

## C-38

# Changes in Catecholamine and Metanephrine Levels and 24-Hour Ambulatory Blood Pressure Parameters Before and After Catecholamine-Secreting Neuroendocrine Tumor Resection

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**BACKGROUND:** Catecholamine and metanephrine levels typically normalize after surgical resection of catecholamine-secreting neuroendocrine tumors (NETs) including pheochromocytomas and paragangliomas. Limited data exist about the changes in catecholamine and metanephrine levels following tumor resection and their association with 24-hour ambulatory blood pressure monitoring (ABPM) parameters such as mean systolic blood pressure (SBP) and SBP variability.

**METHODS:** We performed a prospective observational study of patients evaluated at Penn for suspected catecholamine-secreting NET between January 2014 and December 2016. Plasma and urine catecholamine and metanephrine levels were obtained and patients underwent 24-hour ABPM 1-3 weeks prior to and 6-8 weeks following tumor resection.

Results: 32 patients met inclusion criteria. Median age was 56 years, with 44% males (n=14), 78% Caucasians (n=25), and median body mass index 25.5 kg/m<sup>2</sup>. Compared to pre-operative values, there was a significant decline in ABPM parameters including post-operative 24-hour mean SBP (133.1 vs.

127.4 mmHg,  $p=0.036$ ), 24-hour SBP average real variability ([ARV] 10.0 vs. 9.0,  $p=0.031$ ), 24-hour mean pulse pressure (54.5 vs. 51.6 mmHg,  $p=0.012$ ), and 24-hour mean heart rate (78.5 vs. 74.0 bpm,  $p=0.023$ ). Among patients who had masked ( $n=7$ ), white coat ( $n=4$ ), or sustained hypertension ( $n=9$ ) at baseline, 60% had controlled hypertension upon follow up ( $p=0.002$ ). Greater decline in 24-hour SBP was associated with a greater decline in plasma normetanephrine (Spearman's rho [ $r$ ]=-0.43,  $p=0.017$ ), plasma norepinephrine ( $r=-0.59$ ,  $p=0.002$ ), and urine normetanephrine ( $r=-0.66$ ,  $p=0.001$ ). Greater decline in 24-hour SBP ARV was associated with a greater decline in plasma norepinephrine ( $r=-0.46$ ,  $p=0.024$ ).

**CONCLUSION:** Following resection of catecholamine-secreting NETs, patients had a significant decline in 24-hour mean SBP and SBP variability, and many experienced resolution of white coat, masked, and sustained hypertension. Decline in 24-hour SBP and SBP variability was directly associated with degree of improvement in catecholamine and metanephrine levels.