

Neuroinflammation: A therapeutic target of cotinine for the treatment of psychiatric disorders?

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Neuroinflammation is a common characteristic of several mental health conditions such as major depression, bipolar disorder, post-traumatic stress disorder (PTSD) and schizophrenia (SCHZ). Inflammatory processes trigger and/or further deteriorate mental functions and are regarded as targets for therapeutic drug development. Cotinine is an alkaloid present in tobacco leaves and the main metabolite of nicotine. Cotinine is safe, non-addictive and has pharmacokinetic properties adequate for therapeutic use. Research has shown that cotinine has antipsychotic, anxiolytic, and antidepressant properties and modulates the serotonergic, cholinergic and dopaminergic systems. Consistent with the modulation of these neurotransmitter systems, cotinine behaves as a positive allosteric modulator of the nicotinic acetylcholine receptors (nAChRs) and has anti-inflammatory effects. The decrease in neuroinflammation induced by the stimulation of the cholinergic system seems to be a key element explaining the beneficial effects of cotinine in a diverse range of neurological and psychiatric conditions. This review discusses new evidence of the role of neuroinflammation as a key aspect in bipolar disorder, PTSD and major depression, as well as the potential use of cotinine to reduce neuroinflammation in those conditions. © 2016 Bentham Science Publishers.

Anxiety

Bipolar disorder

Cotinine

Major depression

Neuroinflammation

Post-traumatic stress disorder

Suicide

cotinine

nicotinic receptor

cotinine

dyes, reagents, indicators, markers and buffers

neuroleptic agent

anxiety disorder

Article

bipolar disorder

drug mechanism

fear

human

major depression

mental disease

mental stress

meta analysis (topic)

nervous system inflammation

nonhuman

posttraumatic stress disorder

priority journal

suicidal behavior

animal

bipolar disorder

complication

Depressive Disorder, Major

immunology

inflammation

Stress Disorders, Post-Traumatic

Animals

Antipsychotic Agents

Bipolar Disorder

Cotinine

Depressive Disorder, Major

Humans

Indicators and Reagents

Inflammation

Stress Disorders, Post-Traumatic