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## Meta-analysis of cannabis based treatments for neuropathic and multiple sclerosis-related pain.

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### Abstract

**OBJECTIVE:** Debilitating pain, occurring in 50-70% of multiple sclerosis (MS) patients, is poorly understood and infrequently studied. We summarized efficacy and safety data of cannabinoid-based drugs for neuropathic pain.

**DATA SOURCES:** Studies were identified from Medline, Embase, and Cochrane databases; Bayer Healthcare provided additional trials.

**STUDY SELECTION:** Accepted were randomized, double-blinded placebo-controlled trials of cannabinoid-based treatments for MS-related/neuropathic pain in adults > or = 18 years of age.

**DATA EXTRACTION:** Two reviewers identified studies and extracted data; a third adjudicated disagreements. Data included baseline and endpoint pain scores on visual analog or 11-point ordinal scales.

**DATA SYNTHESIS:** Of 18 articles and three randomized controlled trial (RCT) reports identified, 12 articles and two reports were rejected (9 = inappropriate disease or outcome, 1 = duplicate, 1 = review, and 1 = abstract); six accepted articles and one RCT-report involved 298 patients (222 treated, 76 placebo); four examined Sativex (a cannabidiol/delta-9-tetrahydrocannabinol (THC) buccal spray) (observations = 196), five cannabidiol (n = 41), and three dronabinol (n = 91). Homogeneity chi(2) values were non-significant, allowing data combination. Analyses focused on baseline-endpoint score differences. The cannabidiol/THC buccal spray decreased pain 1.7 +/- 0.7 points (p = 0.018), cannabidiol 1.5 +/- 0.7 (p = 0.044), dronabinol 1.5 +/- 0.6 (p = 0.013), and all cannabinoids pooled together 1.6 +/- 0.4 (p < 0.001). Placebo baseline-endpoint scores did not differ (0.8 +/- 0.4 points, p = 0.023). At endpoint, cannabinoids were superior to placebo by 0.8 +/- 0.3 points (p = 0.029). Dizziness was the most commonly observed adverse event in the cannabidiol/THC buccal spray arms (39 +/- 16%), across all cannabinoid treatments (32.5 +/- 16%) as well as in the placebo arms (10 +/- 4%).

**CONCLUSION:** Cannabinoids including the cannabidiol/THC buccal spray are effective in treating neuropathic pain in MS.

**LIMITATIONS:** This review was based on a small number of trials and patients. Pain related to MS was assumed to be similar to neuropathic pain.

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