



## Role of Muscarinic Receptors in Schizophrenia

Milad Ahmadi\*, Hassan Hosseini Ravandi, Afsaneh Aghabarari

Shefa Neuroscience Research Center, Khatam Alanbia Hospital, Tehran, Iran.

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### Abstract

Schizophrenia is a severe psychiatric illness with a lifetime prevalence of ~1% that imposes a huge toll on patients, their families and public health services worldwide. Delusions, hallucinations, disorganized speech, grossly disorganized or catatonic behavior and negative symptoms constitute the core symptoms of schizophrenia. Although the neurotransmitter dopamine plays a prominent role in the pathogenesis and treatment of schizophrenia, the dopamine hypothesis of schizophrenia fails to explain all aspects of this disorder. Neuropsychopharmacological studies have focused on the role of different neurotransmitter systems in schizophrenia and led to hypotheses as to the causes of this disorder. Since the beginning of the last century, acetylcholine has been recognized as a neurotransmitter both in the CNS as well as the peripheral nervous system. Acetylcholine is synthesized in neurons from acetyl-CoA and choline in a reaction catalyzed by the enzyme choline acetyl transferase, an enzyme that is almost exclusively located in high concentrations in cholinergic neurons. Evidence for an involvement of the muscarinic cholinergic receptors in schizophrenia has been gained from the study of CNS tissue obtained postmortem. Few studies have so far assessed the distribution of cholinergic neurons in schizophrenia. This review will focus on evidence that supports the hypothesis that the muscarinic system is involved in the pathogenesis of schizophrenia and that muscarinic receptors may represent promising novel targets for the treatment of this disorder.

**Keyword:** Schizophrenia, Muscarinic, Muscarinic Agonists, Muscarinic Antagonists, Etiology.

**\*Corresponding Author:** Milad Ahmadi

**E-mail:** pmiladz@gmail.com