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Case Studies in Secondary Hypertension: Pheochromocytoma and Cocaine Intoxication

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Case Studies in Secondary Hypertension: Pheochromocytoma and Cocaine Intoxication

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INTRODUCTION

Hypertension affects 50 million persons in the United States and approximately 1 billion persons worldwide.¹ While essential, or idiopathic, hypertension accounts for the majority of cases, up to 5% of patients with hypertension have an identifiable cause that is potentially reversible. The differential diagnosis of secondary hypertension is broad and includes medications, endocrinopathies, and other systemic diseases. The presence of any of the following factors should lead one to suspect a diagnosis of secondary hypertension and to pursue additional diagnostic procedures:

- Proven age of onset of hypertension less than 20 years or greater than 50 years
- Negative family history for hypertension
- Resistance to antihypertensive medications
- Worsening of blood pressure control in a previously stable hypertensive patient
- Stage 3 hypertension or significant target organ damage
- Symptoms or physical examination findings suggestive of a secondary cause

This manual reviews diagnostic and treatment considerations for 2 important clinical scenarios in the complex field of secondary hypertension: pheochromocytoma and hypertension associated with cocaine use.

PHEOCHROMOCYTOMA

CASE PRESENTATION

A 48-year-old man with a 1 1/2-year history of refractory hypertension as well as occasional symptoms of “panic attacks” is referred to a hypertension clinic.

HISTORY AND PHYSICAL EXAMINATION

The patient is otherwise healthy but notes occasional “spells” of pounding headache and palpitations that occur

suddenly and unpredictably. Blood pressure readings at his physician’s office have ranged from 140/85 mm Hg on first reading to 190/110 mm Hg when the reading is taken a minute or so later. He is currently taking atenolol 25 mg and lisinopril 5 mg, both daily. He tried several other blood pressure medications but had a variety of side effects from most of them. He is a nonsmoker and drinks 1 vodka and tonic each evening. His family history is significant for hypertension in 2 first-degree relatives.

On physical examination, his weight is stable at 180 lb. Blood pressure is 170/95 mm Hg in both arms with a pulse of 64 bpm. Funduscopic examination reveals mild arteriolar narrowing (grade I). Thyroid, chest, and cardiovascular examinations are normal, with no abdominal bruits and no lower extremity edema. Serum creatinine and electrolytes are within normal limits.

LABORATORY TESTING RESULTS

Because of the patient’s difficult-to-control hypertension and his hyperadrenergic symptoms, the primary care physician was concerned about the possibility of a pheochromocytoma and ordered a 24-hour collection for urine catecholamines. The results are as follows:

- Vanillylmandelic acid (VMA), 9.8 mg (normal, ≤ 6 mg)
 - Metanephrine, 169 μg (normal, 45–290 μg)
 - Normetanephrine, 2807 μg (normal, 85–500 μg)
 - Epinephrine, 14 μg (normal, 2–24 μg)
 - Norepinephrine, 784 μg (normal, 15–100 μg)
- What is the differential diagnosis in this patient?

DIFFERENTIAL DIAGNOSIS

This patient likely has a secondary form of hypertension as evidenced by his resistance to antihypertensive medications, confirmation of target organ damage within 2 years of diagnosis, and symptoms suggestive of catecholamine excess. The triad of hypertension, hyperadrenergic symptoms, and elevated catecholamines, however, is not unique to pheochromocytoma. The challenge