

Pharmacological treatment for methamphetamine withdrawal: a systematic review and meta-analysis of randomised controlled trials

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Introduction and Aims: Cessation or reduction of regular methamphetamine (MA) use may result in a characteristic withdrawal syndrome. Few studies have investigated treatments specifically for methamphetamine withdrawal. This systematic review aims to assess the effectiveness of pharmacotherapy of methamphetamine withdrawal.

Design and Methods: MEDLINE (1966-2020), CINAHL (1982-2020), PsychINFO (1806-2020) and EMBASE (1947-2020) were systematically searched, with two reviewers independently evaluating studies for inclusion, and extracting data. The Relative Risk and Weighted Mean Difference were used to meta-analyse dichotomous and continuous data with 95% Confidence Intervals.

Key Findings: Nine randomised controlled trials of 6 medications (n=242 participants) met inclusion criteria, however only 6 trials of 4 medications (n=186) could be meta-analysed. Two studies of amineptine reported reduced discontinuation rates when compared to placebo (RR 0.21, 95%CI 0.07-0.69, p=0.009), but no difference in MA craving (p=0.61) or withdrawal symptoms (p=0.39). Two studies of mirtazapine found no benefit over placebo on discontinuation (p=0.96) or MA withdrawal symptoms (p=0.63), however one older study reported mirtazapine may reduce hyper-arousal and anxiety related to withdrawal. One study of modafinil did not find benefit over placebo in any measure. One study of amantadine found no difference in retention compared with placebo.

Discussions and Conclusions: There is insufficient evidence to suggest any medication is effective for the treatment of amphetamine withdrawal. However, due to the small sample sizes and missing data in the reports limiting meta-analyses, there is insufficient evidence to draw strong conclusions. Further, larger trials of pharmacotherapies for methamphetamine withdrawal are required.

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