



SYMPTOMS OF INSECTICIDE POISONING, FIRST AID AND ANTIDOTES

Symptoms of mild poisoning

1. Headache
2. A feeling of Sickness (nausea)
3. Dizziness
4. Fatigue
5. Irritation of the Skin, Eyes, Nose and Throat,
6. Perspiration
7. Loss of Appetite

Symptoms of severe poisoning

1. Convulsions
2. Respiratory failure
3. Loss of consciousness
4. Loss of pulse

Symptoms of moderate poisoning

1. Vomiting,
2. Blue red vision,
3. Stomach cramps,
4. Rapid pulse,
5. Difficulty in breathing, constricted pupils of the eyes,
6. Excessive precipitation,
7. Trembling and twitching of muscles, fatigue and nervous distress headache,

Symptoms due to Chlorinated hydrocarbons poisoning

1. Uneasiness
2. Headache
3. Nausea
4. Vomiting
5. Dizziness and tremors
6. Convulsions
7. Respiratory arrest followed by coma
8. Leucocytosis and rise in blood pressure.

Zinc phosphide

1. Nausea
2. Vomiting
3. Diarrhea
4. Severe abdominal pain followed by symptom free period of eight hours or longer

Alluminium phosphide

1. Headache
2. Giddiness
3. Nausea
4. Diarrhea and mental confusion
5. If treatment is delayed, coma, loss of reflexes may develop and death may occur from respiratory or circulatory collapse

Symptoms due to organophosphate and carbamate insecticides poisoning

1. Headache, giddiness, vertigo, weakness, excessive mucous discharge from nose and sense of tightness are symptoms of inhaled exposures.
2. Nausea followed by vomiting, abdominal contraction, diarrhea and salivations are symptoms of ingestion.
3. Loss of muscle coordination, speech defects; twitching of muscles; difficulty in breathing; hypertension; jerky movements; convulsions and coma indicate seriousness of poisoning.
4. Death may occur due to depressions of respiratory centre
5. Headache, giddiness, vertigo, weakness, excessive mucous discharge from nose and sense of tightness are symptoms of inhaled exposures.
6. Nausea followed by vomiting, abdominal contraction, diarrhea and salivations are symptoms of ingestion.
7. Loss of muscle coordination, speech defects; twitching of muscles; difficulty in breathing; hypertension; jerky movements; convulsions and coma indicate seriousness of poisoning.
8. Death may occur due to depressions of respiratory centre

First Aid Operations:

Call local emergency response provider and local emergency medical facility immediately and

1. Remove patient to fresh air
2. Loosen all knots of clothes and change overalls.
3. Flush eyes with cold water till irritation subsides
4. Wash the patient thoroughly with plenty of soap and water.
5. Keep the patient calm, comfortable and warm.
6. In case of accidental ingestion, induce vomiting by administering a glass of warm water mixed with two spoons of common salt or putting the forefinger at the base of plate.
7. Show label leaflet of pesticide for identification
8. If breathing is stopped provide artificial breathing.

Swallowed poisoning

1. Remove poison from the patient's stomach immediately by inducing vomiting.
2. Give common salt 15 g in a glass of warm water as an emetic and repeat until vomit fluids is clear.
3. Gently stroking or touching the throat with the finger or the blunt end of a spoon will aid in inducing vomiting when the stomach is full of fluid.
4. If the patient is already vomiting, do not give emetic but give large amounts of warm water and then follow the specific directions suggested

Inhaled poisons

1. Carry the patient to fresh air immediately,
2. Open all doors and windows.
3. Loosen all tight clothing.
4. Apply artificial respiration if breathing has stopped or is irregular and avoid vigorous application of pressure to the chest.
5. Prevent chilling and wrap the patient in a blanket.
6. Keep the patient as quiet as possible.
7. If the patient is convulsing, keep him in bed in some dark room.
8. Do not give alcohol in any form.

Skin contamination:

1. Drench the skin with water.
2. Apply a stream of water on the skin while removing clothing.
3. Rapid washing is most important for reducing the extent of injury

Eye contamination:

1. Hold eye lids open
2. Wash the eyes gently with a stream of running water immediately
3. Delay of even a few second greatly increase the extent of injury
4. Continue washing until physician reaches
5. Do not use chemicals as they may increase the extent of injury.

