



# With Great Power Comes Great Responsibility Hawthorne Induced Vertigo: A Case Report

**Authors:** [Jacob I Valvis, DO<sup>1</sup>](#) ([jv198747@pcom.edu](mailto:jv198747@pcom.edu)), [Savoun Long, DO<sup>1</sup>](#), [Charles Smith, DO<sup>1</sup>](#), [Brian Penza DO, FACO<sup>2</sup>](#), [Erik Polan DO, FACO<sup>1-2</sup>](#)

1. Transitional Year Residency, Philadelphia College of Osteopathic Medicine, Philadelphia, PA.
2. Department of Internal Medicine, Philadelphia College of Osteopathic Medicine, Philadelphia, PA.

## INTRODUCTION

More than 15 million people in the U.S. consume herbal supplements or vitamins.<sup>7</sup> Currently about half of adults report using 1 or more dietary supplements to improve or maintain their overall health.<sup>8</sup> The value of the U.S. dietary supplement market is expected to reach \$6.7 billion U.S. Dollars by 2024.<sup>9</sup> According to a new report by Grand View Research, the global diet supplement market size is expected to reach USD 327.4 billion by 2030.<sup>9</sup> Many of these dietary supplements are not as tightly regulated by the FDA as prescription drugs.

## BACKGROUND

M.G. is a 59 year old female, with no significant past medical or medication history, who presented, 12/1/2022, to Roxborough Memorial Hospital, from home, with 4 days of worsening nausea, vomiting, vertigo, ataxia and fatigue, of unclear etiology. Patient notes brief episode of vertigo with positional change 3 months ago. Patient denies any current use of prescribed medications. However, she admits to taking multiple vitamins and supplements, including vitamin B complex, vitamin D, vitamin E, vitamin C, garlic and Hawthorn. Upon further investigation, the patient stated that she recently increased her dose of Hawthorn, a herbal supplement that is known to have blood pressure-lowering activity

ED Vitals:  
Temp 98.6 °F (37°C) | BP 133/72 | HR 82 bpm | RR 18 | SpO2 100% on Room Air | BMI 20.18 kg/m<sup>2</sup>

## METHODS & RESULTS

Thorough evaluation of potential causes of vertigo and presenting symptoms + History & physical findings + Literature review into adverse reactions, uses & efficacy of Hawthorne + Osteopathic philosophy components. Recently increased home dose of Hawthorn supplement in the time frame of increased vertigo and additional presenting symptoms.

**Specific labs & tests -**  
CBC + Diff, CMP, Lipid Panel, Urinalysis, A1c, ABG, TSH + reflex T4, B12  
MRI Brain w/o contrast, EKG, CT Head

**Medical management -**  
Flonase & Amoxicillin started, continued as outpatient  
NS 0.9% Bolus then continuous 125cc/hr LR infusion  
PO Meclizine & Zofran ordered

**Pertinent ROS & Physical Exam -**  
Diplopia, dizziness, lightheadedness, Lethargy, Unstable Gait  
Horizontal & Vertical Nystagmus (Worse with movement), Positive Finger-Nose test, Negative Romberg

**Consults -** Neurology & PMR

- Significant labs - Elevated anion gap 14.5, + Ketonuria, QTC 403 + NSR, + (Hyperbilirubinemia & HyperCalcemia, anion gap & ketonuria resolved with fluids)
- Imaging -
  - CT Head - No acute pathology
  - MRI Brain - No acute ischemia or acute large vessel infarction
- Consults - PM&R - recommended continued inpatient PT and OT skilled level of rehab
- Upon Discharge,
  - Patient advised to continue flonase, amoxicillin, meclizine for dizziness tid prn &
  - Follow up with ophthalmology to evaluate diplopia

