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Background: Cannabinoid Hyperemesis Syndrome (CHS) is a syndrome comprised of cyclic nausea, vomiting, and abdominal pain in the setting of regular cannabis use. Emergency departments are faced with the challenge of treating CHS patients, often refractory to traditional antiemetic therapies, particularly as cannabis has become legalized or decriminalized throughout the United States. The increasing body of evidence suggests topical capsaicin is an effective treatment for CHS.

Objective: We sought to collect preliminary outcomes in order to determine if topical capsaicin provides symptomatic relief, reduces need for additional medications, and conserves hospital resources for patients with presumed CHS.

Methods: This was a randomized, double-blind, placebo-controlled pilot trial conducted in the emergency department at an academic medical center. The study enrolled patients from November 23, 2020 through April 1, 2022. Patients 18 years or older with suspected cannabinoid hyperemesis syndrome were eligible for enrollment. Patients were excluded if they were pregnant, prisoners, determined to have an alternative diagnosis responsible for nausea and vomiting, or received more than 2 antiemetics or haloperidol prior to randomization. Patients were randomized 1:1 to topical 0.075% capsaicin cream or placebo moisturizing cream placed on the abdomen in a standardized fashion. The primary outcome was clinical improvement post-treatment defined as decrease in pain score. Other outcomes included median change in pain score, receipt of anti-emetics, haloperidol, length of stay, hospital admission, adverse effects, compliance, and 30-day follow up survey results. Pain was assessed using the Visual Analog Scale (VAS).

Preliminary Results: This pilot trial enrolled 20 patients, 17of whom were randomized. Eight patients received capsaicin, and nine received placebo. Five (63%) patients in the capsaicin group and three (38%) in the placebo group reported reduction in pain using the VAS (*p* = 0.315). A higher proportion of patients in the capsaicin group received haloperidol or other antiemetic therapy (63% v 44%, p > 0.99), required hospital admission (38% v 11%, *p* = 0.294), and had a longer median length of stay (407 minutes v 153 minutes, *p* = 0.083).

Conclusions: In patients with presumed CHS treated with topical capsaicin, no statistically significant difference in proportion of patients with pain reduction compared to placebo was observed. Though not statistically significant, interesting findings include higher proportion of rescue antiemetic received, hospital admissions, and longer median length of stay in the capsaicin group. This was a pilot study with several limitations including small sample size, but its results add to the growing body of literature on capsaicin’s role in CHS and are hypothesis generating for future studies.