2023 Annual Research Day Poster Sessions – April 19th, 2023

Session/Poster#	Presenter
A40	Joseph Boroda College of Medicine Student

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Phenotyping Nocturia in Hypertensives According to 24-hour Urine Composition

Hypertension is among the most clinically significant comorbidities correlated with nocturia. The mechanism by which elevated BP leads to nocturnal polyuria is believed to be multifactorial, including blunting of the normal nocturnal dip in BP which can drive pressure-natriuresis, and change in the circadian release of natriuretic peptides and anti-diuretic peptide. The aim of this study is to assess the impact of postural changes in BP in hypertensives on 24-hour urine production.

Participants with a diagnosis of essential HTN had in-office seated and supine BP recordings and completed 24-hour urine collection and voiding diaries. Urine was collected in 3 containers; one for the first nighttime void, a second for all subsequent nighttime voids and first morning void, and a third for all daytime voids. Participants whose systolic BP decreased with supine positioning were placed in the dipping group, and those whose systolic BP increased or was unchanged upon supine positioning were placed in the non-dipping group.

There were 12 individuals in the dipping group and 19 in the non-dipping group. The non-dipping group tended to produce greater volumes of urine both day and night and had greater 24-hour urine sodium excretion. The sodium concentration of the first nighttime void was higher in the non-dipping group (median: 102; IQR: 76-105 mEq/L) than the dipping group (median: 51; IQR: 32.5 - 65 mEq/L) ($p = .024$). The urine sodium concentration for the remainder of the night was higher in the non-dipping group (median: 92; IQR: 62 - 117 mEq/L) than the dipping group (median: 59.5; IQR: 48-77.25 mEq/L) ($p = .012$). Participants in the non-dipping group were 79% more likely to experience 2 or more nighttime voids than the dipping group (RR: 1.79; 95% CI: 1 - 3.2; $p = .052$).

In-office BP measurements that do not dip with supine positioning are associated with more frequent nighttime voiding as well as higher urine concentrations of sodium in both early and late night voids.