

Translating cognitive effect of neurogenesis augmentation by antipsychotic drugs in schizophrenia: growth factors in the loop

Mohammad Khan¹

¹Zawiya University

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Abstract

Neurogenesis is a dynamic trophic process, which produces enormous number of new neurons per day in the adult brain. New neurons participate in synapse circuit formation, and gaining discrete brain functions including memory, and cognition. Various learning activities and therapeutic agents, which increase neurogenesis also improve memory and cognition in rodents suggesting that neurogenesis could be a potential avenue for treating cognitive disabilities. In schizophrenia, while reducing psychosis is a priority, improving cognition is considered crucial for integrating patients into the academic and working environment. However, the most commonly prescribed antipsychotic drugs (APD), despite increasing neurogenesis, either do not improve or show marginal effect on cognition in schizophrenia. Molecular mechanisms that render APD ineffective in improving cognition are unclear; however, neurotrophic factors, which regulate all aspects of neurogenesis, could provide valuable clues. Therefore, in this review APD's influence on cognition, neurogenesis, and on growth factor deficit in schizophrenia is discussed.

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