

Dextromethorphan

Dextromethorphan is a codeine analog and weak opioid. It works as an NMDA receptor antagonist and is primarily used as a cough suppressant. Adverse effects include serotonin syndrome and drug overdose. Although uncommon, a drug overdose of dextromethorphan can be treated with naloxone, an opioid receptor antagonist.



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Mechanism

Codeine Analog

Coding-hacker On-a-log

Dextromethorphan is a synthetic codeine analog that acts as a weak opioid receptor agonist.

Weak Opioid

Weak Poppy-droid

NMDA Receptor Antagonist

NMDA Receptor Ant-toga

Another unique mechanism of this drug is antagonism on NMDA receptors. NMDA receptors are ionotropic receptors that depolarize the neuron in response to activation by glutamate. Since this drug acts as an excitatory amino acid antagonist, it prevents neuronal damage and modulates pain sensation.

Uses

Cough Suppressant

Coughing Coffee-pot Suppressed

Adverse Effects

Serotonin Syndrome

Silver-tonic Savage

Since dextromethorphan inhibits serotonin reuptake, patients are at increased risk of serotonin syndrome, especially if they are taking serotonergic medications such as SSRIs.

Drug Overdose

Overdose Pill-bottle

Although rare, drug overdose is possible in patients taking huge quantities of dextromethorphan.

Naloxone

Nail-locl

Dextromethorphan poisoning is uncommon and in rare cases can be associated with respiratory depression, especially in young children. In severe cases of dextromethorphan overdose, naloxone can be considered given its antagonistic action on opioid receptors.