عنوان مقاله:

A Multi Region Neurodegenerative Changes in Methamphetamine Dependence Reveal by Magnetic Resonance Spectroscopy: A Psychological Aspects

محل انتشار:

مجله بین المللی مطالعات سلامت, دوره 7, شماره 1 (سال: 1400)

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خلاصه مقاله:

Background: Methamphetamine (METH) is an illicit psychostimulant that is widely abused in the world. Several lines of evidence suggest that chronic METH abuse leads to neurodegenerative changes in the human brain. These include damage to dopamine and serotonin axons, loss of gray matter accompanied by hypertrophy of the white matter, and microgliosis in different brain areas.Methods: Magnetic resonance spectroscopy measures of N-acetyl aspartate (NAA), Creatine (Cre), Choline (Cho), Myo-inositol (MI), were obtained in the dopamine circuit (Ventral Tegmental Area, Nucleus Accumbens, Substantia nigra, Striatum, Frontal Cortex, Hippocampus) of the brain in participants in ۳۰ abstinent methamphetamine-addicted people with psychosis (METHp+), and ۱۰ healthy controls (HCs) (age ranges of ۱۸ to ۵۰ years old). Psychotic symptoms were assessed with the Positive and Negative Syndrome Scale (PANSS) and analyzed using a five-factor model. All participants were also assessed for physical and mental illnesses as well as recent substance use.Results: The METHp+ group displayed robust alteration in basic metabolite concentration levels (NAA, cho, Cr, mI, and GLX) relative to HCs. This suggests that cellular metabolism is altered in both conditions but in METHp+ group is seeing more dramatic changes. Significant decrease in the concentration of NAA metabolites (mean of ۱۸.۵۶) in the methamphetamine group with high psychological symptoms (mean of ۱۱۱.۹) in the studied areas compared to the control group which is a neurotransmitter and biomarker, indicates chronic neurological degeneration in the test areas and its relationship with the incidence of mental disorders in these individuals (Pvalue<۰.۰۱).Conclusions: These data support the assumption that cellular abnormalities differ between methamphetamine addiction psychosis and healthy controls people despite not different in normal imaging acquisition.Keywords: Methamphetamine, Abstinence, Neurodegeneration, Magnetic Resonance Spectroscopy, Dopamine circuit.Background: Methamphetamine (METH) is an illicit psychostimulant that is widely abused in the world. Several lines of evidence suggest that chronic METH abuse leads to neurodegenerative changes in the human brain. These include damage to dopamine and serotonin axons, loss of gray matter accompanied by hypertrophy of the white matter, and microgliosis in different brain areas. Methods: Magnetic resonance spectroscopy measures of N-acetyl aspartate (NAA), Creatine (Cre), Choline (Cho), Myo-inositol (MI), were obtained in the dopamine circuit (Ventral Tegmental Area, Nucl ...

کلمات کلیدی:

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