

Poisoning & Substance Abuse

Poison-any substance that when introduced into the body, in relatively small amounts, may cause damage to the structures or disturbances of its functions.

- May change normal metabolism of the cells
- May destroy the cells

Poison Control Centers

- Usually located in the Emergency Department at large hospitals
- Local Poison Control Center

MCV 828-9123

Nation wide number 1-800-222-1222

- Poison Control can only give you recommendations for treatment
- **Contact Medical Control for specific care.**

Recognize that a poisoning may exist

Previous history of ingested poison

Drug paraphernalia

Empty pill bottles

General signs and symptoms of the patient

Damaged plants

- Altered level of consciousness
- Altered mental status
- GI symptoms (Nausea, Vomiting, Diarrhea, Cramping)
- Sweating
- Difficulty Breathing
- Cyanosis
- Dilation or constriction of the pupils
- Chemical burns (around the mouth, nose, or skin)
- Unusual Odors
- Patient's history of poisoning

Collect history for poison control or medical control

Patient Information

Substance Information

Age

Size

Weight

Type of substance

Amount of substance taken

Time taken/over what amount of time

Gather further information on the poison

- Collect any containers or remaining substance
- collect any vomitus

Syrup of Ipecac

- Occasionally used to induce vomiting
- Not required in EMS units any longer
- Risk of used outweigh the benefits
- Do not give to:
 - Unconscious patient
 - If poison is corrosive
 - If the poison is petroleum based

Antidote-substance that will counteract the poison

Activated Charcoal

- Used to absorb
- Normal dose gram per kilogram (g/Kg)
 - Adult 25-50 grams
 - Child 12.5-25 grams

Should not be given to a patient:

- Has ingested a strong acid or alkali
- Has an altered level of consciousness
- Can not swallow

Methods of poisoning

- Ingested
- Inhaled
- Injected
- Absorbed

Ingested

- 80% of all poisonings
- Common ingested items- Drugs, household chemicals, plants, contaminate food
- Ingested poisoning in children and elderly is usually accidental
- Ingested poisoning in adults is frequently a suicide attempt

Treatment

Secure scene

Support ABC's

Airway-watch for vomiting and aspiration

Breathing- may be depressed with CNS depression

Circulation- be prepared for full CPR

Attempt to external decontaminate the patient

Contact medical control or Poison Control

May call for administration of Activated Charcoal

Inhaled Poison

- Common inhaled poisons: CO₂, Natural gas, aerosols, pesticides, and other gasses
- May cause problems with oxygenation of the body by:
 - Occlusion of the oxygen containing air
 - **Damage to the airway**
 - Damage to the lungs or alveoli

Additional signs and symptoms

Respiratory distress	Cough
Chest pain	Hoarseness
Dizziness	Confusion
Headache	Stridor or wheezing

Treatment

Secure scene- remove the patient from hazard

Use properly trained personnel with proper equipment

Support the ABC's

Airway - be prepared for suctioning

Breathing- high flow oxygen

Circulation- be prepared for full CPR

Injected poisons

- Almost always a drug overdose
- Bites and stings of animals and insects

Basic treatment:

- Remove watches, rings, bracelets or anything constrictive
- Contact medical control -may be given orders to:
- Place venous constrictive bands above and below site
- Ice pack to decrease local pain and swelling

Surface contact

- May be caused by strong acid or alkali
- Some petroleum based products may also be destructive
- May cause damage to the skin, mucous membranes, or eyes

Treatment

- Remove patients clothing that may have the chemical on them
- Flush the area with large amounts of water
- Continue to flush the area after the burning process has stopped (20-30 minutes)
- With dry chemicals brush off the powder before flushing with water
- Cover the burned area
- Support ABC's
- Transport to appropriate facility
- Obtain as much information on the chemical as possible
- Consider need for specialty teams i.e. Hazmat

Contact with the eye

Flush the eye protecting the uninjured eye

- Hold the eyelids open
- Flush for 20-30 minutes
- Cover both eyes and transport

Substance Abuse-the taking of any substance without medical control or consideration for proper dosage or sterility to produce some desired effect

Addiction-compulsion to continue to use a drug or substance with the tendency to increase the dosage

Alcohol Abuse

- The most common abused drug in the United States
- The third greatest health problem after heart disease and cancer
- More than 50% of all traffic fatalities or injuries involve drivers who abuse alcohol
- 64% of murders and 33% of suicides involve alcohol

Effects of Alcohol

Powerful CNS depressant-decreases the person's ability to think, function well, or slows reflexes, and increases reaction time Produces tolerance Patients may be aggressive or combative Severs CNS depression- with large doses respiratory failure Irritation of the stomach-patient may vomit violently Hematemesis-The vomiting of bright red blood

