Antipsychotics Overview

Antipsychotics can be divided into two categories; typical and atypical. Classic indications for these drugs include psychosis and delirium, but they may also be used in bipolar disorder and tourette's syndrome. The mechanism of these drugs is complex, but it is thought that the majority of their therapeutic effect comes from blocking the D2 receptor. 2nd generation antipsychotics also block the 5-HT 2 receptor. Side effects of these drugs include hyperprolactinemia, extrapyramidal symptoms, tardive dyskinesia, and neuroleptic malignant syndrome.



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Generations

Typical

Tipi

The first generation of antipsychotics is referred to as the typical antipsychotics. Typical antipsychotics have a greater affinity for the D2 receptor than second-generation antipsychotics but are also antihistaminic, antimuscarinic, anti-alpha 1, and more likely to cause parkinsonism. These antipsychotics are more potent than atypicals but have a more prominent side effect profile. Haloperidol (Haldol) is the most commonly used typical antipsychotic.

Atypical

A-tipi

The second generation of antipsychotics is referred to as the atypical antipsychotics. These antipsychotics block the D2 receptor with less affinity than the typical antipsychotics but also block the 5-HT 2 Receptor. They also have less antihistaminic, antimuscarinic, and anti-alpha-1 effects. These were developed to have a more benign side effect profile than the typical antipsychotics, and they treat the negative symptoms of psychotic disorders.

Mechanism

Blocks D2 Receptor

Block-guy (D) Doberman (2) Tutu Receptor

The positive symptoms of psychosis can be treated with antipsychotic drugs that block the D2 receptor, increasing the activity of cAMP in the cell.

2nd Generation Blocks the 5-HT 2 Receptor

(2) Tutu Block-guy Blocks Silver-tonic with a (2) Tutu and Receptor

Second-generation antipsychotics work by antagonizing the D2 receptor but also antagonizing the 5HT 2 receptor. This additional action helps to treat the negative symptoms of schizophrenia spectrum disorders.

Indications

Psychosis

Psychic

While antipsychotics can be used for an extremely wide range of purposes, they are best known for their utility in treating patients with delusions, hallucinations, and disorganized thoughts. These symptoms are most commonly associated with schizophrenia spectrum disorders, substance abuse, and many other disorders that can have psychotic features.

Delirium

Doll-helium

Delirium often manifests with psychosis, but delirium is more frequently caused by acute or chronic medical conditions (fluid or electrolyte abnormalities, hypoglycemia, hypoxia, hypercapnia, infections, medication) and has a waxing and waning level of consciousness. Delirium is treated by treating the underlying problem, but delirium symptoms can be attenuated by using typical antipsychotics.

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Bipolar Disorder

Bi-polar-bear

Antipsychotics can be used to treat bipolar disorder as monotherapy or in conjunction with an antidepressant or mood stabilizer.

Tourette’s Syndrome

Torn-rat

Fluphenazine is a typical high-potency antipsychotic used to treat Tourette's syndrome, an inherited neuropsychiatric disease characterized by motor and phonic tics.

**Side Effects
**

Hyperprolactinemia

Hiker-lactating

Antipsychotics work by antagonizing the action of dopamine in the mesolimbic pathway. Dopamine naturally acts to inhibit prolactin in the tuberoinfundibular pathway. Inhibiting this inhibition can lead to elevated levels of prolactin which has negative feedback to the pituitary gland. This causes hypogonadism (infertility, amenorrhea, erectile dysfunction), galactorrhea (spontaneous outflow of milk from the breasts), oligomenorrhea, and gynecomastia. This side effect is more common in typical antipsychotics than in atypical antipsychotics.

Extrapyramidal Symptoms

X-pyramid

Blockade of dopamine receptors in the mesolimbic pathway can lead to unintended dopamine blockade in the nigrostriatal pathway. This blockade causes parkinsonism, which mimics Parkinson's disease with symptoms like resting "pill-rolling" tremors, shuffling gait, cogwheel rigidity, and masked facies. Other extrapyramidal symptoms include acute dystonia, akathisia, and tardive dyskinesia. Parkinsonism is usually treated with Benztropine.

Tardive Dyskinesia

Tar-dive Disc-kite

Tardive dyskinesia is an extrapyramidal symptom that takes months to years to develop. Tardive dyskinesia is characterized by stereotypical, involuntary, repetitive body movements, such as grimacing, sticking out the tongue, or smacking the lips and chorea.

Neuroleptic Malignant Syndrome

Nerve-leopard Malignant-man

Neuroleptic Malignant Syndrome can be remembered by the acronym Malignant FEVER: Myoglobinuria, Fever, Encephalopathy, unstable Vitals, elevated• Enzyme (CK), muscle Rigidity (“lead-pipe rigidity”). This side effect is an emergency and has to be treated with Dantrolene, Bromocriptine, Benzodiazepines, and discontinuation of the offending agent.

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