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## Poisoning: myths and facts

Sukanya Bantubilli<sup>\*1</sup>, Bhargavi Baddem<sup>1</sup>, Meghana chekuri<sup>1</sup>, Rashmitha Pondari<sup>1</sup>, Uma Sankar.V<sup>2</sup>

<sup>1</sup> Student, 4<sup>th</sup> B Pharmacy, Avanthi Institute of Pharmaceutical Sciences, Cherukupally, Vizianagaram, Andhra Pradesh, India

<sup>2</sup> Associate Professor, Avanthi Institute of Pharmaceutical Sciences, Cherukupally, Vizianagaram, Andhra Pradesh, India

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### Abstract

Poison is likely to be a substance, natural or synthetic that causes damage to living tissues and may have an injurious or fatal effect on the body, and is also capable of causing the illness or death of a living organism when introduced or absorbed. In this scientific era of many discoveries and inventions, science makes the impossible things possible in the blink of an eye, so there's no place for superstitions. Science and superstitions are poles apart. Yet they are the two sides of the same coin unknown of their interdependence. Science in itself is a sweet beginning and sometimes a bitter ending whereas superstitions have neither beginning nor the end; it is complete in themselves. But still, these two unrealistic and realistic, concepts are interconnected somewhere beyond science, Science completes superstitions in the same way as reasons complete assumptions. Reasons sometimes fail to explain rendering the assumptions to be almost dark and blank.

**Keywords:** Paraphenylene-diamine, Toxins, Rhabdomyolysis, Envenomation, Poisoning.

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### \*Corresponding Author

Sukanya Bantubilli

Email: [bandusukanya931@gmail.com](mailto:bandusukanya931@gmail.com)

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### Introduction

The word poison was obtained from Latin word "Potionem" a drink; i.e., drink, eat, breathe, inject or touch enough of a chemical to cause illness or death.

- Poison is any substance that is harmful to the body when eaten, breathed, injected or absorbed through the skin [1].
- Toxins and venoms are poisons of biological origin, later usually reserved to elucidate bites or stings of a poisonous animal. Over the past decade, poisoning has become an increasing cause for concern not only in India but globally [2].

### Different Types of Poisoning

- Organophosphates: Insecticides and Pesticides
- Food Poisoning
- Plants: Senna auriculata

- Animals: Snake, Scorpion bite
- Inorganic Chemicals: Lead, Hair dye
- Organic Chemicals: Nicotine, Neem oil

### Organophosphate Poisoning

Organophosphate poisoning is a type of poisoning occurs due to Organophosphates (OP). These are used as pesticides, insecticides, and medications. Organophosphate (OP) poisoning continues to be a recurrent reason for hospitalization of patients in developing countries. The conventional technique to clinical features in acute OP poisoning has centered on receptors and shows specific effects on muscarinic, nicotinic and CNS receptors that results in distinctive symptoms and signs. Although some patients develop temporized effects either after an initial period of intense cholinergic symptoms and signs or no clinical features [3].

### Organophosphates

**Myth:** The dose makes the poison.

**Fact:** Liability of vitally small amounts of drug of one ingredient from a single pesticide at a time, and it was a chemical of relatively low toxicity and exposed out [4].

**Myth:** Pesticides are hazardous by design.

**FACT:** They are organized to cause health and harms to human health and they are very well registered with children especially at risk of exposure [5].

### **Food Poisoning**

**Myth:** In case of food poisoning, there's nothing you can do but wait for it to pass.

**Fact:** Food poisoning is the most common thing that most of us have been used to it with waiting for it to pass and tolerate the symptoms for 24 to 48 hours. Although, some categories of food poisoning can literally be stern enough to need medical involvement. For instance, listeria, a bacteria that habitually loiter on processed meats and cheeses, and can necessitate hospitalization and intravenous antibiotics. Pregnant women are particularly vulnerable to listeria and should avoid these foods or pursue treatment instantly [20].

**Myth:** Food poisoning can be prevented by safe cooking.

**Fact:** It is fundamental to cook raw food to its suggested temperature to defend from toxic events, however there is a chance for cross-contamination of foods you eat by using the same dishes, utensils, and cutting boards when preparing your meal. There is also major risk of food poisoning with the fruits and vegetables that are eaten without being cooked [21].

### **Plants**

**Senna Auriculata:** Senna Auriculata is an evergreen shrub that grows in many parts of India and in other parts of Asia. The flowers, buds, leaves, stem, root, and unripe fruit are used for the treatment especially in Ayurvedic medicine.

**Myth:** It can be used for the treatment of poisoning by crushing the leaves of the plant.

**Fact:** The plant Senna usually has the antioxidant and anti-diabetic activity, the leaves when crushed by chewing the leaves, the antioxidant activity and efficacy of the plant increases and thereby showing the effect to somewhat reducing the toxic effect.

**Myth:** Use of Senna along with the allopathy medication leads to speed recovery of the disease.

**Fact:** If the patient administers the medication regularly related to Senna, should seek a medical professional advice before starting the use of Senna supplements. They could interact with diuretics, blood thinners, medication for heart disorders and if used in combinations or in high doses it may cause toxicity.

