

The Anticholinergic Toxidrome

Anticholinergic agents antagonize the effects of acetylcholine in the central nervous system and peripheral nervous system by blocking both muscarinic and nicotinic receptors. There are many drugs, chemicals and plants that cause anticholinergic toxicity. Many of these compounds have other pharmacological effects that might make diagnosis of the anticholinergic syndrome difficult. For example, cyclic antidepressants have sympathomimetic and sodium channel blocking effects in addition to anticholinergic actions. The ingestion of multiple drugs might complicate the diagnosis by resulting in a combination of signs and symptoms. Therefore, it is important to consult with the poison center when evaluating suspected anticholinergic poisonings.

The patient who has overdosed on an anticholinergic compound could appear agitated and delirious, or may be hallucinating, seizing or comatose. Tachycardia, hypertension and hyperthermia are commonly observed. The skin is dry, warm and flushed, and pupils are dilated. Urinary retention and decreased bowel sounds are usually present. Sympathomimetic drugs cause similar changes in the vital signs; however, coma rarely occurs and the patient may be diaphoretic.

Treatment for anticholinergic poisoning is largely supportive. Gastrointestinal decontamination with activated charcoal may be considered. Physostigmine reversibly binds to acetylcholinesterase resulting in inhibition of the metabolism of acetylcholine. It reverses central and peripheral anticholinergic signs and symptoms. Caution is advised when using physostigmine. Excessive amounts can result in cholinergic crisis. Contraindications include ingestion of cyclic antidepressants and patients who have evidence of cardiac conduction delay. Call the Maryland Poison Center for more information on anticholinergic poisoning and the use of physostigmine.

Anticholinergic Compounds

- Atropine
- Antihistamines
- Motion sickness drugs
- Cyclic antidepressants
- Antidiarrheals
- Antispasmodics
- Antipsychotics
- Mydriatics (eyedrops)
- Antiparkinson drugs
- Bronchodilators
- Skeletal muscle relaxants
- Jimsonweed
- Deadly nightshade
- Jerusalem cherry
- Some mushrooms

DID YOU KNOW THAT... There is an easy way to remember the anticholinergic toxidrome?

Common signs and symptoms can be remembered with the mnemonic "**red as a beet, dry as a bone, blind as a bat, mad as a hatter, and hot as a hare.**" This mnemonic refers to flushing, dry skin and mucous membranes, mydriasis with loss of accommodation, altered mental status, and fever, respectively.

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If you do not wish to receive faxes or emails from the Maryland Poison Center, call 410.706.7604 or circle your fax number and fax this back to 410.706.7184. Supported by Maryland Department of Health and Mental Hygiene

