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# Anti-Psychotics Drugs Mechanism of Action and Adverse Effects

**Senorita Evans***

*Department of Drug and Food Control, Shiraz University of Medical Sciences, Belgium*

## DESCRIPTION

Antipsychotics, also recognized as neuroleptics, are a type of psychotropic medication used to treat psychosis (such as delusions, hallucinations, paranoia, or disordered thought), most commonly in schizophrenia but also in a wide range of many other psychotic disorders. They are also a major part in the treatment of bipolar disorder, along with mood stabilizers. Antipsychotics can cause a variety of undesirable side effects, including involuntary movement disorders, gynecomastia, impotence, weight gain, and metabolic disease. Long-term use has been linked to tardive dyskinesia, tardive dystonia, and tardive akathisia. Antipsychotic medications such as haloperidol and chlorpromazine tend to block dopamine D2 receptors in the brain's dopaminergic pathways. This means that dopamine ejected through these pathways has less of an impact. Dopamine overproduction in the mesolimbic pathway has been connected to psychotic experiences. In schizophrenia and bipolar disorder, decreased dopamine discharge in the prefrontal cortex and increased dopamine release in other pathways are linked to psychotic episodes. Antipsychotics (particularly atypical neuroleptics) antagonise 5-HT2A receptors in addition to the antagonistic effects of dopamine. Different 5-HT2A receptor alleles have been linked to schizophrenia as well as other psychoses, such as depression. Historically, higher concentrations of 5-HT2A receptor sites have been found in cortical and subcortical areas, particularly the right caudate nucleus. Antipsychotic drugs are not especially selective, as they also block dopamine in the central nervous system, tuberoinfundibular, and substantial nigra pathways. Blocking D2 receptors in these other pathways is thought to produce some of the same unwanted side effects as typical antipsychotics (see above). They were frequently categorized on a scale of low potency to high potency, with potency referring to the drug's ability to bind to dopamine receptors. High-potency antipsychotic drugs, such as haloperidol, have milligram-sized doses and produce less sleepiness and calming effects than reduced antipsychotics, such as chlorpromazine and thioridazine, which have milligram-sized doses. The latter have more anticholinergic and antihistaminergic activity, which can help to mitigate dopamine-related side effects. Atypical antipsychotic drugs have a similar effect on D2 receptors; however, the majority also acts on serotonin receptors, particularly 5-HT2A and 5-HT2C receptors. Clozapine and quetiapine both appear to bind for just long enough to produce antipsychotic effects but not long enough to cause extrapyramidal side effects or prolactin hyper secretion. 5-HT2A antagonists increase dopaminergic activity in the nigrostriatal pathway, lowering the risk of extrapyramidal side effects in atypical antipsychotics. Multiple antipsychotic drugs should not be taken at the same time in general due to increased adverse effects. Some atypicals are linked to significant weight gain, diabetes, and an increased risk of metabolic syndrome.

## CONCLUSION

However, awareness of the syndrome is recommended in order to intervene. Another less common condition, tardive dyskinesia, can create after months or years of long-term antipsychotic use. It is more commonly associated with the use of standard antipsychotics. Antipsychotics can occasionally cause tardive psychosis. Clozapine has been linked to side effects such as weight gain, tiredness, and hyper salivation. Seizures, NMS, neutropenia, and agranulocytosis (low white blood cell count) are more serious side effects, and its use requires careful monitoring. Clozapine has also been linked to thrombosis (including pulmonary embolism), myocarditis, and cardiomyopathy. A systematic review of clozapine-associated thromboembolism found that it is frequently fatal, has an early onset, and is dose-dependent.

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## CONFLICT OF INTEREST

The author's declared that they have no conflict of interest.

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**Corresponding author** Senorita Evans, Department of Drug and Food Control, Shiraz University of Medical Sciences, Belgium, Email: evansseno123@hotmail.com

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