Abstract Title: Cannabis Exposure and Cardiovascular Outcomes: A Narrative Review of Systematic Reviews with Meta-Analysis

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Presentation type: Poster

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Funding: American Heart Association (grant 26CDA1618418).

Abstract

Background: Cannabis use is increasingly common, including among people with cardiovascular disease or risk factors, yet its cardiovascular safety remains unresolved. Systematic reviews on this question differ in scope, methods and conclusions.

Objective: To describe the direction of findings from systematic reviews with meta-analysis (SRMAs) analyzing the association between cannabis or cannabinoid exposure and cardiovascular outcomes exploring differences by exposure type.

Methods: A systematic literature search of CDSR, CINAHL, Embase, PsycINFO, PubMed and Scopus was conducted from inception to June 11, 2026. Two reviewers independently screened records in Covidence. Included were English-language systematic reviews of primary human studies which assessed the relationship between cannabis exposure (e.g., cannabis products, or cannabinoids) and cardiovascular outcomes. Protocols, umbrella reviews, and reviews not separating cannabis from other exposures (e.g., substance use) were excluded. Two reviewers independently extracted review characteristics (e.g., population, included studies, exposure, comparator, outcomes, conclusions) and outcome-level results (e.g., outcome definition, pooled estimate, direction) using a piloted data extraction form, with a third reviewer resolving disagreements. This narrative review focused on outcomes that were analyzed by at least four different SRMAs, which resulted in the outcomes of arrhythmias, acute coronary syndrome (ACS), blood pressure changes, and stroke. Direction of findings from each analysis from contributing SRMAs (increased, decreased, no significant change) was tabulated by outcome and stratified by exposure category (any cannabis use, use of delta-9-tetrahydrocannabinol (THC) only cannabis products, use of cannabidiol (CBD) only cannabis products) if at least one analysis existed in each stratum. Results were summarized qualitatively.

Results: Of 8,775 records identified, 5,210 remained after deduplication, and 382 after abstract screening. For this narrative review 13 SRMAs met the inclusion criteria. Among these SRMAs, six pooled trials of medical cannabinoid products and seven pooled observational studies of non-medical use. For arrhythmias (5 analyses, 4 SRMAs), an acute increase in heart rate was reported for use of THC only cannabis products in one analysis (mean difference [MD] +8.2 beats per minute); for any cannabis use, an increase in atrial arrhythmias was reported in one analysis and no significant change in tachycardia in another; for use of CBD only cannabis products, no significant change in heart rate was reported in two analyses. For acute coronary syndrome (4 analyses, 4 observational SRMAs, any cannabis use), 2 analyses reported an increase (ACS; postoperative myocardial infarction, odds ratio [OR] 2.0, 95% confidence interval [CI] 1.1 to 3.5) and 2 analyses reported no significant change with use of any cannabis products.

For blood pressure changes (11 analyses, 5 SRMAs, all trial-based), for any cannabis use (5 analyses, 3 SRMAs) an increase in hypotension events was reported in 3 analyses (risk ratio [RR] 3.14; RR 3.47; OR 3.24) and no significant change in hypotension events in 2 analyses. For use of CBD only cannabis products (6 analyses, 2 SRMAs), a decrease in blood pressure was reported in 3 analyses (systolic blood pressure [SBP] after acute use, 1 analysis; SBP and diastolic blood pressure after chronic use, 2 analyses; SBP MD -7.0 mmHg) and no significant change in blood pressure in 3 analyses.

For stroke (13 analyses, 6 observational SRMAs, any cannabis use), 7 analyses reported an increase (any stroke or ischemic stroke) and 6 analyses reported no significant change; in the 2 analyses (2 SRMAs) that reported results specifically for hemorrhagic stroke, no significant change was reported.

Conclusion: Existing SRMAs report mixed results between cannabis or cannabinoid exposure and arrhythmias, acute coronary syndrome, blood pressure changes, and stroke. Exposure category specific directions of findings among included analyses were observed for arrhythmias. Further well-designed studies are needed to clarify cardio- and cerebrovascular risks according to cannabis exposure characteristics, duration of exposure, and patient factors, thereby improving understanding of the cardiovascular safety profile of medical cannabis.