



Neurodegenerative Diseases – Pharmacological Summary

Alzheimer's Disease (AD)

Progressive neurodegenerative disease characterized by short-term memory loss and cognitive decline due to loss of cholinergic neurons in the basal forebrain. Treatment is symptomatic and disease-modifying (slows progression, not cure).

Drugs Used:

- Acetylcholinesterase Inhibitors: Donepezil, Rivastigmine, Galantamine, Tacrine
- NMDA Receptor Antagonist: Memantine
- Anti-Amyloid Monoclonal Antibodies: Aducanumab, Lecanemab, Donanemab

Huntington's Disease (HD)

Inherited neurodegenerative disorder with progressive chorea, psychiatric symptoms, and dementia due to degeneration of GABAergic neurons in the striatum leading to increased dopamine activity.

Drugs Used:

- VMAT2 Inhibitors: Tetrabenazine, Deutetrabenazine
- Typical Antipsychotics: Haloperidol, Fluphenazine
- Atypical Antipsychotics: Olanzapine, Risperidone, Quetiapine
- Antidepressants: SSRIs, SNRIs
- Mood Stabilizers: Valproate, Carbamazepine
- Sleep agents: Melatonin, Mirtazapine
- Late-stage rigidity: Levodopa, Dopamine agonists

Amyotrophic Lateral Sclerosis (ALS)

Progressive degeneration of upper and lower motor neurons causing muscle weakness, wasting, fasciculations, and respiratory failure. No cure, but drugs slow disease progression.

Drugs Used:

- Riluzole (First-line)
- Edaravone (Second-line / Add-on)

Multiple Sclerosis (MS)

Autoimmune demyelinating disease of the CNS with relapsing–remitting or progressive course. Treatment aims to manage acute relapses, modify disease course, and control symptoms.

Acute Relapse Treatment:

- IV Methylprednisolone
- Plasma Exchange
- IV Immunoglobulin (IVIg)

Disease-Modifying Therapies (DMTs):

- First-line: Interferon- β , Glatiramer acetate, Dimethyl fumarate, Teriflunomide
- High-efficacy: Fingolimod, Natalizumab, Ocrelizumab, Ofatumumab, Alemtuzumab, Cladribine

