sodium intake and BP and the control group participants received usual care for hypertension. Both groups participated in digital self-monitoring of daily diet and BP over 8 weeks. The primary outcomes were adherence to dietary sodium intake as captured by 24-hour urinary sodium excretion and BP at baseline and at the 2-month follow-up. Feasibility assessment included adherence to dietary sodium intake monitoring and in-home BP monitoring measured by the percentage of days that participant logged their food intake and in-home BP. The preliminary effect on the outcome variables was tested by using a repeated-measures analysis of variance. RESULTS/ANTICIPATED RESULTS: In this feasibility study, we included data from 12 participants (n=9 SWPH, n=3 control) who completed all phases of the study. The patients median age was 56.5 years and 70% were female. The mean baseline BP was 142.7/87.5 mmHg. The mean 24-hour urine sodium of 4853.0 mg (SD=1639.9 mg) with 80% having 24-hour urine sodium >2300 mg at baseline. SWPH group had lower systolic (baseline 142.4 mmHg vs follow-up 124.1 mmHg, p<0.001), diastolic (baseline 87.1 mmHg vs follow-up 77.5 mmHg, p<0.05) BP, and 24-hour urine sodium (baseline 3790.4 mg vs 2609.7 mg, p<0.05) compared with control group. Compared with the control group, the SWPH group had significantly more eligible days of digital food log usage (control 80.0% vs intervention 98.2%, p<0.01) and in-home BP monitor usage (control 77.6% vs intervention 94.6%, p<0.01). DISCUSSION/SIGNIFICANCE: Millions of Americans remain in need of effective interventions to manage their hypertension. Innovative and accessible strategies to sustain a low sodium diet intervention are needed for the majority of individuals not following the low sodium diet. By leveraging digital self-monitoring, a low sodium diet program was feasible and in reducing BP.

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Serum Aldosterone and Urine Electrolytes Dynamics in Response to DASH Diet Intervention†

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OBJECTIVES/GOALS: Dietary approach to stop hypertension (DASH) is a proven intervention to treat hypertension. Despite years of research the immediate physiologic response to its implementation was never characterized.This translational trial describes the biological pathway from nutrition through hormons, urine electrolytes and blood pressure reduction. METHODS/STUDY POPULATION: A single center interventional trial. Stage 1 hypertensive otherwise healthy volunteers were admitted for 14-days, transitioning from American style diet to DASH diet. Nutritional habits were assessed with food frequency questionnaires, and menus designed according to the guidelines of the National Heart Blood and Lung Institute (NHBLI) of the National Institute of Health (NIH). Data were collected daily for vital signs, blood and urine. Participants completed two 24-hour ABPM on days 1,10, and two 24-hour urine collections in parallel. We conducted a follow up visit two weeks after discharge. RESULTS/ANTICIPATED RESULTS: 9 volunteers (78% male, 89% Black individuals) completed the protocol. During an inpatient stay, they consumed a mean daily potassium intake of 5.6 g (Â±0.7g) and 2.6 g (Â±0.3g) of Sodium. Serum Aldosterone increased from day 0 (mean 8.3, range 2.8-18.9) to day 5 (mean 17.8, range 10.2-27.2) after intervention, and decreased on day 11 (mean 11.5, range 4.8-18.2) despite continuous exposure (p-value=0.002). The urine electrolyte ratio of ([Na]/[K]) decreased from a mean of 3.5 before intervention to 1.16 on day 4, creating a statistically significant slope (p-value<0.001). Blood pressure by 24-hour ABPM decreased by 3.7 mmHg systolic BP and 2.3 mmHg diastolic BP from day 1 to 10 for the entire period, and for measures taken during sleep or awake time, assessed separately. DISCUSSION/SIGNIFICANCE: Shifting from a high-sodium low-potassium diet to the opposite composition leads to serial physiological changes that are governed by aldosterone and result in blood pressure reduction. Urine electrolyte ratio reflects nutritional changes within 4 days of transition and should guide clinicians in assessing lifestyle modification adherence.

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Improving the diagnosis and classification of facial pain conditions with MRI-based features*,†

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OBJECTIVES/GOALS: Trigeminal Neuralgia (TN) is a debilitating neuropathic condition characterized by electric-shock-like pain attacks. TN is considered a clinical diagnosis, and few proposed objective markers exist. This work studies the ability of advanced MRI techniques to diagnose and classify TN. METHODS/STUDY POPULATION: Anatomical MRI data from patients undergoing radiosurgery to treat TN was collected. A custom deep-learning UNet algorithm was trained to segment trigeminal nerves from the pons to the anterior wall of Meckels cave using segments drawn by an expert in neuroanatomy. 108 radiomics features related to nerve shape, voxel intensity, and image texture were extracted from the segmented nerves. A 2 layer neural network was trained to distinguish TN affected nerves from the pain-free contralateral nerves. Feature selection was performed within a cross-validation scheme to prevent model overfitting. Mean model performance over the validation sets was used to estimate model generalizability. RESULTS/ANTICIPATED RESULTS: 134 patients and 268 nerves were included. The average number of years with TN was 8. The average validation set accuracy was 78% [range: 75-80%]. The average validation set sensitivity and specificity were 0.82 [range: 0.79-0.84] and 0.76 [range: 0.70-0.79]. 34% of patients had undergone a prior invasive procedure to treat their TN. To evaluate whether the model detected signal changes relating to the previous treatment, those patients were excluded and the model was retrained on the surgically naive patients. Model performance in a reduced cohort of patients was similar to the model trained on all the patients, with accuracy of 77% [range: 73-82%]. DISCUSSION/SIGNIFICANCE: This study suggests that radiomics features calculated from MRIs of trigeminal nerves correlate with anatomical changes in TN affected nerves. This technique will need to be verified in a larger, more heterogeneous cohort of TN patients with a range of MRI acquisition parameters.

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