



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering
Washington, DC

MEDICAL FACTUAL REPORT

February 02, 2018

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Medical Officer

A. ACCIDENT: WPR16FA157 - Van Nuys, California

On August 2, 2016, at about 1322 Pacific daylight time, an Arion Lightning LS-1, N341AL, was substantially damaged after it collided with a building during a touch and go at Van Nuys Airport (VNY), Van Nuys, California. The private pilot was fatally injured. The personal flight was operated under the provisions of Title 14 *Code of Federal Regulations* Part 91. Visual meteorological conditions prevailed, and no flight plan was filed for the local flight that departed Santa Monica Municipal Airport (SMO), Santa Monica, California at 1315.

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 pilots for any medical conditions, the use of any medications/illicit drugs, and the presence of any toxins.

Methods

The FAA medical case review, toxicology report, and autopsy report were reviewed.

FAA Medical Case Review

According to the FAA medical case review, the 78-year-old male pilot was 72 inches tall and weighed 194 pounds at the time of his most recent FAA medical certification exam dated September 12, 2012. At that time, he reported 905 total flight hours. The pilot reported hypothyroidism controlled with the prescription thyroid replacement medication levothyroxine. Additionally, he had a history of asthma controlled with the combination prescription medication fluticasone and salmeterol; and acid reflux controlled with the prescription medication rabeprazole. The pilot's medical conditions and medications are generally not considered to be impairing. The pilot reported no other medical conditions or medications and aviation medical examiner examination (AME) did not identify any other significant medical concerns and issued the pilot a third class medical certificate with no limitations. The pilot's medical certificate was not valid after September 30, 2014.

Personal Medical Records

According to personal medical records ranging from May 2014 through December 2015. The pilot most recent physician visit was dated December 22, 2015 for an evaluation of shortness of breath. At that time, his medical conditions included high blood pressure; elevated lipids; a clotting disorder with a history of deep vein thrombosis with placement of an inferior vena cava filter; asthma; hypothyroidism; and borderline diabetes. Additionally, the records documented a car crash in May 2014 resulting in multiple injuries including a traumatic brain injury, and a cervical spinal cord injury. The traumatic brain injury did not result in any documented residual loss of cognitive function except for memory loss around the time of the accident and the spinal cord injury in the neck resulted in arm pain and weakness that had resolved by September 2015. However, the records did not contain evidence of a formal neurocognitive evaluation. His prescribed medications included the blood pressure control medications amlodipine and lisinopril (both medications are generally not considered to be impairing).^{1,2} Additionally, he was prescribed peripheral neuropathy / nerve pain medications duloxetine and gabapentin (see next paragraph); a thyroid replacement hormone levothyroxine;³ and a clot prevention medication rivaroxaban.⁴ Levothyroxine and rivaroxaban are generally not considered to be impairing. The physical examination by his physician on December 22, 2015 did not identify focal neurologic deficits or cardiovascular disease and attributed his shortness of breath to a number of factors including deconditioning and prior injuries.

Gabapentin is a central nervous system (CNS) depressant antiseizure medication that is also used to treat peripheral neuropathy. It is marketed under various names including Neurontin. It carries the precaution “Patients should be advised that [gabapentin] may cause dizziness, somnolence and other symptoms and signs of central nervous system CNS depression. Accordingly, they should be advised neither to drive a car nor to operate other complex machinery until they have gained sufficient experience on [gabapentin] to gauge whether or not it affects their mental and/or motor performance adversely.”⁵

Duloxetine is an antidepressant that also used to treat peripheral neuropathy pain and is marketed under various names including Cymbalta. It carries a number of warnings including increased seizure risk. However, it is not associated with significant central nervous system depression.⁶

¹ National Institutes of Health. US National Library of Medicine. *DailyMed*, 2018. Amlodipine. <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=b52e2905-f906-4c46-bb24-2c7754c5d75b> Accessed 01/26/2018

² National Institutes of Health. US National Library of Medicine. *DailyMed*, 2018. Lisinopril <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=27ccb2f4-abf8-4825-9b05-0bb367b4ac07> Accessed 01/26/2018

