Rotation Name: Hypertension and Autonomics Consults
Rotation Site Leader:
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Goal:

As many as 50 million Americans have stage 1 hypertension (systolic blood pressure 130 mmHg or greater and/or diastolic blood pressure 80 mmHg or greater) or higher or are taking antihypertensive medication. Hypertension leads to end organ dysfunction. This manifests as nonfatal and fatal cardiovascular disease (CVD)- including coronary heart disease (CHD) and stroke- as well as kidney disease. The prevalence of hypertension mediated organ dysfunction increases progressively with higher levels of both systolic (SBP) and diastolic (DBP) blood pressure levels. These relationships are strong, continuous, independent, predictive, and etiologically significant, and indicate that reduction of blood pressure reduces these risks. The purpose of this educational unit is to enhance medical trainees' knowledge and understanding of hypertension and its end organ effects and to provide a framework for the management of both hypertension and autonomic dysfunction.

Objectives:

By the end of this educational block, learners on this rotation will be able to:

- Describe the pathophysiology of both essential hypertension as well as the most common forms of resistant/secondary hypertension (Medical Knowledge).
- Diagnose hypertension using the JNC-8 criteria based off of:
    - Consecutive in-office blood pressures
    - Review of ambulatory blood pressure monitoring or home-based blood pressure monitoring (Patient Care)
- Develop an individualized hypertension treatment plan composed of:
    - Diet and lifestyle modification including but not limited to: weight loss, smoking cessation, moderation of alcohol intake, sodium restriction, DASH diet, and regular aerobic exercise.
    - Tailoring pharmacologic interventions based on age, life-expectancy, functional status, ASCVD risk, medical comorbidities (e.g. heart failure, ischemic heart disease, chronic kidney disease, cerebrovascular disease), and interval blood pressure readings between follow up visits (Patient Care)
- Participate in shared decision-making considering goals and preferences when developing an individualized hypertension treatment plan (Patient Care and Interpersonal Communication).
- Recognize areas where consultation with pharmacy, outreach programs, or medical subspecialties may be warranted (Systems based practice).
- Explain the mechanism of action and end-organ protective effects of the preferred classes of anti-hypertension therapies including:
    - Angiotensin converting enzyme inhibitors
    - Angiotensin receptor blockers
    - Dihydropyridine calcium channel blockers
    - Thiazide diuretics (Medical Knowledge)
- Diagnose and evaluate for the causes of resistant hypertension including:
    - Obstructive sleep apnea
    - Hyperaldosteronism
    - Renal artery stenosis
    - Renal parenchymal disease
    - Cushing's syndrome

    - Pheochromocytoma
- Recognize the role that alternative agents such as loop diuretics, beta blockers, potassium sparing diuretics, mineralocorticoid receptor antagonists, hydralazine, minoxidil, and alpha blockers (both central and peripheral) play in treating resistant hypertension (Medical knowledge).
- Recognize common adverse events related to the different classes of anti-hypertensive medications (Medical Knowledge).

Objectives should be organized by core competencies:

Patient Care
Medical Knowledge
Interpersonal and Communication Skills
Professionalism
Systems based practice
Practice-based learning and improvement

Educational Strategies:

Educational Strategy	Skills (taught and/or assessed)
Bedside rounds	Clinical Reasoning Presentation skills Cardiac auscultation
Journal club	Critical appraisal of the medical literature
Case-based small group discussions	Critical reasoning Communication

Required Reading:

- Summary of SPRINT Trial
- JNC 8 Guidelines
- KDIGO 2021 Blood Pressure Guidelines

Suggested Reading and/or Resources:

- Role of sodium handling on hypertension (NEJM Article)
- ACCORD Trial

Evaluation:
(Ideally, the evaluation items below resemble the learning objectives above)

Assessment Form:

1. Please identify 3 skills you observed the learner do well.

2. Please identify 3 skills the learner needs to improve or should do differently. How should they do it differently?

(Ideally, limit to 8-10 skills that you ask your faculty to assess)
For the remaining items, please rate 1-5 (or did not observe):

1 = cannot do this skill
2 = can do this skill only with direct supervision (some needs to be there to supervise)
3 = can do this skill with indirect supervision (an attending or fellow is close by or available by phone)
4 = can do this skill unsupervised (they are ready to graduate for this skill)
5 = has achieved mastery of this skill (They can teach others how to do this skill well)

3.

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