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A critical review of caffeine withdrawal: empirical validation of symptoms and signs, incidence, severity, and associated features.

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Abstract

RATIONALE: Although reports of caffeine withdrawal in the medical literature date back more than 170 years, the most rigorous experimental investigations of the phenomenon have been conducted only recently.

OBJECTIVES: The purpose of this paper is to provide a comprehensive review and analysis of the literature regarding human caffeine withdrawal to empirically validate specific symptoms and signs, and to appraise important features of the syndrome.

METHODS: A literature search identified 57 experimental and 9 survey studies on caffeine withdrawal that met inclusion criteria. The methodological features of each study were examined to assess the validity of the effects.

RESULTS: Of 49 symptom categories identified, the following 10 fulfilled validity criteria: headache, fatigue, decreased energy/activeness, decreased alertness, drowsiness, decreased contentedness, depressed mood, difficulty concentrating, irritability, and foggy/not clearheaded. In addition, flu-like symptoms, nausea/vomiting, and muscle pain/stiffness were judged likely to represent valid symptom categories. In experimental studies, the incidence of headache was 50% and the incidence of clinically significant distress or functional impairment was 13%. Typically, onset of symptoms occurred 12-24 h after abstinence, with peak intensity at 20-51 h, and for a duration of 2-9 days. In general, the incidence or severity of symptoms increased with increases in daily dose; abstinence from doses as low as 100 mg/day produced symptoms. Research is reviewed indicating that expectancies are not a prime determinant of caffeine withdrawal and that avoidance of withdrawal symptoms plays a central role in habitual caffeine consumption.

CONCLUSIONS: The caffeine-withdrawal syndrome has been well characterized and there is sufficient empirical evidence to warrant inclusion of caffeine withdrawal as a disorder in the DSM and revision of diagnostic criteria in the ICD.

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