

Abstract

Bipolar affective disorder is a serious psychiatric disease with prevalence of about 1% in general population. Typical symptoms are mood changes: manic periods are followed by depressions, with possible asymptomatic period of variable duration between them. It alters patient's everyday life and often leads to suicidal tendencies. Bipolar disorder is related to impaired circadian rhythms that are regulated from suprachiasmatic nuclei in hypothalamus. Impaired circadian rhythms in bipolar disorder are manifested by abnormalities of sleep and daily activity and by disrupted circadian secretion of several hormones. One of many factors that link bipolar disorder to circadian system at molecular level is the function of voltage-dependent calcium channels of L-type. Expression of these channels is regulated by the clock genes and their proper function is important for maintaining endogenous oscillations in the main oscillator located in suprachiasmatic nuclei. A common finding in patients with bipolar disorder is polymorphism of the gene for α_1 subunit of the $Ca_v1.2$ channel. Abnormal function of calcium channels, consequent to the polymorphism, may be one of the causes that alter circadian rhythms in bipolar disorder.

Key words: circadian system, suprachiasmatic nucleus, bipolar disorder, L-type calcium channels, CACNA1C, rs1006737