Antidotes:

General antidotes:

1. Remove poison by inducing vomiting
2. **Universal Antidote:** It is a mixture of 7 g of activated charcoal, 3.5 g of magnesium oxide and 3.5 g of tannic acid in half a glass of warm water may be used to absorb or neutralize poisons. Except in cases of poisoning by corrosive substances, it should be followed by gastric lavage.
3. Removal of stomach contents (Gastric lavage.)
4. After removal of stomach contents as completely as possible, give one of the following:
 1. Raw egg white mixed with water
 2. Gelatine 9 g to 18 g dissolved in 570 ml of warm water
 3. Butter
 4. Cream
 5. Milk or Mashed potato

Specific antidotes:

1. **Atropine** is the usual antidote for **organophosphate and carbamate** poisoning. It can be given orally and in severe cases, injections are given. Repeated injections may be required.
2. **PAM**: It is injected intravenously as an antidote in **organophosphate** poisoning. It should not be used in case of carbamate poisoning
3. **Calcium gluconate** is recommended as an antidote for some **organochlorine** insecticides
4. **Vitamin K** is the preferred antidote for anticoagulant poisoning such as **warfarin**.
5. **Dimercaprol** (BAL) is recommended for **arsenic**
6. **Phenobarbital** is for **Synthetic pyrethoid**
7. **Potassium permanganate** for **Nicotine, Zinc phosphide**
8. **Epinephrine** for **Methyl bromide**

Safe use of pesticides

1. During storing:

- A. Never store pesticides in places within the reach of children and domestic animals
- B. Pesticide should preferably be stored in their original containers
- C. These should be kept away from food or feed stuff and medicines
- D. Store in a well ventilated, shaded area and away from fire
- E. Inspect periodically for damage or leaks

2. During handling:

- Strictly follow the instruction given on the label
- Carefully open the sealed container using separate scissors or knife
- Use protective clothing and never use bare hand for mixing chemicals with water
- Never leave pesticides unattended.
- Do not use mouth to clean the blockage of nozzles
- Dusting or spraying should not be done against the wind and preferably done in cool and calm weather
- Clean up spills immediately. If the body is accidentally contaminated, wash immediately
- Inhaling of pesticides, smoking and chewing should be avoided during applying pesticides

3. After pesticide application:

- The empty containers should be destroyed properly and should not be used for some other purpose
- Empty the spray tank completely after spraying by disposing the content (if any) safely
- Washing of sprayer and containers in ponds, wells, stream or irrigation water should be prevented
- Hand, face and body should be washed properly including the protective clothing and foot wear
- Prevent unauthorized entry into the treated area

Care and maintainance of plant protection equipments:

- Be familiar with the mechanism and working of equipments by reading manufacturers instructions
- periodically inspect the equipments for cracks, wornout parts, loose nuts etc. and wherever needed replace the parts
- lubricate and clean the equipment at regular intervals
- Calibrate the equipment to ensure application of correct doses of chemicals
- Use specific equipment for specific formulation
- After use, clean the equipment/machine thoroughly
- In power sprayer/duster, use correct fuel-oil mixture
- Clean the spark plug regularly

First aid : In cane of suspected poisoning; call on the physician immediately. Before calling on a doctor, first aid treatments can be done by any person.

Swallowed poison

- Induce vomiting (administer the patient milk or two teaspoon full of common salt in a glass of warm water or touching the throat with finger, milk is better than water because it dilutes and neutralize the poison)so that the poison is brought out. During vomiting, head should be faced downwards.
- Stomach content should be removed within 4 h of poisoning.
- To give a soothing effect, give either egg mixed with water, gelatin, butter, cream, milk, mashed potato.
- In case of nicotine poisoning, give coffee or strong tea.

Skin contamination

- Contaminated clothes should be removed.
- Thoroughly wash with soap and water.
- Dry and wrap in blanket

Inhaled poison

- Person should be moved to a ventilated place after loosing the tight cloths.
- Avoid applying frequent pressure on the chest.
- Keep the patient quiet and still
- If breathing is irregular or has stopped, give artificial respiration (mouth to mouth) at once.

Eye contamination:

- Hold the eye lid open and wash the eyes gently with a stream of running water immediately.

Antidotes and other medicine for treatment in pesticide poisoning

Antidote / Medicine	Used in poisoning due to
Common salt (Sodium chloride)	Stomach poison in general
Calcium gluconate	Chlorinated insecticide, Carbon tetrachloride, ethylene dichloride, Mercurial compound
Phenobarbital (or) Pentobarbital intravenous administration	Stomach poison of chlorinated hydrocarbon insecticides
Atropine sulphate (2-4 mg intramuscular / intravenous administration) or PAM (Pyridine-Z aldoxime-N-methliodide)	Organophosphate Compounds
Atropine sulphate (2-4 mg intramuscular / intravenous administration)	Carbamates
Phenobarbital	Synthetic pyrethoid
Potassium permanganate	Nicotine, Zinc phosphide
Vitamin K1 and K2	Warfarin, Zinc phosphide
Epinephrine	Methlyl bromide