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Lasix for the prevention of de novo postpartum hypertension: A randomized placebo-controlled trial (LAPP Trial)

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Abstract

Background: Birthing people with de novo postpartum hypertensive disorders remain among the highest risk for severe maternal morbidity. Randomized controlled trials demonstrate a benefit to oral loop-diuretics in decreasing postpartum hypertensive morbidity in patients with an antenatal diagnosis of preeclampsia. It is not known whether this same therapy benefits patients at risk for new-onset postpartum hypertension OBJECTIVE: To evaluate whether oral furosemide can reduce risk for de novo postpartum hypertension (dnPPHTN) among high-risk birthing people by reducing post-delivery blood pressure.

Study design: From October 2021 to April 2022, we conducted a randomized triple-masked placebo-controlled clinical trial of individuals at high risk for dnPPHTN at a single university-based tertiary care medical center. A total of 82 postpartum patients with no antenatal diagnosis of chronic hypertension or a hypertensive disorder of pregnancy who were at high-risk for the development of dnPPHTN based on a pre-specified risk factor algorithm were enrolled after childbirth. The participants were randomly assigned in a 1:1 ratio to a five-day course of oral furosemide 20 mg daily or identical-appearing placebo starting within eight hours of delivery. Participants were followed for 6 weeks postpartum using Bluetooth-enabled remote blood pressure monitoring and electronic surveys. The primary outcome was the difference in mean arterial pressure (MAP) averaged over the 24 hours prior to discharge or the 24 hours prior to antihypertensive therapy initiation. The study was powered to detect a 5 mmHg difference in mean MAP (standard deviation 6.4 mmHg) with 90% power at an alpha of 0.05, requiring a sample size of 41 per group. Secondary outcomes included the rate of dnPPHTN, readmission data, other measures of hypertensive and maternal morbidity, breastfeeding data, and drug-related neonatal outcomes.

Results: The primary outcome was assessed in 80 of the 82 participants. Baseline characteristics were similar between groups. There was no significant difference in mean MAP 24 hours prior to discharge (or antihypertensive initiation) in the furosemide group (88.9 ± 7.4 mmHg) compared to the placebo group (86.8 ± 7.1 mmHg; absolute difference 2.1 mmHg, 95% CI -1.2 to 5.3). Of the 79 participants for whom secondary outcomes were assessed, 10% (n=8) developed dnPPHTN and 9% (n=7) were initiated on antihypertensive therapy. Rates were not significantly different between groups.

Conclusions: De novo postpartum hypertension is a common phenomenon among at-risk patients, warranting close monitoring for severe hypertension and other maternal morbidity. There is insufficient evidence to suggest that furosemide reduces mean MAP in the 24 hours prior to discharge from the delivery hospitalization (or antihypertensive medication initiation) compared to placebo.

Keywords: antihypertensive therapy; healthcare innovation innovative technology; maternal health; maternal morbidity; neonatal outcomes; novel monitoring; oral furosemide; postpartum care; preventive therapies; remote monitoring technology; risk factor algorithm.

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For Debate: The 2023 European Society of Hypertension guidelines - cause for concern

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Abstract

Originally, the beta-blockers were equally ranked alongside the other antihypertensive drug classes. Things changed when two major long-term randomized controlled trials, ASCOT-BPLA and LIFE showed that the patients receiving the beta-blockers based regimes suffered 25-30% more strokes than those receiving a calcium channel blocker based regime or an angiotensin receptor blocker based regime. The inferiority of the beta-blockers at stroke prevention was not due to differences in blood pressure control during the follow-up period in both trials. The 2023 European Society of Hypertension (ESH) guidelines still argue in favour of beta-blockers that their clinical inferiority was simply to lesser blood pressure reduction rather than class effect. The analysis argues that the return of beta-blockers as a first-line option for the management of uncomplicated hypertension by the ESH is a cause for concern and should be reconsidered.

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Cardiovascular disease in Arab Americans: A literature review of prevalence, risk factors, and directions for future research

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Abstract

Cardiovascular disease (CVD) is the leading cause of mortality worldwide. Recent evidence suggests Arab Americans, individuals with ancestry from Arabic-speaking countries, have an elevated risk for CVD compared to other ethnicities in the US. However, research focusing specifically on CVD in this population is limited. This literature review synthesizes studies investigating CVD prevalence, risk factors, and outcomes in Arab Americans. Multiple studies found higher rates of coronary heart disease, cerebrovascular disease, and hypertension compared to non-Hispanic White participants. The prevalence of type 2 diabetes, a major CVD risk factor, was also markedly higher, ranging from 16 % to 41 % in Arab Americans based on objective measures. Possible explanations include high rates of vitamin D deficiency, genetic factors, and poor diabetes control. Other metabolic factors like dyslipidemia and obesity did not consistently differ from general population estimates. Psychosocial factors may further increase CVD risk, including acculturative stress, discrimination, low health literacy, and barriers to healthcare access. Smoking, especially waterpipe use, was more prevalent in Arab American men. Though heterogenous, Arab Americans overall appear to have elevated CVD risk, warranting tailored screening and management. Culturally appropriate educational initiatives on CVD prevention are greatly needed. Future directions include better characterizing CVD prevalence across Arab American subgroups, delineating genetic and environmental factors underlying increased diabetes susceptibility, and testing culturally tailored interventions to mitigate CVD risks. In summary, this review highlights concerning CVD disparities in Arab Americans and underscores the need for group-specific research and preventive strategies.

Keywords: Arab Americans; Cardiovascular disease; Disease burden; Non-hispanic white.

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The association between flavonoids intake and hypertension in U.S. adults: A cross-sectional study from The National Health and Nutrition Examination Survey

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Abstract

Although in vitro experiments have demonstrated the potential of flavonoid compounds in regulating blood pressure, there is still a lack of evidence from large population studies. We conducted a cross-sectional study using the National Health and Nutrition Examination Survey to investigate the relationship between flavonoid intake levels (natural log transformation) and hypertension events. A total of 15 752 participants aged over 20 years were included, and a weighted multivariable logistic regression analysis was performed to explore the relationship between total flavonoids, five sub types intake, and hypertension events. Smooth curve fitting was used to explore potential nonlinear relationships. Higher total flavonoids intake was associated with a lower risk of hypertension than the lowest group. The adjusted odds ratios (95% CIs) were 0.79 (0.70-0.88) for total flavonoids intake. Elevated total flavonoids intake levels were significantly and linearly associated with a lower risk of hypertension. For each unit increase in the total flavonoids intake level, the adjusted ORs for risk of hypertension decrease by 5% (OR 0.95; 95% CI, 0.92-0.98). In addition, in restricted cubic spline regression, we found that flavan-3-ols, anthocyanidins, and flavonols intake were linearly and negatively related to prevalence of hypertension. Flavones intake showed nonlinear associations with prevalence of hypertension with inflection points of -1.90. Within a certain range, a negative correlation exists between flavonoids intake and hypertension events. This finding provides insights into dietary modifications in the prevention of hypertension.

Keywords: NHANES; U.S. adults; cross-sectional study; flavonoids intake; hypertension.