



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering
Washington, DC

Medical Factual Report

April 8, 2021

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Medical Officer

A. ACCIDENT: ERA20LA234; Ocala, Florida

Location: Leeward Air Ranch Airport (FD04)
Aircraft: Evektor-Aerotechnik Sportstar, N820NG
Injuries: 1 Fatal
Date/Time: July 1, 2020; 10:30 a.m. (EDT)
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, FAA Forensic Sciences Laboratory toxicology¹ report, and personal medical records were reviewed. Other pertinent scientific and regulatory issues were reviewed.

FAA Medical Case Review

According to the FAA medical case review, there were no records of the 78-year-old female sport pilot having applied for a medical certificate.

Autopsy

According to the Florida Medical Examiner's Office District 5 & 24 (Citrus, Hernando, Lake, Marion, Seminole, and Sumter Counties), Leesburg, Florida autopsy report, the cause of death was multiple blunt force injuries due to aircraft crash and the manner of death was accident. The medical examiner reported that the pilot had an enlarged heart (420 grams), hardening of the

¹ See <https://jag.cami.jccbi.gov/toxicology/> for a complete list of tested-for substances.

kidney arteries, and a 1 x 1 centimeter area of softening and patchy hemorrhage within the left basal ganglia which the autopsy report described as an apparent acute lacunar infarct.

Toxicology

FAA Forensic Sciences Laboratory toxicology testing detected the allergy medication loratadine (commonly marketed as Claritin), loratadine's active metabolite desloratadine, and the high blood pressure medication metoprolol in the pilot's cavity blood and liver tissue. All these medications are non-impairing.^{2,3,4} Acetone, which can be produced postmortem by microbial activity, was detected at 3 milligrams per deciliter in her cavity blood.⁵ Toxicology testing performed for the medical examiner's office on the pilot's heart blood was negative for alcohol and tested for drugs.

Personal Medical Records

According to the pilot's primary care doctor records obtained for the three years prior to the accident, the pilot had an annual wellness exam one week prior to the accident. At that time, the pilot was 65 inches tall and weighed 178 pounds. Her medical diagnoses included high blood pressure, hypothyroidism (treated with levothyroxine), gastroesophageal reflux disease (treated with omeprazole), and high cholesterol. During the three year period of primary care records, she was prescribed hydrochlorothiazide, metoprolol, and quinapril to treat high blood pressure; one month prior to the accident, clonidine was added to better control her blood pressure. Her surgical history included bilateral cataract removal. The pilot denied any hospitalizations. She underwent computed tomography (CT) imaging of the head on 3/16/18 for a fall that resulted in a head laceration; the CT report stated there were no new infarcts or acute ischemia and there were a small amount of microvascular disease and old infarcts of her brain.

Cerebrovascular Event, Stroke

A cerebrovascular accident, commonly referred to as a stroke, happens when there is a loss of blood flow to part of the brain. This more commonly happens when a blood clot blocks a blood vessel but can also happen from a broken blood vessel (a hemorrhagic stroke). Without blood flow to provide oxygen and nutrients, the brain cells die which can cause brain damage or even death. People develop symptoms based on what area of the brain is deprived of blood flow. Symptoms often develop suddenly and can include numbness or weakness of the face, arm, or leg; confusion; difficulty speaking; trouble seeing; severe headache; and loss of coordination. Risk factors for stroke include high blood pressure, diabetes, abnormal heart rhythms, high cholesterol, and obesity. The risk of having a stroke increases with age.⁶

² FAA. Updated 1/16/19. Forensic Toxicology's WebDrugs. Loratidine.

<https://jag.cami.jcabi.gov/toxicology/DrugDetail.asp?did=150>

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

<https://jag.cami.jcabi.gov/toxicology/DrugDetail.asp?did=379>

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

<https://jag.cami.jcabi.gov/toxicology/DrugDetail.asp?did=171>

⁵ Boumba, VA, KS Ziavrou, T Vougiouklakis. 2008. Biochemical pathways generating post-mortem volatile compounds co-detected during forensic ethanol analyses. *Forensic Science International* 174:133–151.

⁶ National Institutes of Health (NIH). U.S. National Library of Medicine (NLM). MedlinePlus. Stroke.

<https://medlineplus.gov/stroke.html> Page last updated 12/24/20.

D. SUMMARY OF MEDICAL FINDINGS

The 78-year-old female sport pilot did not have a medical certificate. According to the autopsy report, the cause of her death was multiple blunt force injuries due to aircraft crash and the manner of death was accident. The medical examiner reported that the pilot had an enlarged heart (420 grams), hardening of kidney arteries, and a 1 x 1 centimeter area of hemorrhage within the left basal ganglia indicative of an acute lacunar stroke.

According to personal medical records, the pilot had a primary care visit one week prior to the accident. At that time, the pilot was 65 inches tall and weighed 178 pounds. Her medical diagnoses included high blood pressure, hypothyroidism, gastroesophageal reflux disease, and high cholesterol. She was prescribed hydrochlorothiazide, metoprolol, quinapril, and clonidine to treat high blood pressure. In 2018, a CT scan of her brain had shown a small amount of microvascular disease and old infarcts.

Toxicological testing detected the non-impairing compounds loratadine, desloratadine, and metoprolol in the pilot's cavity blood and liver tissue. Acetone, which can be produced postmortem, was detected in cavity blood.