- Torn lining of the esophagus- repeated vomiting Ulcer in the stomach
- Rupture of dilated veins in the esophagus

Long-term effects

Loss of memory

Alaxia- Loss of motor function

Apathy-feeling of not caring about anything

Brain deterioration

Withdrawal- when the patient stops using the drug

- **Hallucinations**- voices and/or visions
- **Delirium Tremens (DT's)**- restlessness, fever, confusion, disorientation, agitation, delusions, hallucinations, and possibly convulsions
- Significant mortality rate with DT's

Effects on the newborn

Alcohol is absorbed across the placenta- mother to fetus

Fetal alcohol syndrome- disease of alcoholic mothers

- Low birth weights
- Congenital abnormalities
- Mental retardation
- Failure to thrive—death

Treatment of alcohol abuse

Maintain ABC's

Treat other injuries

Consider other medical problems (Diabetic, Carbon Monoxide, Head trauma)

Seizures- treat like other seizures

Hypovolemic shock- vomiting with little fluid intake

Hypothermia

Opium Compounds

Narcotic-Substance that produces insensitivity or stupor

Class of drug

CNS depressant

General facts:

- Natural or synthetic derivatives of opium from poppy seeds
- Pain relievers
- Compounds include:
 - Heroin
 - Morphine (Anti-diarrhea remedies)
 - Demerol
 - Dilaudid
 - Methadone
 - Codeine (cough syrup)

Effects of Opium Compounds

Can cause severe respiratory depression

Can be highly addictive

Tolerance can develop rapidly- larger dose required

Constriction of the pupils

Treatment

Support ABC's

Treat other injuries

Transport

Barbiturates

Class of drug

CNS stimulant

General Facts:

- Used for general mood elevation, suppress appetite, and prevent sleepiness
- Commonly referred to as "speed" or "uppers"
- Common drugs- Amphetamines, Methamphetamines, Benzedrine

Effects of CNS stimulants:

- Irritability, anxiety, restlessness
- Lack of concentration
- Tachycardia
- Rapid breathing
- Elevated Blood pressure
- Sense of euphoria
- Combative, aggressive
- Cardiac arrhythmias

"Crash stage"

Suicidal

Incoherent

Depressed

Sleepy, near coma

Treatment

- Protect yourself and crew first
- Monitor ABC's
- Calm, reassuring talking to the patient
- Protect the patient from harming themselves
- Assist respirations if necessary

Cocaine**Class of drug**

CNS stimulant

General facts:

- Chemical processes are done to the raw coca leaves to produce the street form of white powder cocaine
- Cocaine can be inhaled into the nose and absorbed by the mucous membranes. This method destroys the septum of the nose
- Cocaine may also be liquefied and injected intravenously or subcutaneously
- A further process can be done on the white powder to produce pure cocaine crystals or "crack"
- Crack cocaine is smoked with a pipe and inhaled into the lungs. The capillary beds of the alveoli pick up the cocaine and deliver it to the brain rapidly

Effects of Cocaine

- Excitement, talkativeness
- Euphoria
- Agitation
- Hallucinations
- Tachycardia
- Rapid respirations
- Irregular pulse
- Cardiac Arrhythmias
- Chest pain
- Seizures
- "Crash Phase"
 - Lethargic, Depressed patient
 - Coma
 - Paralysis

Treatment

Protect yourself and your crew
Maintain ABC's
Calm, reassuring talking to the patient
Protect the patients from harming themselves
Assist respirations if necessary

Nicotine

Class of Drug

CNS stimulant

General facts

- Nicotine is the agent that contributes to continued smoking
- Smoking is the most common cause of COPD
- Nicotine in a liquid form is one of the most toxic substances known to man

Effects

Mild CNS stimulant

Treatment

- No treatment is needed for nicotine itself. Instead treatment is directed at the COPD patient
 - Mucus, and secretions in the lungs
 - Smokers cough

Marijuana

General facts

- General euphoria
- Relaxation drowsiness
- Altered perception of time
- Impaired short term memory
- Anxiety approaching panic
- Hallucinations

Treatment

Protect yourself and your crew
Maintain ABC's
Calm reassuring talking to the patient
Protect the patients from harming themselves

Hallucinations

Class of drug

Hallucinogen

General Facts

- Tolerance develops rapidly and is lost rapidly
- Common drugs
 - LSD
 - Mescaline ("cactus")
 - PCP or angel dust
 - Psilocybin ("Magic Mushrooms")

Effects

- Hallucinations
- Intensifies senses
- Nausea- irritates the stomach
- Vertigo
- Drowsiness

Treatment

Protect yourself and your crew
Maintain ABC's
Treat other injuries
Calm, reassuring talking to patient
Protect the patients from harming themselves