³ National Institutes of Health. US National Library of Medicine. *DailyMed*, 2018. Levothyroxine. <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=1e11ad30-1041-4520-10b0-8f9d30d30fcc> Accessed 01/26/2018

⁴ National Institutes of Health. US National Library of Medicine. *DailyMed*, 2018. Rivaroxaban. <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=10db92f9-2300-4a80-836b-673e1ae91610> Accessed 01/26/2018

⁵ National Institutes of Health. US National Library of Medicine. *DailyMed*, 2018. Gabapentin. <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=d9a88774-1fb2-4a5d-8753-686af1f0e174> Accessed 01/26/2018

⁶ National Institutes of Health. US National Library of Medicine. *DailyMed*, 2018. Duloxetine. <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=d9a88774-1fb2-4a5d-8753-686af1f0e174> Accessed 01/26/2018

Autopsy

The County of Los Angeles Medical Examiner-Coroner's autopsy report determined the cause of death was traumatic injuries and the manner was accident. The autopsy was limited due to the extent of injury and the brain was not examined. However, the examination described a 440-gram heart, the predicted normal for a man of the autopsy described 208 pounds is about 379 grams with a range from 287 to 500 grams.⁷ Finally, the autopsy documented coronary artery disease with 60 to 70 percent narrowing of the left anterior descending coronary artery but there was no evidence of new or old ischemic damage to the heart muscle.

Toxicology

FAA Bioaeronautical Sciences Research Laboratory toxicology testing detected amlodipine and gabapentin in urine and cavity blood.⁸ Amlodipine and gabapentin are described above.

D. SUMMARY OF MEDICAL FINDINGS

The 70-year-old pilot had reported hypothyroidism treated with thyroid replacement hormone (levothyroxine); asthma controlled with fluticasone and salmeterol; and acid reflux controlled with rabeprazole to the FAA. These medications are generally not considered to be impairing. He held a third class medical certificate with no limitations valid until September 30, 2014.

According to personal medical records, the pilot had high blood pressure; elevated lipids; a clotting disorder with a history of deep vein thrombosis and placement of an inferior vena cava filter; asthma; hypothyroidism; and borderline diabetes. Additionally, he had a history of a car crash in May 2014 resulting in multiple injuries including a traumatic brain injury and spinal cord injury. The traumatic brain injury did not result in any documented significant loss of cognitive function except for memory loss around the time of the accident. The neck spinal cord injury resulted in arm pain and weakness that by his September 2015 examination had resolved. His prescribed medications included the blood pressure control medications amlodipine and lisinopril; peripheral neuropathy / nerve pain medications duloxetine and gabapentin; thyroid replacement hormone levothyroxine; and the clot prevention medication rivaroxaban. The medication duloxetine may increase the risk of seizures and gabapentin is a potential central nervous system sedative. His other listed prescribed medications are generally not considered to be impairing.

According to the County of Los Angeles Medical Examiner-Coroner's autopsy report, the cause of death was traumatic injuries and the manner was accident. The autopsy was limited due to the extent of injury and the brain was not examined. However, the examination described an enlarged heart and coronary artery disease with 60 to 70 percent narrowing of the left anterior descending coronary artery but there was no evidence of new or old ischemic damage to the heart muscle.

The FAA Bioaeronautical Sciences Research Laboratory toxicology testing detected the detected amlodipine and gabapentin in urine and cavity blood.

⁷ Kitzman DW Et al. Age-related changes in normal human hearts during the first 10 decades of life. Part II (Maturity): A quantitative anatomic study of 765 specimens from subjects 20 to 99 years old. Mayo Clinic Proc., 1988. 63(2): p. 137-46.

⁸ The FAA Bioaeronautical Sciences Research laboratory tests for more than 1300 substances including toxins, common prescription and over-the-counter medications as well as illicit drugs. See: <http://jag.cami.jcabi.gov/toxicology/default.asp?offset=0> for a complete listing.