



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering
Washington, DC

Medical Factual Report

April 13, 2020

Mary Pat McKay, MD, MPH
Chief Medical Officer

A. ACCIDENT: ERA18FA244; Lake Worth, FL

On September 9, 2018, about 1037 eastern daylight time, a Cessna 335, N2707J, was destroyed when it impacted terrain in John Prince Park, Lake Worth, Florida. The pilot and passenger were fatally injured. Day visual meteorological conditions prevailed at the time, and no flight plan was filed for the flight that departed Key West International Airport (EYW), Key West, Florida, about 0936. The flight was destined for Palm Beach County Airpark (LNA), Lake Worth, Florida. The airplane was privately owned and operated the provisions of Title 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

1. Purpose

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

2. Methods

The FAA medical case review, autopsy report, toxicology findings, and the investigator's reports were reviewed. Relevant regulation and medical literature were reviewed as appropriate.

FAA Medical Case Review

According to the FAA medical case review, the 70 year old male pilot reported 1,489 total flight hours as of his last medical exam, dated 0/30/2014. At that time, he was 68 inches tall and weighed 180 pounds. He reported no chronic medical problems and no use of medications to the FAA. In 1980, he had received a Statement of Demonstrated Ability

(SODA) #10DD8025 for defective distant vision, left eye, corrected. At his last exam, no significant abnormalities were identified on the physical exam and he was issued a second class medical certificate limited by a requirement he wear corrective lenses.

The pilot's last medical certificate had expired for all classes on 6/30/2016, and he had not applied for BasicMed. In addition, his airman certificate had been revoked in 1997, under 67.403(a)(1) - No person may make or cause to be made a fraudulent or intentionally false statement on any application for a medical certificate. It was unclear in the FAA medical information if his airman certificate was ever reinstated.

Autopsy

According to the autopsy performed by Office of the District Medical Examiner, District 15 - State of Florida, the cause of death was multiple blunt force injuries and the manner of death was accident.

According to the autopsy report, a conversation with the pilot's brother revealed he had suffered from elevated cholesterol, had had a triple bypass done (at an unknown date), and was due for another bypass.

Examination of the heart found a weight of 602 grams, but the evaluation was somewhat limited by the extent of injury. There was evidence of previous coronary artery bypass grafting. Calcified yellow plaques and green-brown, grumous plaques were identified in the native left anterior descending, left circumflex, and right coronary arteries, with luminal stenosis of greater than 75%, greater than 90%, and approximately 100%, respectively. Bypass grafts were identified in the right coronary artery distribution, the apparent left circumflex distribution, and possibly in the left anterior descending coronary artery distribution. The brown-red myocardium had a very small focus of basilar left ventricular scarring, adjacent to purple discoloration (which may represent contusion or new infarct).

Toxicology

Toxicology testing performed at the request of the medical examiner by AXIS Forensic Toxicology did not identify any ethanol or drugs of abuse.

Toxicology testing performed by the FAA's Forensic Science Laboratory identified diphenhydramine in cavity blood at 0.132 ug/mL and liver as well as sildenafil and its metabolite desmethylsildenafil in cavity blood and liver.

Medication Descriptions

Diphenhydramine is a sedating antihistamine used to treat allergy symptoms and as a sleep aid. It is available over the counter under the

names Benadryl and Unisom. Diphenhydramine 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).¹ Compared to other antihistamines, diphenhydramine causes marked sedation; it is also classed as a central nervous system 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. In fact, in a driving simulator study, a single dose of diphenhydramine impaired driving ability more than a blood alcohol concentration of 0.100%.² The therapeutic range of diphenhydramine (range in which it is expected to cause effects) is 0.0250 to 0.1120 ug/ml.³ However, diphenhydramine undergoes postmortem redistribution; after death it can move back into pooled blood from storage sites. For diphenhydramine, postmortem central blood levels may increase by about three times.⁴

Sildenafil is a prescription medication used to treat erectile dysfunction, commonly marketed with the name Viagra.⁵ While not generally considered impairing, it may cause a decrease in systemic blood pressure and physicians are cautioned to use it carefully in patients with a variety of heart disease.

D. SUMMARY OF MEDICAL FINDINGS

The 70 year old male had reported no chronic medical problems and no use of medications to the FAA. His last medical certificate had expired for all classes on 6/30/2016, and he had not applied for BasicMed. In addition, his airman certificate had been revoked in 1997, under 67.403(a)(1) - No person may make or cause to be made a fraudulent or intentionally false statement on any application for a medical certificate. It was unclear in the FAA medical information if his airman certificate was ever reinstated.

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¹ Federal Aviation Administration. Civil Aerospace Medical Institute. Toxicology Drug Information: Diphenhydramine. Available from: <http://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=50>. Accessed 03/18/2018.

² Weiler JM, B.J., Woodworth GG, Grant AR, Layton TA, Brown TL, McKenzie DR, Baker TW, Watson GS., Effects of fexofenadine, diphenhydramine, and alcohol on driving performance. A randomized, placebo-controlled trial in the Iowa Driving Simulator. *Ann Intern Med* 2000. 132(5): p. 354-63.

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 Han E, et. al., Evaluation of postmortem redistribution phenomena for commonly encountered drugs, *Forensic Science International* 2012;219: 265–271.

⁵ National Institutes of Health, US National Library of Medicine. DailyMed. Sildenafil. <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=2ccc6fa6-f8ae-4191-806f-a887244e516a> Accessed 4/9/2020.

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