



When the Treatment Becomes the Problem

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Bill, 46, presents with a 10-day history of lightheadedness and chest congestion. He denies any vertigo, headache, or chest pain. He works as a bricklayer at an oil refinery, is a non-smoker, and last had alcohol three months ago. He drinks five cups of coffee/day.

His past medical history is significant for rheumatic fever. There is no history of myocardial infarction or cerebrovascular accident.

The results of Bill's physical exam are listed in Table 1.

What is the preliminary diagnosis?

A diagnosis of hypertension and viral upper respiratory tract infection (URTI) is made. His initial lab investigations are within normal limits, except his alanine aminotransferase levels (Table 2).

Electrocardiogram shows sinus rhythm of 80 beats/minute, with no abnormality. He is prescribed hydrochlorothiazide, 25 mg daily, and verapamil, 240 mg daily at bedtime.

Bill returns 48 hours later for followup of his hypertension. He is feeling better. His vitals are:

- blood pressure (right): 170/106 mmHg,
- blood pressure (left): 164/106 mmHg, and
- pulse: 72 beats/minute.

Table 1

Exam results upon presentation

- Blood pressure (right, sitting): 200/110 mmHg
- Blood pressure (left, sitting): 180/110 mmHg
- Pulse: 80 beats/minute
- Respiratory rate: 12 breaths/minute and afebrile
- Head and neck exam: Unremarkable
- PERLA and fundoscopic exam: Normal
- Neck: Supple
- No vertigo was reproduced with range of motion
- Cranial nerves II to XII: Normal
- Cardiothoracic exam: Normal breath and heart sounds
- Gait: Normal
- MSK exam: Normal strength and reflexes in all 4 extremities.

PERLA: Pupils equal, react to light and accommodation
MSK: Musculoskeletal

Ramipril, an angiotensin-converting enzyme (ACE) inhibitor, was added at a dosage of 5 mg daily to control his blood pressure.

Bill's second round of test results are negative for hepatitis B surface antibodies, hepatitis B surface antigen, and hepatitis C virus antibodies. Alkaline phosphatase is normal (112 U/L), total bilirubin is also normal (12 µmol/L), and

gamma glutamyl transferase is elevated (104 µmol/L). Abdominal ultrasound reveals normal kidneys and liver. Twenty-four-hour urine metanephrines are all within normal limits.

Bill returns for followup yet again 10 days later, with a complaint of dizziness, but no vertigo or syncope. Earlier, he checked his own pulse and noted it was 58 beats/minute. He did not take his verapamil and hydrochlorothiazide on the day of this visit.

On exam, his vitals are:

- blood pressure (right): 130/90 mmHg
- blood pressure (left): 130/100 mmHg, and
- pulse: 72 beats/minute.

His physical exam is otherwise unremarkable. He is recommended to stop verapamil, but continue the diuretic and ACE inhibitor.

Bill returns 48 hours later with a one-week history of trouble swallowing, which he forgot to mention at his last visit. The previous evening, he had sensations of swallowing his own tongue for a three-hour period while he was supine. He denies any pain.

He still complains of being dizzy, with the dizziness sometimes occurring after the abnormal sensations of his tongue. He has only taken his diuretic the day of this visit.

On exam, he is in no acute distress. His vitals are:

- blood pressure (right, sitting): 140/110 mmHg
- pulse: 72 beats/minute, and
- temperature: 36.5 C.

Table 2

Lab results

- Alanine aminotransferase: 62 U/L
- Hemoglobin: 161 g/L
- Creatinine: 98 µmol/L
- Glucose: 5.1 mmol/L
- Potassium: 3.7 mmol/L
- Sodium: 142 mmol/L
- Urea 5.5 mmol/L
- Urinalysis: normal
- Total cholesterol: 5.2 mmol/L

Head and neck exam reveal normal pharynx and no tongue swelling. Cranial nerves II to XII are normal. PERLA (pupils equal, react to light and accommodation) and fundi are normal, as are speech and gait. Cardiothoracic auscultation reveal normal breath and heart sounds.

What is causing Bill's recurrent dizziness and his latest abnormal sensations of the tongue?

- a) Uncontrolled hypertension
- b) Adverse effect from verapamil
- c) Adverse effect from ramipril
- d) Transient ischemic attacks
- e) a, b, and c

Answers: Uncontrolled hypertension, adverse effect from verapamil, and adverse effect from ramipril

Bill's initial presenting symptoms were likely a result of his uncontrolled hypertension and URTI. With the triple therapy of diuretic, calcium channel blocker, and ACE inhibitor, he had sinus bradycardia from verapamil. His dizziness temporarily improved after verapamil was discontinued.

His complaint of "swallowing his own tongue" was the result of angioedema from the ACE inhibitor. He later recalled that his tongue would feel abnormal a few hours after each dose of ramipril.

Despite all these adverse effects, in the preceding three weeks, his hypertension is finally stabilized with hydrochlorothiazide, 25 mg every morning, and amlodipine, 10 mg daily. He hasn't had any more complaints. **Dx**

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