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Research Article

# Severe and refractory hypertension in a young woman

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## Abstract

Refractory hypertension in a young person is an uncommon clinical problem, but one that may be referred to hypertension specialists. Factitious hypertension is fortunately quite rare but should be considered when evaluating patients who are refractory to numerous classes of antihypertensive therapies and have failed to achieve control despite input from multiple providers. A 19-year-old woman was referred to us after failing to achieve blood pressure control by a primary physician and two subspecialists in nephrology and hypertension; she also had numerous emergency department visits for symptomatic and severe hypertension. Exhaustive diagnostic testing for secondary causes and witnessed medication dosing in an outpatient setting was unrevealing. Subsequent inpatient admission demonstrated normalization of BPs with small doses of intravenous antihypertensive agents. During the hospitalization, she was observed ''pocketing'' her oral medications in the buccal folds and then discarding them in a trash container. Confrontation by psychiatrists and the hypertension specialists led to the admission that she had learned to start and stop beta-blockers and clonidine to induce severe, rebound hypertension. Factitious and induced hypertension is a rare cause of resistant or refractory hypertension. Nevertheless, hypertension specialists should suspect the diagnosis when there is a history of visits to multiple institutions and physicians, negative secondary workup, absence of overt target organ damage, history of psychiatric illness, and employment in the medical field. J Am Soc Hypertens 2016;10(6):506–509. 

*Keywords:* Factitious hypertension; pseudoresistance; resistant hypertension.

## Introduction

Refractory hypertension is defined as blood pressure (BP) that remains uncontrolled despite maximal medical therapy.[1] Although refractory hypertension is uncommon in clinical practice, referrals for this diagnosis are not unusual to hypertension specialists.[2] When faced with a patient with severe and refractory hypertension, a thoughtful evaluation must be undertaken to identify secondary causes. Prompt interventions must be made to gain control of the BP if it is severely elevated. In addition to the commonly sought causes of secondary hypertension, factitious hypertension, while unusual, must be considered as well. These patients may be highly manipulative and create substantial health care burden and excessive use of physician resources. We present such a patient herein.

## Report of a Case

A 19-year-old Korean-American woman was referred by a cardiology colleague for evaluation of severe and refractory hypertension. At age 14 years, she was diagnosed with IgA nephropathy with preserved renal function and was entirely normotensive at that time. At age 18 years, patient was found to have hypertension and initiated on antihypertensive therapy. During the next year, the severity of hypertension accelerated and she underwent extensive workups by three different clinicians for secondary forms of hypertension, none of which were revealing. Included in this evaluation was digital subtraction angiography that showed normal kidney size and no evidence for renovascular disease. In addition, there was no evidence of hypertensive target organ injury or involvement.

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At initial presentation to our practice, the patient had a seated clinic BP of 162/116 mm Hg with a heart rate of 86 beats per minute on the following antihypertensive therapies: amlodipine 10 mg, valsartan 320 mg, and hydrochlorothiazide 25 mg all in the morning; carvedilol 25 mg twice daily; and transdermal therapeutic systemic clonidine (0.2 mg daily delivery) changed on Mondays. The patient had also received oral clonidine tablets at a number of visits to her local hospital's emergency department. On these five drugs, an ambulatory BP study yielded a 24-hour mean value of 156/106 mm Hg with a nocturnal decline in BP to 140/98 mm Hg. The following laboratory studies were normal or negative: blood urea nitrogen, serum creatinine and potassium, serum aldosterone, plasma renin activity, serum-free cortisol, serum deoxycorticosterone, and plasma metanephrines and normetanephrines. Pregnancy testing and toxicology assessment for amphetamines, benzodiazepines, barbiturates, cocaine, and opioids were negative. Computed tomography of the abdomen showed no evidence of adrenal masses or renal abnormalities. Subsequent magnetic resonance angiography of the brain was normal.

Because of the lack of response to her complex medication regimen and negative workup for target organ involvement or secondary causes of hypertension, we became concerned that the patient was nonadherent to her antihypertensive therapies. The patient was admitted to our ambulatory research clinic for directly observed administration of her oral antihypertensive drugs with predosing and postdosing BP measurements. Over this 4-hour period of observation, there were minimal changes (<6 mm Hg) in predosing BP (180/112 mm Hg) after the oral administration of clonidine (0.1 mg), carvedilol (25 mg), chlorthalidone (25 mg), azilsartan medoxomil (40 mg), and amlodipine (10 mg).

Two weeks later, the patient agreed to hospital admission for further evaluation of her severe hypertension and was accompanied by her parents. At the time of admission, the semisupine BP was 192/134 mm Hg with a heart rate of 92–108 beats/min. One to two hours after administration of intravenous doses of labetalol (20 mg) and enalaprilat (2.5 mg), the BP was 132/80 mm Hg with a heart rate of 84 beats/min. Based on this response to the parenteral medication, the patient was initiated on two oral agents (amlodipine and lisinopril) the following morning. Shortly after administration of her morning medications, an echocardiography technician found whole pills in a tissue, which had been used by the patient due to ''congestion'' and discarded in the garbage in the echocardiography laboratory. The pills were identified as the two prescribed oral antihypertensive drugs and two other medications she was taking for depression. When confronted with this issue, the patient stated, ''she only spit out her tablets because they were getting stuck in her throat'' and blamed the formulation and taste.

An inpatient psychiatric consultation was requested, and they learned that the patient had been previously diagnosed with a borderline personality disorder and had had a suicide attempt with moderate doses of acetaminophen. After the psychiatric intervention, the patient was committed short term to the hospital and medication administration was followed by oral examinations to make certain she was ingesting her medications. With just two oral agents, the BP remained entirely normotensive. One of us (W.B.W.) interviewed the patient and learned that she had been intermittently taking the BP drugs (which included clonidine and beta-blocker therapies) to induce rebound hypertension. The patient's parents succeeded in reversing the psychiatric commitment, and she was discharged on lisinopril 10 mg and amlodipine 5 mg daily. We informed the three other physicians who had been involved in her care of our findings and to make certain that none of them prescribed centrally acting alpha agonists or beta-blockers considering their potential to induce rebound hypertension and/or tachycardia.

One week after hospital discharge, the patient was seen in our faculty practice with a seated BP of 170/118 mm Hg and heart rate of 98 beats/min. We attempted to obtain a urine collection to verify presence of the prescribed drugs in her system and to ascertain if she was still inappropriately ingesting clonidine or beta-blockers. She refused to submit a urine sample, however. After canceling two appointments, the patient returned approximately 4 months posthospital discharge, stated she was taking her medications, and had an office BP of 144/88 mm Hg. She told us she was working on finding a new mental health therapist.

## *Commentary by and for the Hypertension Specialist*

When evaluating patients with severe and refractory hypertension, it is necessary to exclude known secondary causes of hypertension and determine if there is ongoing hypertensive target organ involvement. A diagnosis of nonadherence to medication or feigned illness should be considered only after this workup is completed. There were a number of indicators that the patient described above might have had a factitious form of hypertension: (1) she had an extensive negative workup for all known secondary causes of hypertension, (2) there was no evidence of any target organ involvement, and (3) there was evidence that the patient was obtaining secondary gain from her parents (who accompanied her to all visits) due to the severity of her disease (eg, one reason why she could no longer attend school). The total absence of a BP response to oral administration of antihypertensive pills in the ambulatory setting was surprising and led to the subsequent admission for evaluation after intravenous BP-lowering therapy. The dramatic reduction in BP after