Inhalants

Class of drug

CNS stimulant

General facts

- The common method used is to inhale the vapors from a plastic bag
- Commonly inhaled substances
 - Glues
 - Aerosol sprays and Lacquers
 - Cleaning compounds
 - Gasoline

Effects

- Similar to alcohol
 - Decreases the persons ability to think, function well, or slows reflexes, and increases reaction time

Treatment

Protect yourself and your crew

Maintain ABC's

Possible respiratory arrest from asphyxia

Rapid transportation

General signs and symptoms of drug use:

Drug paraphernalia

needles

small pipes

small bottles or vials

Track marks or needle marks

Prescription bottles

Pupil size

Constricted pupils- Opium compounds

Dilated pupils Barbiturates

Cocaine

Marijuana

Hallucinations

CNS stimulants

Generally slow reacting pupils

Acronyms used to remember overdose (DUMBELS, SLUDGE)

Defecation

Urination

Miosis (constriction of pupils)

Bronchorrhea (discharge of mucus from the lungs)

Emesis (vomiting)

Lacrimation (tearing)

Salvation

Salvation

Lactation

Urination

Defecation

GI irritation

Eye constriction

THE VIRGINIA POISON CENTER AT MCV HOSPITALS
An Introduction for Health Care Professionals

We encourage you to consult the Virginia Poison Center (VPC) for assistance in caring for all patients suspected of exposure to potential toxins. The VPC can access information on an almost limitless variety of substances: commercial, pharmaceutical, biological, chemical, industrial and environmental. All calls are triaged by RN's with special training in clinical toxicology. Medical back up is available on call twenty-four hours daily.

Quick facts about the VPC
Center Location

On the ground floor of MCV Main Hospital

Region served

Most of central and eastern half of Virginia, with 32 acute care hospitals and 2.4 million citizens.

Annual Caseload

More than 30,000 calls in 2001

Toxicologist

Certified as a Regional Poison Center by the

American Association of Poison Control Centers
S. Rutherford Rose PharmD, ABAT, FAACT
Department of Emergency Medicine
VCU School of Medicine

Director of Public Education

Evelyn Waring RN, CSPI

Telephone Numbers

**Emergency (800) 222-1222 or
(804) 828-9123**
Business (804)828-4780
Fax (804) 828-5291

The primary function of the VPC is to provide rapid access to toxicology information and expertise, acting as consultant in the assessment and management of humans exposed to potentially toxic substances.

Information available includes:

Product ingredients
Anticipated clinical effects
Decontamination
Toxic dose ranges
Antidotal therapy

Supportive therapy
Enhancement of toxin elimination
Toxicokinetics
Laboratory assessment and interpretation
Tablet/capsule identification

To provide this information, the VPC staff of registered nurses relies most heavily upon the P01S1NDEX™ database, accessed via a PC in the center. A library of reference texts in the VPC, as well as a small group of specialty consultants, provides additional information.

When you call the VPC for toxicologic information, you should expect the staff will request certain details about the patient's case. Whenever possible, please be prepared to provide:

- ❖ **patient name, age and weight**
- ❖ **name of substance(s)**
- ❖ **symptoms**
- ❖ **therapy already initiated**
- ❖ **lab results if available**

Often, some of these details are unavailable at the time of the initial call. In the absence of precise information, the VPC can offer general management recommendations. Given specific patient information, the recommendations can be tailored to fit the individual patient's clinical situation. Our staff is sensitive to concerns about patient confidentiality, and all records containing patient information are handled within strict guidelines to maintain confidentiality. The VPC staff makes follow-up phone calls to emergency departments, ICU's and other facilities. Chart documentation is only completed when the patient is considered medically stable and unlikely to experience any further effects from the exposure.

Epidemiologic data collection is another important role of the VPC. You can support vital injury data collection, and the public health initiatives which depend on that data, by contacting the VPC whenever caring for patients who have accidentally or intentionally been exposed to potential toxins. Data from VPC charts is uploaded to the American Association of Poison Control Centers to support real-time surveillance for emerging toxic trends. Each September issue of the American Journal of Emergency Medicine contains the annual report of the AAPCC, the most complete statistical profile of the incidence and outcome of poisonings in the USA. Failure to report toxic exposure cases to a poison center adversely affects the accuracy and completeness of these national and regional poison injury databases.

Finally, the VPC is a source of continuing education for a variety of health care professionals. Professional education focuses on the assessment and management of the acute toxic exposure patient. Resident physicians may serve a clinical rotation in the center. Graduate and undergraduate students in pharmacy and nursing also have clinical rotations in the center. Our staff provides lectures and presentations to a variety of groups, including prehospital emergency care providers. There is also an extensive public education program supported by the VPC to provide information on poison prevention to Virginia's citizens.

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