



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering
Washington, DC

MEDICAL FACTUAL REPORT

March 27, 2018

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Medical Officer

A. ACCIDENT: ERA16FA297 - Sebring, Florida

On August 24, 2016, about 0630 eastern standard daylight time, an experimental amateur-built Vans RV-9A, N379RV, was destroyed when it collided with terrain while in cruise flight near Sebring, Florida. The commercial pilot was fatally injured. Visual meteorological conditions prevailed, and no flight plan was filed. The personal flight, which departed Sebring Municipal Airport (SEF), Sebring, Florida, and was destined for Greater Portsmouth Regional Airport (PMH), Portsmouth, Ohio, was conducted under the provisions of 14 *Code of Federal Regulations* Part 91.

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, use of medications/illicit drugs, and the presence of toxins.

Methods

The FAA medical case review, pilot's personal health care records, FAA Bioaeronautical Sciences Research Laboratory toxicology report, and autopsy report were reviewed.

FAA Medical Case Review

According to the FAA medical case review, the 76-year-old male pilot was 70 inches tall and weighed 187 pounds at the time of his most recent FAA medical certification exam, dated May 04, 2015. At that time, he reported 1,389 total flight hours. He reported hypothyroid disease treated with levothyroxine, high blood pressure treated with losartan and hydrochlorothiazide; an enlarged prostate treated with the terazosin; and gastric reflux disease treated with omeprazole and ranitidine. These medical conditions and medications are generally not considered impairing. The aviation medical examiner (AME) examination did not identify any significant medical issues and issued the pilot a third class medical certificate without limitations.

Autopsy

The Florida 10th Judicial District's Medical Examiner determined the cause of death was multiple blunt force traumatic injuries and the manner was accident. The autopsy identified left ventricular hypertrophy with concentric left ventricular wall thickening and atherosclerotic coronary artery disease with right coronary narrowing of approximately 70% proximally and 50% distally. The left anterior descending coronary artery had a severe narrowing with a focal pinpoint lumen. However, no areas of heart muscle hemorrhage, fibrosis or hyperemia were identified. The report did not describe any other significant natural disease.

Toxicology

FAA Bioaeronautical Sciences Research Laboratory toxicology testing detected atorvastatin in liver; chlorpheniramine and diphenhydramine in liver and urine; and donepezil and terazosin in liver and muscle.

Atorvastatin is a cholesterol lowering medicine that is generally not considered impairing.¹ Chlorpheniramine is a sedating antihistamine available over the counter in many cold, cough, and allergy preparations. It carries this warning, "May impair mental and/or physical ability required for the performance of potentially hazardous tasks (e.g., driving, operating heavy machinery)."² Diphenhydramine is a potentially impairing sedating antihistamine used to treat allergy symptoms and as a sleep aid. It is available over the counter under the many names including Benadryl and Unisom. It carries the following FDA warning: may impair mental and/or physical ability required for the performance of potentially hazardous tasks (e.g., driving, operating heavy machinery).³ Compared to other antihistamines, diphenhydramine causes marked sedation; it is also classed as a CNS depressant and this is the rationale for its use as a sleep aid. Altered mood and impaired cognitive and psychomotor performance may also be observed.⁴

Donepezil, also called Aricept, is indicated for the treatment of dementia caused by Alzheimer's disease.⁵ The medication is generally not considered to be impairing. However, the cognitive decline associated with Alzheimer's disease is generally considered impairing and an AME cannot certify an airman with this condition.⁶ Terazosin is used to treat benign prostatic hyperplasia and high blood pressure, it is generally no considered impairing.⁷

¹ National Institutes of Health. US National Library of Medicine. *DailyMed*. 2018. Lipitor - atorvastatin. <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=c6e131fe-e7df-4876-83f7-9156fc4e8228> Accessed 03/19/2018.

² Federal Aviation Administration. Forensic Toxicology Drug Information: Chlorpheniramine. <http://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=29> Accessed 03/13/2018.

³ Federal Aviation Administration. Civil Aerospace Medical Institute. Toxicology Drug Information: Diphenhydramine. Available from: <http://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=50>. Accessed 03/13/2018.

⁴ National Highway Traffic Safety Administration. Drugs and Human Performance Fact Sheets <https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/809725-drugshumanperformfs.pdf> Accessed 03/13/2018.

⁵ National Institutes of Health. US National Library of Medicine. *DailyMed*. 2018. Donepezil. <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=11ac01f4-d26e-47b2-9660-d514ab097fdb> Accessed 03/13/2018.

⁶ Federal Aviation Administration. Guide for Aviation Medical Examiners Alzheimer's Disease; Dementia https://www.faa.gov/about/office_org/headquarters_offices/avs/offices/aam/ame/guide/app_process/exam_tech/item_46/amd/ns/ Accessed 03/13/2018.

⁷ National Institutes of Health. US National Library of Medicine. *DailyMed*. 2018. Terazosin. <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=43e92495-2cf2-46dd-a80c-f0c3c88c7b73> Accessed 03/19/2018.

Personal Medical History

The investigation obtained personal medical records ranging from April 2016 through August 22, 2016. The records did not indicate this patient was a pilot. His active medical conditions included high cholesterol treated with atorvastatin, high blood pressure treated with losartan and hydrochlorothiazide; hypothyroidism treated with levothyroxine; acid reflux treated with ranitidine and omeprazole; benign prostatic hypertrophy treated with terazosin; and dementia of the Alzheimer's type treated with donepezil. The medications are described in the earlier paragraphs. His neurologic examination dated June 7, 2016 documented a normal examination except for a short-term memory deficit; the patient remembered 1 out of 5 items after 5 minutes. Additionally, his head and brain CT scan dated April 28, 2016 revealed mild generalized atrophy with mild chronic small vessel disease. The neurologist's impression was the pilot's memory loss and visuospatial dysfunction was likely due to early dementia of the Alzheimer's type and prescribed donepezil.

D. SUMMARY OF MEDICAL FINDINGS

The 76-year-old male pilot had reported hypothyroid disease treated with levothyroxine, high blood pressure treated with losartan and hydrochlorothiazide; an enlarged prostate treated with the terazosin; and gastric reflux disease treated with the acid reducing medications omeprazole and ranitidine to the FAA. These medical conditions and medications are generally not considered impairing.

According to the Florida 10th Judicial District autopsy report, the cause of death was multiple blunt force traumatic injuries and the manner was accident. The autopsy documented left ventricular hypertrophy with concentric wall thickening and severe coronary artery atherosclerotic disease with right coronary artery narrowing of approximately 70% proximal and 50% distally. Additionally, the left anterior descending coronary artery had severe narrowing reduced to a focal pinpoint coronary lumen. However, no identified areas of hemorrhage, fibrosis or hyperemia were identified in the cardiac muscle.

Toxicology testing detected the non-impairing cholesterol lowering medication atorvastatin in liver and the potentially impairing sedating antihistamines chlorpheniramine and diphenhydramine were detected in liver and urine. Finally, the dementia treatment drug donepezil and the non-impairing benign prostatic hypertrophy treatment medicine terazosin were detected in liver and muscle.

According to a neurology evaluation for memory loss and visuospatial dysfunction on June 7, 2016, the pilot likely had early dementia of the Alzheimer's type and had been prescribed donepezil.