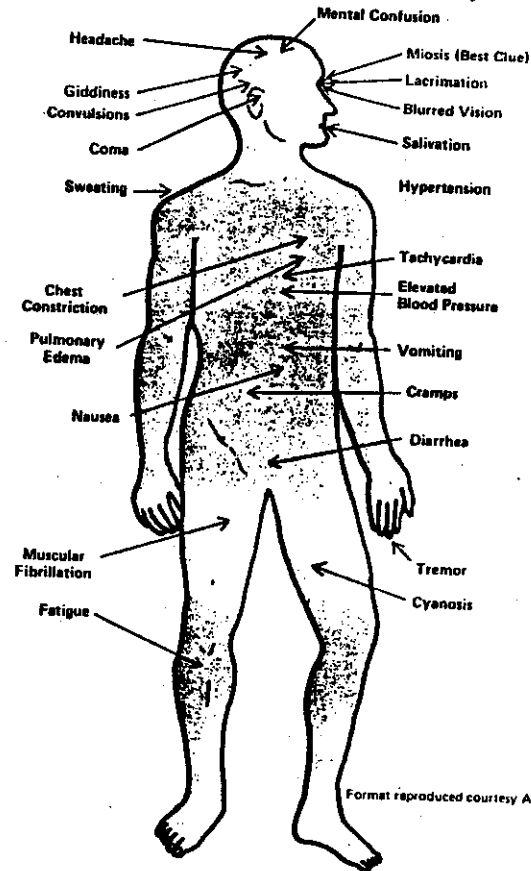


Manifestations of Organophosphate Insecticide Poisoning (Cholinesterase Inhibitors)

MANIFESTATIONS OF ORGANOPHOSPHATE INSECTICIDE POISONING (CHOLINESTERASE INHIBITORS)



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PESTICIDE POISONING MAY MIMIC:

- BRAIN HEMORRHAGE
- HEAT EXHAUSTION
- HYPOGLYCEMIA
- PNEUMONIA OR OTHER SEVERE RESPIRATORY INFECTION
- HEAT STROKE
- GASTROENTERITIS
- ASTHMA



ENVIRONMENTAL PROTECTION AGENCY
REGION VI
First International Building
1201 Elm Street
Dallas, Texas 75270

EMERGENCY MEDICAL TREATMENT FOR ACUTE INSECTICIDE POISONING

ORGANOPHOSPHATES	CARBAMATES	CHLORINATED HYDROCARBONS
Irreversible Cholinesterase Inhibitors azinphos - Guthion - chlorpyrifos - Dursban® - DDVP - Vapona - demeton - Systox - diazinon - Spectracide - dicofolophos - Bidrin® - dimethoate - Cygon® - disulfoton - Di-Syton® - malathion - Cythion® - malinophos - Phostrol® - monocrotophos - Azodrin® - parathion - methyl parathion - phorate - Thimet®	Reversible Cholinesterase Inhibitors aldicarb - Temik - carbaryl - Sevin - carbaryl - Furadan - bendiocarb - Ficam-W® - methidathion - Blux® - methidathion - Metulol® - methomyl - Lannate® - omaly - Vydate® - propoxur - Baygon® - Zectran®	BHC Chlordane chlordane-chlorobenzilate - Aldactin® - DDT - Heptachlor epoxidate - Toxaphene - Endosulfan - Toxaphene - endrin - Heptachlor - Heptachlor Epoxide - Lindane - methoxychlor - Malathion - Mirex - toxaphene - Toxalil®

SYMPTOMS OF POISONING

1. MILD - headache, dizziness, weakness, anxiety, miosis, impairment of visual acuity. 2. MODERATE - nausea, salivation, lacrimation, abdominal cramps, vomiting, sweating, slow pulse, muscular tremors. 3. SEVERE - diarrhea, pinpoint and non-reactive pupils, respiratory difficulty, pulmonary edema, cyanosis, loss of sphincter control, convulsions, coma, and death.	Constriction of pupils. Salivation. Profuse sweating. Lassitude. Muscle incoordination. Nausea. Vomiting. Diarrhea. Epigastric pain. Tightness in chest.	(Twenty minutes to four hours) Nausea. Vomiting. Restlessness. Tremor. Apprehension. Convulsions. Coma. Respiratory failure Death. DO NOT INDUCE EMESIS IF THE INGESTED POISON IS PRINCIPALLY A HYDROCARBON SOLVENT (e.g. kerosene)
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THERAPY

- Support respiration. Keep airways clear. Use artificial respiration with oxygen if indicated for cyanosis. Death from pesticide poisoning is usually due to respiratory failure.
- Decontamination as indicated. Remove contaminated clothing. Wash skin, hair and fingernails with soap and water. Sponge with alcohol. Cleanse eyes. If ingested lavage stomach with 5% sodium bicarbonate if not vomiting.
- Draw 5 ML. heparinized blood for cholinesterase determination. Save samples of first urine and first/early vomitus for possible laboratory analysis.
- Consult insecticide label under "ACTIVE INGREDIENTS" for specific chemicals involved.
- When mixtures of organophosphates and chlorinated hydrocarbons are involved (e.g. endrin-methyl parathion), give specific treatment for organophosphates first and indicated support therapy and decontamination.

ANTIDOTES	ANTIDOTE	TREATMENT
1. Adults: After cyanosis is over, use Atropine sulfate, 2-4 mg. intravenously. Repeat dose at 5 to 10 minute intervals until signs of atropinization appear. Maintain for 24 hours or longer if necessary. 2. Children: Atropine sulfate in proportion to body weight - approx. 0.05 mg/kg. 3. Support: Atropine treatment with 2-PAM (Pralidoxime chloride) (Protopam Chloride, Ayerst). 4. Adult Dose: 1 gm., slowly, intravenously. 5. Infants: 0.25 gm., slowly, intravenously. Note: Contraindicated are morphine, amorphine, theophylline, phenothiazine tranquilizers and barbiturates.	1. Adults: After cyanosis is overcome, use Atropine sulfate, 2-4 mg. intravenously. Repeat dose at 5 to 10 minute intervals until signs of atropinization appear. Maintain for 24 hours or longer if necessary. 2. Children: Atropine sulfate in proportion to body weight - approximately 0.05 mg/kg. Note: 2-PAM is contraindicated in carbamate insecticide poisoning. Also avoid morphine, amorphine, theophylline, phenothiazine tranquilizers and barbiturates.	1. Gastric lavage with 2-4 L. tap water. Cathartic with 30 gm (10 oz.) sodium sulphate in one cup of water. 2. Barbiturates in appropriate dosages repeated as necessary for restlessness or convulsions. 3. Avoid oils, oil laxatives and epinephrine (adrenalin). Do not give stimulants. 4. Give calcium gluconate (10% in 10 ml ampules) intravenously every four hours.

Nearest Poison Control Center Telephone No. _____

REFERENCES:

- Disease Vector Control Center, U. S. Naval Air Station, Jacksonville - Fla., "Emergency Medical Treatment for Acute Pesticide Poisoning".
- Personal Communication, Anne R. Yobbs, M.D., Chief, Training and Education Branch, Operations Div., E.P.A., Office of Pesticide Programs.