Forum Minireview

Neuropsychotoxicity of Abused Drugs: Clinical and Basic Research and Drug Development: Preface

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Methamphetamine is one of the most abused drugs in the world. There are some methamphetamine derivatives, such as methylenedioxymethamphetamine (MDMA) commonly known as ecstasy, which are abused especially by adolescents. It is well known that psychostimulants such as methamphetamine MDMA and cocaine have reinforcing (reward) effects, leading to the development of drug dependence after long-term use. Furthermore, chronic use of methamphetamine induces psychosis (so-called methamphetamine psychosis) in which the abusers experience hallucination and delusions, the symptoms resembling those of schizophrenia, even after long-term abstinence. Recent studies also demonstrated cognitive dysfunction in methamphetamine users. Although pharmacologic primary targets of abused drugs are already known, the molecular and cellular mechanisms underlying the methamphetamine-induced neuropsychotoxicity (drug dependence, psychosis, and cognitive dysfunction) remain to be determined.

Many clinical and basic studies are currently being undertaken to clarify the mechanisms of neuropsychotoxicity induced by drugs of abuse. In this minireview forum, 4 different research groups from Japan and Korea summarize their findings and hypotheses regarding the mechanism and treatment of neuropsychotoxicity induced by methamphetamine and other psychostimulants. This series of reviews will provide current knowledge about the pathophysiology/pathogenesis and some hints to develop novel therapeutics in methamphetamine-induced neuropsychotoxicity and related disorders.

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