

Abstract

Hallucination is a clinically significant qualitative disorder of perception that can be characterized as a sensation without a proper physical stimulus. Visual hallucinations are among the most serious symptoms in a range of psychiatric disorders such as schizophrenia, Parkinson's disease, or Lewy body dementia, but can also occur during drug intoxication or under normal physiological conditions. Based on visual image processing principles and higher thalamocortical circuits, several recent explanations of the visual hallucinations phenomenon are summarized in this thesis. Although there may be many possible causes, the most important are neurobiological disorders of the inhibition processes in the cortical areas of visual association, lesions in the brain stem cores and thus the malfunctioning of the reticular activation system, neurochemical dysregulation on the thalamic sensory interface, or dysfunction of the recurrent top-down and bottom-up mechanism. There are several theoretical models summarizing the mentioned aberrations (Perception and Attention Deficit, Bayesian Heruism), which provide a more comprehensive overview of the issue of visual hallucinations. Further research and unification of individual models could provide new possibilities for diagnosis and treatment of visual hallucinations.

Keywords:

Hallucinations, vision, perception, psychopathology, brain