

Symptoms of Exposure:

- **Inhalation:** Respiratory irritation, cough, shortness of breath, headache ,dizziness, **chemical pneumonia**
- **Ingestion:** it is minimally absorbed in GIT and may cause symptoms like

Nausea, vomiting, abdominal pain, potential chemical pneumonia if aspirated.

- **Skin Contact:** Irritation, dermatitis.

Treatment:

1. Inhalation:

- Move to fresh air.
- Administer **oxygen** if there are breathing difficulties.
- **Bronchodilators (Salbutamol)**
- Monitor for respiratory distress.
- If **no symptom** observe for at least **6 hours** + **normal chest x-ray** → discharge

2. Ingestion:

- **Vomiting & lavage are contraindicated (risk of aspiration).**
- Mainstay of treatment is **supportive**

3. Skin Contact:

- Remove contaminated clothing.
- **Wash** the area thoroughly with **soap and water.**
- Seek medical advice if irritation persists.

Button battery

- Button batteries, often found in small electronic devices, can pose serious health risks if ingested, particularly in children.
- **Life threatening complications** can occur in **less than 2 hours** following ingestion.

The main concerns include:

- **Chemical Burns:** When a button battery comes into contact with bodily fluids, it can generate **hydroxide ions**, leading to severe tissue damage.
- **Obstruction:** The battery can cause **esophageal impaction** or **blockage** in the digestive tract, leading to potential **perforation** and **internal bleeding**.

❖ Symptoms of Ingestion:

Initial Symptoms: May include **coughing**, **drooling**, or **choking.**

Gastrointestinal Symptoms: **Abdominal pain**, **vomiting**, **diarrhea**, and **bloody stools** can occur as damage progresses.

Respiratory Symptoms: If the battery is lodged in the airway, it can lead to **choking** or **difficulty breathing. (obstruction)**

❖ Treatment:

1. Immediate Action:

- **Do Not Induce Vomiting:** This can cause further injury if the battery is lodged in the esophagus or airway.
- **Seek Emergency Medical Attention:** Call emergency services or go to the nearest emergency room immediately.

2. Medical Assessment:

A healthcare professional will typically perform **imaging studies (X-rays)** to **locate the battery**. They will assess for signs of damage to the esophagus or other tissues.

3. Intervention:

- **If the Battery is in the Esophagus:** It may need to be **removed endoscopically** to prevent further injury.
- **If the Battery is in the Stomach:** If there are **no symptoms** and it's not causing obstruction, doctors may **monitor** it, as many **pass** through the digestive system without intervention.

4. Supportive Care:

Treatment may include **fluids**, **pain management**, and **monitoring for complications.**

❖ Follow-Up:

Patients should have follow-up evaluations **to ensure no long-term damage** has occurred, especially if the battery was lodged for a prolonged period.

Mothballs

Mothballs they are small balls made of chemicals like **naphthalene** or **paradichlorobenzene**, both of which are **toxic substances** commonly used as a **pesticide** to repel **moths** and other insects from **clothing and stored items**.

in serious cases can cause:

1. **oxidative stress →methemoglobinemia** (reduced ferrous (Fe2+) state to the oxidized ferric (Fe3+) state → **hemolytic anemia → kidney failure.**
2. **convulsions**

Treatment:

- **blood transfusions, in order to restore healthy levels of haemoglobin.**
- **intravenous methylene blue: allows the methaemoglobin to be converted to haemoglobin.**
- **Ascorbic acid: Powerful antioxidant.**

Prevention of house hold toxicity

- **Containers** of household product should be **labeled**
- Dangerous solutions should **not be left in drinking glasses**
- **Chemicals Containers** should have **safety closures** and stored in **locked cabinets**
- household chemicals should **not be left neither on low shelves nor on the floor.**
- **Parents** must teach their children at early age the danger of touching, eating or playing with medicines, pesticides, household chemicals or plants.

Cases & Questions

1) A 45-year-old man arrives at the emergency department with a **high fever**, **persistent cough**, **wheezing** and **difficulty breathing**. He reports feeling unwell for the past week, progressively worsening over the last few days. The patient say that he recently **assisted firefighters during a blaze in a commercial building.**

- **What do you think caused these symptoms in patient?**

A) Viral infection due to recent cold exposure.

B) Bacterial infection from community exposure.

C) Chemical Pneumonitis from inhalation of monoammonium phosphate.

D) Allergic reaction due to smoke inhalation.

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2) A mother is came to you at the pharmacy with her 6-year-old daughter after discover that she ingested a significant amount of glycerin hand moisturizer. The incident occurred when she was playing and found the bottle open. The mother report that she has been complaining of stomach pain, nausea and mild abdominal tenderness since the ingestion, which happened approximately an hour ago.

1. **What is the primary concern regarding glycerin ingestion in children?**

A) Neurological damage

B) Hypoglycemia

C) Gastrointestinal irritation

D) Liver failure

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A) Induce vomiting

B) Administer activated charcoal

C) Monitor the child and provide supportive care

D) Perform a gastric lavage

3. Which of the following symptoms would NOT typically be expected after glycerin ingestion?

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3) A 12-year-old girl is brought to the clinic by her mother, who reports that the girl accidentally took some of her **contraceptive pills**. The girl has been experiencing **vaginal spotting** since then. The mother is concerned and seeks medical advice.

1. What should the healthcare provider inform the mother regarding the vaginal spotting?

A) It indicates a serious medical condition.

B) It is a normal side effect of the medication.

C) The spotting is usually transient and go away without treatment

D) both B & C.

2. If the spotting does not resolve, what should be the next course of action?

A) Increase the dosage of contraceptive pills

B) Refer to a gynecologist for further evaluation

C) Recommend home remedies

D) Advise to wait and see for a month

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4) A 4-year-old child is brought to the emergency room after swallowing **a button battery**. The parents noticed the child had been playing with a remote control when they realized a button battery was missing.

5. What is the first step in managing this case?

A) Induce vomiting immediately during first 2 hour after ingestion

B) Perform an X-ray to locate the battery

C) Monitor the child for symptoms only and it will passed naturally

D) Give the child something to eat or drink

6. If the battery is lodged in the esophagus, what is the recommended treatment?

A) Wait for it to pass naturally

B) Administer pain relief medication as NSAIDs drugs.

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