



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering
Washington, DC

Medical Factual Report **February 4, 2022**

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Medical Officer

A. ACCIDENT: ERA20LA149 – Marathon, FL

Date/Time: April 9, 2020; 5:00 p.m. (EDT)
Aircraft: Pipistrel Italia SRL Sinus 912 LSA, N6263R
Injuries: 1 Fatal
Flight Conducted under Part 91 personal flight.

B. GROUP IDENTIFICATION

No group was formed for the medical evaluation in this accident.

C. DETAILS OF INVESTIGATION

Purpose

This investigation was performed to evaluate the pilot for medical conditions, the use of medications/illicit drugs, and the presence of toxins.

Methods

The Federal Aviation Administration (FAA) medical case review and the pilot's autopsy and Forensic Sciences Laboratory toxicology¹ reports were reviewed. Other pertinent scientific and regulatory issues were reviewed.

FAA Medical Case Review

According to the FAA medical case review, at the time of the accident, the 66-year-old male pilot did not hold a current medical certificate. His only FAA medical certification examination was in 1980.

Autopsy

According to the Florida Medical Examiner's Office District 16 (Monroe County), Marathon, Florida autopsy report, the cause of death was multiple blunt force and thermal injuries and the

¹ The FAA Forensic Sciences Laboratory has the capability to test for more than 1,300 substances including toxins, common prescription and over-the-counter medications as well as illicit drugs. <https://jag.cami.jccbi.gov/toxicology/>

manner of death was accident. The pilot's remains weighed 220 pounds. The medical examiner reported that the pilot had a mildly enlarged heart (530 grams). No other significant natural disease was identified.

Toxicology

Toxicology performed by the medical examiner's office detected the sedating antihistamine diphenhydramine in the pilot's bile but not in his iliac blood. Toxicological testing performed by the FAA's Forensic Sciences Laboratory identified diphenhydramine in the pilot's blood and liver tissue. The antidepressant duloxetine was detected in his blood at 43 nanograms per milliliter (ng/mL) and his liver tissue. The over-the-counter motion sickness medication meclizine was detected in his blood and liver tissue; this medication can cause drowsiness.² The high blood pressure medication amlodipine, the erectile dysfunction medication sildenafil (commonly marketed as Viagra), and its active metabolite desmethylsildenafil were detected in his blood and liver tissue; these substances are generally considered non-impairing.³

Diphenhydramine is a sedating antihistamine (commonly marketed as Benadryl) and is available over the counter in many products used to treat colds, allergies, and insomnia. Diphenhydramine carries the warning that use of the medication may impair mental and physical ability to perform potentially hazardous tasks, including driving or operating heavy machinery. It has a half-life of 3 to 14 hours.⁴ FAA provides guidance on wait times before flying after using this medication; post-dose observation time is 60 hours and the medication is not for daily use.^{5,6}

Duloxetine, commonly marketed as Cymbalta, is a prescription medication used to treat depression, anxiety, and chronic musculoskeletal pain. Duloxetine side effects may include nausea, sedation, and dizziness. Patients should be cautioned to avoid performing potentially hazardous tasks until they are reasonably certain that duloxetine does not adversely affect their ability to engage in those activities. The therapeutic range is 22 to 55 ng/mL and it has a half-life of 8 to 17 hours.^{7,8}

D. SUMMARY OF MEDICAL FINDINGS

The 66-year-old male pilot did not hold a current medical certificate. His only FAA medical certification examination was in 1980. According to the autopsy report, the cause of the pilot's

² National Institutes of Health (NIH). U.S. National Library of Medicine (NLM). [DailyMed - MECLIZINE 25-mecizine hydrochloride tablet, chewable \(nih.gov\)](#) Updated 12/9/21.

³ FAA. Updated 1/16/19. Forensic Toxicology's WebDrugs.

Amlodipine. <https://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=128>

Sildenafil. <https://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=219>

Desmethylsildenafil. <https://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=136>

⁴ FAA. Updated 1/16/19. Forensic Toxicology's WebDrugs. Diphenhydramine.

<https://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=50>.

⁵ FAA. 11/13/19. What over-the-counter (OTC) medications can I take and still be safe to fly? OK-20-0302 https://www.faa.gov/licenses_certificates/medical_certification/media/OTCMedicationsforPilots.pdf

⁶ FAA. 7/2/21. [AllergyAntihistamineImmunotherapyMedication.pdf \(faa.gov\)](#)

⁷ National Institutes of Health (NIH). US National Library of Medicine (NLM). Updated 11/8/21. [DailyMed - DULOXETINE capsule, delayed release \(nih.gov\)](#)

⁸ FAA. Updated 1/16/19. Forensic Toxicology Drug Information. Duloxetine. <https://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=264>

death was multiple blunt force and thermal injuries and the manner of death was accident. Other than a mildly enlarged heart (530 grams), no other significant natural disease was identified.

Toxicology testing detected diphenhydramine in the pilot's bile, liver tissue, and blood; one laboratory did not detect diphenhydramine in his iliac blood. Duloxetine was detected in his blood at 43 ng/mL and his liver tissue. Meclizine and the non-impairing medications amlodipine and sildenafil were detected in his blood and liver tissue.