C7

A Study of BP Variability Utilizing 24 Hour Ambulatory BP Monitoring in Patients with Catecholamine Secreting Neuroendocrine Tumors Before and After Tumor Resection

Bonita J. Bennett, RN[1]; Anirban Ganguli, MD[1]; Debbie L. Cohen, MD[1]; Raymond R. Townsend, MD[1]

[1]Renal, Electrolyte and Hypertension Division, University of Pennsylvania, Philadelphia, PA 19104, USA

Background: Blood pressure variability in hypertension is known to cause target organ damage. The role of the sympathetic nervous system in this variability is unknown. We studied blood pressure and heart rate changes before and after surgery for catecholamine producing neuroendocrine tumors using 24 hour ambulatory blood pressure monitoring (ABPM) to assess the impact of exaggerated sympathetic activity on hemodynamic variability.

Methods: We performed a prospective observational study of patients with histological confirmation of a secretory pheochromocytoma/paraganglioma who were evaluated at the Hypertension Clinic, University of Pennsylvania from January to October 2014 for pre-operative alpha blockade prior to tumor resection. All patients had routine biochemical evaluations and 24 hour ABPM (Spacelab monitor) 1-3 weeks prior to surgery and 6-8 weeks after surgery during outpatient follow up. Variability was measured using standard deviation(SD) and by average real variability(ARV) on 24 hour Systolic BP(SBP), Diastolic BP(DBP), Mean Arterial Pressure(MAP), Pulse Pressure(PP) and heart rate(HR)

Results: 13 patients whose catecholamines normalized after surgery have been studied thus far. Mean age was 59.3 $\pm$ 9.4 years with 69.2% females (n=9), 10 Caucasians (77%), 2

African American (38%) and 1 Asian. (n=1.8%) with mean BMI of 25.37± 4.36 kg/m2. Office SBP and DBP significantly improved after surgery (127.7 ±16.2 vs 115.7± 11.7mmHg, p=0.005) and (74.3± 9.6 vs 66.6±6.2 mmHg, p=0.0008). ABPM recordings showed that 24 hr average PP was significantly lower (p=0.0501) and HR was significantly higher (p=0.001) post-surgery while PP during awake hours was significantly higher before surgery (p=0.029). Hemodynamic variability as measured using ARV and SD for 24 hr SBP, DBP, MAP, PP and HR did not change significantly post-surgery.

Conclusion: Despite normalization of hemodynamic parameters consistent with successful surgery in patients with catecholamine secreting neuroendocrine tumors, the variability persists, which may be real or due to a small sample size.