



Neuroaesthetics, dreams, and drug-induced nightmares: a literature review

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ABSTRACT

Introduction: Nightmares are commonly reported as one of the many possible side-effects of different drug classes, especially those that are psychotropic and affect the central nervous system (CNS). However, the clear establishment of etiology of drug-induced nightmares is not an easy task since nightmares and fear-driven dream experiences occur, by large, in a healthy adult population as well. The aim of this review was to identify and elaborate on the most common, regularly prescribed pharmacological agents that are associated with nightmares.

Materials and Methods: This review included a PubMed (MEDLINE) available case reports, original articles, and data gathered from registered clinical trials that reported nightmares or similar disturbances in dream architecture that were associated with medication usage. Search terms used were: nightmares; drug, induced, treatment.

Results: The drugs that belong to serotonin-norepinephrine reuptake inhibitors (SNRI) class such as venlafaxine and selective serotonin reuptake inhibitors (SSRI) such as fluoxetine were often brought in association with nightmare-like CNS side-effects. Furthermore, melatonin agonists such as Ramelteon that act on MT1 and MT2 receptors were associated with nightmares. Mirtazapine and bupropion, the atypical antidepressants with serotonergic and noradrenergic activity have been widely associated with nightmare episodes. Likewise, hypnotic drugs such as zolpidem and cholinesterase inhibitors (donepezil) were reported to induce nightmares. Some antiviral drugs, such as efavirenz, a non-nucleoside reverse transcriptase inhibitor (NNRTI) used for the treatment of HIV infection has been brought into connection with nightmares that persisted up to several weeks. Antimicrobial drugs like erythromycin have been associated with recurrent nightmares. Finally, beta-blockers such as metoprolol, bisoprolol and propranolol were reported to induce sleep disturbances and nightmares in a multitude of studies.

Conclusions: The drugs that were most frequently associated with nightmares belong to beta-blocking, amphetamine and sedative/hypnotic classes of drugs. Recent evidence also suggests that antiviral NNRTI drugs may trigger nightmares and neuropsychiatric complications. Therefore, implicated pharmacological mechanisms that induce nightmares are most likely mediated by the action of neurotransmitters such as serotonin, dopamine, melatonin, and norepinephrine, but precise workings are yet to be elucidated.

Keywords: dreams, sleep, drugs, nightmares

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