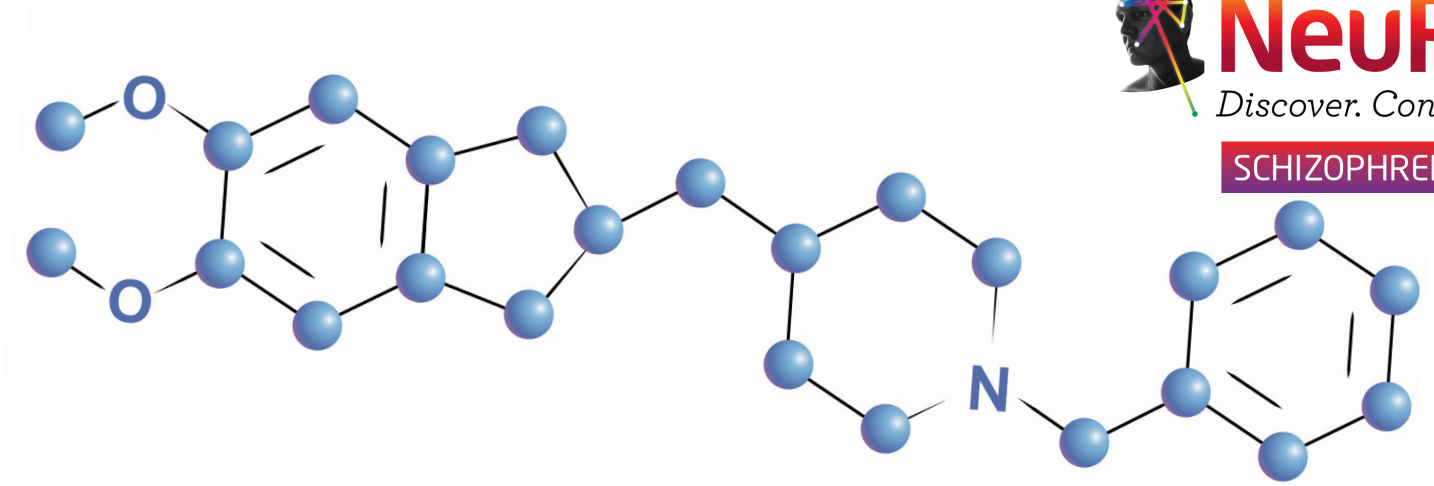

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SCHIZOPHRENIA Factsheet

October 2020

What are cholinesterase inhibitors?

Cholinesterase inhibitors (ChEI), or anti-cholinesterase, have been proposed as an additional therapy to standard antipsychotic treatments in an attempt to improve functional outcomes and treat symptoms that are not addressed by the antipsychotic medication alone. Cholinesterase inhibitors work by blocking the cholinesterase enzymes that break down acetylcholine neurotransmitters (ACh), increasing the neurotransmitter action. Their action is in contrast to anti-cholinergic medications, which have an opposite effect, and block the action of cholinergic neurotransmitters on their receptors. There are two key forms of cholinesterase enzymes, acetyl cholinesterase (AChE) and butyryl cholinesterase (BChE). There are several different cholinesterase inhibitor drugs that target these enzymes, which vary in their specificity for each of these enzymes ('single-action' or 'dual-action'). Essentially, cholinesterase inhibitors work by blocking the cholinesterase enzyme from metabolising ACh, resulting in increased availability of ACh in neuron synapses and increasing ACh activity on cholinergic receptors (called nicotinic and muscarinic receptors). These receptors are known to be involved in cognition, and the use of cholinesterase inhibitors has previously shown some efficacy for improving cognition in Alzheimer's disease. Aspects of cognition are known to be impaired in schizophrenia (See Cognition topics). Cholinesterase inhibitors have also been proposed as treatments for visual hallucinations, possibly due to depleted ACh levels in the cortex including regions involved in visual processing and interpretation.

What is the evidence for cholinesterase inhibitors?

Moderate to high quality evidence finds small to medium-sized effects of improved overall, negative and positive symptoms with adjunctive AChEIs compared to placebo. There were also medium-sized improvements in memory, attention, processing speed and motor functioning with adjunctive AChEIs (particularly single-action), and a small benefit for improving language functioning. Moderate to low quality evidence finds no differences in tardive dyskinesia.

For more information see the technical table

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NeuRA (Neuroscience Research Australia) is one of the largest independent medical and clinical research institutes in Australia and an international leader in neurological research.

Diseases of the brain and nervous system pose the greatest health, economic and social burden of any disease group because they are chronic, debilitating and have no known cures.

Medical research is the cornerstone of efforts to advance the health and wellbeing of families and the community. Our dedicated scientists are focussed on transforming their research into significant and practical benefits for all patients.

While we hope you find this information useful, it is always important to discuss any questions about schizophrenia or its treatment with your doctor or other health care provider.

HOW YOUR SUPPORT HELPS

We are able to make significant advances due to the generosity of countless people. Your donation allows us to continue to work towards transforming lives. For information on how you can support our research, phone **1300 888 019** or make a secure donation at **neura.edu.au/donate/schizophrenia**.

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