

Preventive Strategies for Medically Induced Drug Addiction:

M. Khan¹, R. Saeed², J. Sujjat³, Z. Mukhtar⁴, Z. Mukhtar⁴, S. Naiz⁵

¹psychiatry, sexual health institute of pakistan, lahore, Pakistan ; ²psychiatry, Azra Naheed Medical college, lahore, Pakistan ; ³psychology, International Islamic university, Rawalpindi, Pakistan ; ⁴psychology, University of Sargodha, Sargodha, Pakistan ; ⁵psychiatry, University of Sargodha, London, United Kingdom

INTRODUCTION:

Many times people get addicted to a drug like opioids when prescribed for some medical purpose. Neurobiological models of addiction have proposed cellular adaptation as a mechanism of drug addiction. Excessive release of dopamine in NA due to drug intake produces euphoric sensation leading to pathological learning. Repeated use of drug increases glutamatergic drive from prefrontal to NA causing compulsive seeking of drug in drug addicts. Is it possible to prevent medically induced addiction?

Method:

Pubmed search was made by using key words, addiction model, dopamine, glutamate, anticraving medicine, oxidative stress.

RESULTS:

Different antiglutamatergic medications like ketamine, memantine, amproprate modulate glutamatic excitation to prevent addiction. Natural medicines like N-acetylcysteine and oxytocin have a protective role. Typical antipsychotics can block the surge of dopamine in NA.

Discussion :

When an addictive drug has to be used inevitably for medical purposes it should be combined with other drugs to prevent development of addiction. First euphoria related to dopamine release in NA can be blocked by use of low-dose typical antipsychotics or dopamine partial antagonists. NMDA is a molecular target of various addictive drugs. Memantine, ketamine or amproprate can minimize effects of glutamatergic plasticity. N-acetylcysteine can restore glutamatergic pathways by its system of cystine-glutamate antiporter. It is a source of glutathione, the largest antioxidant system of the body. Intranasal oxytocin can prevent addiction through its action on stress, learning, memory and intimacy. Intranasal oxytocin can be delivered directly to the brain.

CONCLUSION:

Different strategies can be used to prevent medically induced addiction.