

Antidopaminergic Agents

<https://huntingtonsdiseaseneews.com/antidopaminergic-agents/>

July 2018

[Huntington's disease](#) is a hereditary neurodegenerative disorder characterized by an [imbalance](#) in the levels of [dopamine](#) in the brain. Dopamine is a neurotransmitter, or signaling molecule, that plays a vital role in abilities that include movement.

Unusually high levels of dopamine are thought to cause [chorea](#) (involuntary jerking or writhing movements) in Huntington's patients. Toward later stages of the disease, however, dopamine levels can drop notably. Unusually low dopamine levels ease chorea, but cause such [Parkinson's disease](#)-like symptoms as akinesia, the loss of the ability to move muscles voluntarily.

Antidopaminergic agents are used to ease chorea symptoms, but may also [accelerate disease progression](#) by reducing dopamine's action to below a critical level.

How antidopaminergic agents work

Antidopaminergic agents work through two primary mechanisms, and both mechanisms interfere with dopamine's action in the brain.

Until dopamine is released from a nerve cell, it is stored in a cell's vesicles. A group of proteins called [vesicular monoamine transporters \(VMATs\)](#) are needed to package dopamine into these vesicles. Antidopaminergic agents work first to bind the VMAT proteins, preventing them from storing large amounts of dopamine inside the vesicles. This reduces the release and spread of dopamine to other nearby neurons.

Dopamine performs its action by binding to dopamine receptors on nerve cells. The second mechanism of these agents interferes with the binding of dopamine to its receptors.

Antidopaminergic agents for Huntington's disease

[Xenazine \(tetrabenazine\)](#) and [Austedo \(deutetrabenazine\)](#) are two antidopaminergic medications approved by the U. S. Food and Drug Administration (FDA) to treat symptoms of chorea in Huntington's disease. They work by blocking VMAT proteins and dopamine receptors. [Austedo's](#) chemical structure is similar to Xenazine, but it is more stable.

[Antipsychotic agents](#) with a therapeutic effect in Huntington's disease also work through an antidopaminergic mechanism. Antipsychotic agents reduce chorea and may also ease psychiatric symptoms, behavioral disturbances, and cognitive difficulties in Huntington's patients.

[AbilityHaldol \(haloperidol\)](#) is a conventional antipsychotic medication. It has been shown to improve chorea symptoms, but its use is known to carry a number of side effects. Second-generation antipsychotic medications, known as atypical antipsychotics, are thought to be better tolerated than conventional agents, with fewer Parkinson's-like side effects. These medications may include [Risperdal \(risperidone\)](#), [Zyprexa \(olanzapine\)](#), [Seroquel \(quetiapine\)](#), [Geodon \(ziprasidone\)](#), and [Abilify \(aripiprazole\)](#). Most of these medications work through multiple mechanisms, and not just as antidopaminergic agents.