## DISCUSSION

Under the Dietary Supplement Health and Education Act (DSHEA), which was enacted in 1994, congress defined dietary supplement as a product (other than tobacco) intended to supplement the diet that contains one or more dietary ingredients including vitamins, minerals, herbs, or other botanicals, amino acids, a dietary substance for use by man to supplement the diet by increasing the total dietary intake, or a concentrate, metabolite, constituent, extract, or combination of these ingredients.<sup>14</sup> The dietary product is intended for ingestion in pill, capsule, tablet, or liquid form and is not represented for use as a conventional food or as the sole item of a meal or diet.<sup>14</sup> To be a dietary product, the product is labelled as a “dietary supplement.”<sup>14</sup>

The U.S. Food and Drug Administration (FDA) regulates both dietary supplements and medicine.<sup>6</sup> However, dietary supplements is not considered a drug and is not subjected to the premarket approval requirement for drugs.<sup>6</sup> Dietary supplement is regulated as a food product and is not required adhere to the strict standards governing the sale of prescription and over-the-counter drugs.<sup>14,6</sup> Dietary supplements do not require manufacturers to provide premarketing evidence of efficacy, quality, and safety from preclinical and clinical trials.<sup>1</sup>

To our knowledge, the patient described above represents a report of the various side effects associated with hawthorn. This is a 59-year-old healthy female with no significant past medical history and no prior history of hypertension who presented to the emergency room with nausea, vomiting, vertigo and ataxia after recently increasing her dose of hawthorn. Hawthorn (*Crataegus spp*) is a herbal supplement that has been used for treatment of several heart conditions including congestive heart failure, hypertension, and hyperlipidemia.<sup>2</sup> Mild to moderate adverse events from using Hawthorn include gastrointestinal upset, dizziness, vertigo, palpitations, chest pain, erythematous rash and headache.<sup>4</sup> During hospital stay, the offending agent hawthorn was held, the patient’s multiple symptoms subsequently resolved. In our case, Hawthorn was most likely the causative agents of vertigo. The case highlights the importance of considering herbal supplement induced vertigo in the differentials for any patients who presents with vertigo. This case also emphasizes the importance of checking any dietary or herbal supplements, vitamins, or minerals when a patient presents with variety of symptoms that is not explained by their medical history or medications because these supplements are sometimes overlooked.

## WHAT ABOUT OSTEOPATHY?

As Doctors of osteopathy, we don’t just have a different abbreviation after our name, DO v MD, for nothing, but rather a different mentality, comprising of 4 key tenets:

- The body is a unit; Person is a unit of body, mind and spirit
- The body is capable of self-regulation, self-healing, and health maintenance
- Structure & function are reciprocally interrelated
- Rational treatment is based upon an understanding of the basic principles of body unity, self-regulation, and the interrelationship of structure and function.

This case study outlines the following key concepts:

- By taking the various components of this patient’s health, including her physical, mental, and socioeconomic status, we can assess what means of treatment, be it finances, access, or overall ease, she may prioritize utilizing.
- If using herbal or natural remedies, makes her feel more in tune with herself and in control, she is promoting her own body’s ability to self-regulate and self-heal, with a little natural support, but not extensive medical management.
- For long term benefit, we want patients to be consistent and in agreement with their regimen, however there are always cons & with great power, comes great responsibility.
- Hawthorn allows the patient to dictate her care, to prioritize her independence and autonomy, allowing her body to heal how she deemed fit. However, as physicians we must take into consideration, nothing what may be interconnected elsewhere, causing possible changes.

## CONCLUSION

It is important to obtain a thorough history and medication reconciliation in patients that include over the counter supplements. With the ease of access to herbal supplements & many patients eager to follow natural or homeopathic routes, physicians and medical staff, as a whole, should better understand common herbs, their effects, expected & adverse, as well as potential interactions with prescribed medications. Knowing how they can affect our patient is important, so that we can educate ourselves and patients on the associated risks and benefits. Just because something is “natural” or herbal, does not mean it is without risk, be it directly or via cross reactivity.

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