

The second rule includes the special treatment for each poison, as given in the antidotes in this article below.

The third rule requires the adaptation of various measures tending to prolong life while nature's processes are expelling the poison from the body. Generally stimulation, internal and external, is required.

Internal stimulation is produced by the various drugs classed as cardiac stimulants (such as alcohol, in the form of whisky, brandy, and champagne), strong coffee or tea, ammonia, digitalis, etc.

External stimulation is brought about by increasing the circulation of the blood in the skin. Friction on the extremities and body with the hands, or aided by a rough towel, answers well. This may be made more active by rubbing the skin with some irritating substance like mustard, ginger, or capsicum. External heat, applied by hot blankets, hot water bottles, etc., is also an aid to stimulation.

#### ARTIFICIAL RESPIRATION.

Artificial respiration is a valuable aid in prolonging life in many poisoning cases, and it is especially necessary in the treatment of narcotic toxic agents like morphine.

The following is a good way of applying it:

Place the patient on his back on the floor; kneel in front of him, grasp both arms at the elbow and raise them up and back until they are stretched out above his head, parallel with the body. Then bring them down again to the side of the body, at the same time pressing them against the chest so as to compress it by pushing in the ribs. This movement will force the air out of the lungs. Now raise the arms again, as before, and the chest will expand, drawing in fresh air. Repeat these movements regularly, at the rate of about fifteen or twenty times per minute. Meanwhile have another person apply heat and friction to the extremities.

Do not give up hope too soon, but persist in the artificial breathing for a half or one hour.

It is quite surprising, at times, to see how an apparently dead patient will suddenly begin to breathe, and finally revive under this forced respiration.

#### A SUMMARY OF TREATMENT FOR POISONING.

Below is given, briefly, the treatment for the more important poisons. In many poisons the treatment is a general one; hence it is found convenient to group members together under one antidote. Accompanying the series of antidotes is an index of the poisons which will serve to make the finding of the proper treatment more expeditious:

**Antidote 1: Arsenic.** Arsenious Acid; "Rough on Rats" (arsenic); Cobalt (arsenical fly poison).

Induce vomiting with mustard, ipecac and zinc sulphate, or apomorphine hypo-

dermically, as under above heading, "How to Cause Vomiting."

After thorough and repeated emesis, give hydrated oxide of iron, United States Pharmacopoeia, three or four ounces at once, and a tablespoonful every five minutes afterwards.

The ferric hydrate can be made hurriedly by mixing either tincture chloride of iron, solution chloride of iron, solution tersulphate of iron, or Monsell's solution with water of ammonia. After the resulting precipitate has settled, pour off the clear liquid and mix considerable water with the sediment, which latter, when it has again deposited, is separated by decanting the clear, supernatant solution. This sediment of ferric hydrate may be given as above directed.

Later give whites of eggs mixed with water and olive oil.

**Antidote 2: Morphine.** Opium.

Promote vomiting with mustard, ipecac, and sulphate of zinc, or apomorphine hypodermically, as given under above heading: "How to Cause Vomiting."

When the stomach is thoroughly emptied, give large draughts of strong black coffee. It may be well, in most cases, to give a hypodermic injection of one-fiftieth grain of atropine, the physiological antidote to morphine.

Keep the patient awake at all hazards; walk him about, slap with wet towels, shout in his ears, and use similar measures to prevent his going to sleep.

If patient stops breathing, or breathes faintly, use artificial respiration persistently, as in the directions given under the heading: "Artificial Respiration."

**Antidote 3: Acids.** Sulphuric; Hydrochloric; Nitric; Nitro-hydrochloric; Acetic.

Do not give any emetic! Neutralize the acid with calcined magnesias, liquor soda, liquor potassae, or lime water, either of which must be largely diluted.

Later give freely of olive oil, or whites of eggs.

**Antidote 4: Oxalic Acid.** Salts of Oxalic Acid; Salts of Sorrel.

Do not give liquor potassae or liquor soda.

First give chalk or common whiting mixed with water; then, in a few minutes, cause vomiting with mustard. After vomiting, let patient partake freely of whites of eggs, or olive oil.

**Antidote 5: Carbolic Acid.** (Phenol.)

Give one ounce sodium sulphate (Glauber's salt) dissolved in a cup of water. Then try to induce vomiting with mustard or ipecac. As these emetics sometimes fail to act because of the benumbing effect of carbolic acid upon the stomach, it may be best to give apomorphine hypodermically (one-twelfth grain). Give more Glauber's salt after vomiting ceases.

**Antidote 6: Caustic Alkalies** of Potash and Soda; Concentrated Lye.

Give vinegar, lemon juice, or citric acid, freely diluted with water. Then

give large draughts of warm water, followed by olive oil, whites of eggs, or gum arabic water.

**Antidote 7: Ammonia Gas.** Water of Ammonia.

If inhaled, let the patient breathe the fumes of vinegar, or acetic acid. If swallowed, treat as in antidote No. 6 for the other alkalies.

**Antidote 8: Chloral Hydrate.** Ether.

Keep patient lying down and let him have plenty of fresh air. Induce vomiting with mustard, ipecac, and zinc sulphate, or with apomorphine hypodermically, as given under the heading: "How to Cause Vomiting." Keep him from going to sleep by slapping, shouting in ears, etc., but do not walk the person around much because of the danger of heart failure. Stimulate with whisky internally, and friction and heat externally. If breathing becomes feeble, apply artificial respiration as given in the directions under heading: "Artificial Respiration."

**Antidote 9: Chloroform.**

If swallowed, treat as in antidote No. 8 for chloral. If inhaled, have patient's head lower than the body by raising the foot of table or bed on which he lies. Admit fresh air freely. Let him inhale a few drops of nitrite of amyl. Apply heat and friction to extremities. If necessary, use artificial respiration as given in directions under heading: "Artificial Respiration."

**Antidote 10: Aconite;** Calabar Bean; Conium; Cotton Root; Digitalis; Ergot; Eserine; Gelsemium; Hyoscyamus; Jaborandi; Lobelia; Physostigma; Pilocarpus; Santonin; Stramonium; Strophanthus; Tobacco; Veratrine; Veratrum Viride.

Give emetic of mustard, ipecac, and sulphate of zinc, or of morphine hypodermically, as in directions under heading: "How to Cause Vomiting."

When stomach is about emptied, give strong black coffee mixed with powdered charcoal and tannic acid—about thirty grains of the latter to each cup of coffee. Keep patient lying flat, and prevent his going to sleep. Stimulate with whisky internally, and heat and friction to the extremities.

If necessary, use artificial respiration as in the directions under heading: "Artificial Respiration."

**Antidote 11: Nitrate of Silver.** Lunar Caustic.

First give common table salt (chloride of sodium), one or two tablespoonfuls dissolved in a glass of water. After a few minutes induce vomiting with mustard, ipecac, and zinc sulphate, or with apomorphine hypodermically, as in directions under heading: "How to Cause Vomiting." When stomach is emptied, give freely of milk and whites of eggs and gum arabic water.