### **Animals**

#### **Snake**

**Myth:** All venomous snakebites are same.

**Fact:** Corresponding to medical toxicology, there are plenty of constituents present in the snake venom i.e. a Viper's venom comprise of different enzymes, metals and antigens which causes different toxic issues. Venom toxicity differ from small tissue damage to abnormal blood clotting, weak pulse, and even death [7]. Additional complications involve vision damage, compartment syndrome, cardiac damage, respiratory compromise, etc. [8].

**Myth:** It can be identified if the snake is venomous by using the patterns on the snake bodies called (rhymes) [9].

**Fact:** It only specifies by which the species of the snake belong. The snake coloration pattern alters during their lives making them hard to identify. Significantly, the relation between identification and envenomation isn't appropriate, after all the treatment principles for any snakebite are similar [10].

**MYTH:** Venomous snakes inevitably deliver venom when they bite.

**FACT:** Snakes spontaneously deliver venom, so not all bites are venomous. Non venomous bites are also known as dry bites. Corresponding to estimation 20%-25% of Pit viper bites and 50% of Coral snakebites are dry bites. Some snakes only render a distinct amount of venom [11].

### **Scorpion:**

**Myth:** Antihistamines are useful after a scorpion sting.

**Fact:** Patients often express a burning pain at the supposed sting site. The venom attacks the nerve endings causing them to fire inaccurately which can cause insensibility and tingling around the site, the venom does not travel in the bloodstream though, so it doesn't affect your brain, heart or lungs. Providentially, in all these cases there are different treatment procedures extended in an emergency department which can label all these cases of scorpion sting [12].

**Myth:** Scorpion stings are Mortal.

**Fact:** It may hurt a lot when one stung by a scorpion but it is apparently not fatal. The only scorpion that can deliver a fatal sting is the Arizona Bark Scorpion. The other context in which a scorpion sting is fatal is if you are susceptible to the venom, you can see the reaction instantly if you are allergic because you will undergo symptoms like swelling lips, hives, rash, and trouble breathing. If the allergic indications are seen because of the poison a rapid medical intervention is needed [13].

### **Inorganic Compounds**

#### **Lead:**

**Myth:** Low levels of lead are innocuous to children.

**Fact:** In Fact even very low levels of lead in a child's blood can generate life-long developmental complications. If your child's doctor observes confirmation of lead poisoning, contact a lead paint removal company to exclude the risk of further contact with lead [14].

**MYTH:** Boiling your water helps when lead is present.

**FACT:** Do not boil water with lead, particularly for cooking. Conceding to the CDC, heating or boiling water will not eliminate lead and rather expands its level of concentration. Hot water is also more corrosive than cold water promote lead to dissolve faster, which is why it's significant to not cook with lead-contaminated water and use a completely different source for mixing baby formula. Establishing a certified water filtration system is the only productive way to eliminate lead from drinking and cooking water [15].

#### **Hair Dye**

**Myth:** Hair dye cannot cause toxicity.

**Fact:** Hair dyes also leads to toxicity; Hair dye poisoning has been appearing as one of the dominant causes of deliberate self-harm in the developing world. Hair dyes contain Paraphenylene-diamine and a host of other chemicals that can cause, laryngeal edema, rhabdomyolysis, acute renal failure and severe metabolic acidosis [16].

#### **Organic Compounds**

##### **Neem Oil**

**Myth:** Neem oil can show impact on birds, fish, or other wildlife.

**Fact:** Neem oil is realistically non-toxic to birds, mammals, bees and plants. Neem oil is moderately toxic to fish and other aquatic life forms. Azadirachtin, a constituent of neem oil is somewhat toxic to fish and other aquatic animals [17].

##### **Opioids**

**Myth:** Opioids Are the Only Way to Treat Severe Pain.

**Fact:** Opioids are mainly used for the temporary sustenance from of severe pain. Although, current studies have shown that the combination of non-opioid medications like ibuprofen and acetaminophen administered together can be as constructive as an opioid. The Centers for Disease Control and Prevention, as well as other medical and dental organizations, have perceived this and have collaborated written guidelines with doctors and dentists to minimize the amount of opioid prescriptions they write [19].

**Myth:** There are no long-term consequences of using opioid medications.

**Fact:** Addiction is not only risk correlated with long term use of opioid medications. These medications can modify the way hormones work in our body which could affect things such as your mood or libido, or even enhance risk of osteoporosis. These opioid medications can also cause chronic constipation which may leads to chronic health complications such as bowel obstruction etc., [18].

#### **Conclusion**

Poisoning is a prevalent medical complication currently, individuals should be educated about the hazards of chemical use as well as the misconceptions. Myths are commonly held beliefs and are frequently perpetuated through telling and retelling. Indeed, the difficulty of the toxicity has been expanding by the use new drugs and foods. Here we examined some facts which debunk the myths, backed up by scientific evidenced.

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