



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering
Washington, DC

Medical Factual Report

November 13, 2018

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Chief Medical Officer

A. ACCIDENT: ERA17FA136; Hayden, AL

On March 25, 2017, about 1425 central daylight time, a Cessna 210L, N6563D, was destroyed during a uncontrolled descent and subsequent inflight breakup near Hayden, Alabama. The pilot and three passengers were fatally injured. Instrument meteorological conditions prevailed and an instrument flight rules flight plan was filed. The flight originated from Kissimmee Gateway Airport (ISM), Orlando, Florida, and was destined for Mc Kellar-Sipes Regional Airport (MKL), Jackson, Tennessee. The personal flight 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

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 reports, toxicology findings, and the investigator's reports were reviewed.

FAA Medical Case Review

According to the FAA medical case review, the 45 year old male pilot had reported 288.6 total hours of flight experience as of his last aviation medical exam, dated 8/22/2016. At that time, he was 73 inches tall and weighed 181 pounds. Over the years, the pilot had reported no medical conditions but on his last exam he reported using finasteride and testosterone. The conditions these were treating were not reported.

Finasteride, often marketed as Proscar, is used to treat symptoms of an enlarged prostate. Testosterone is a male hormone. Neither are considered impairing. No significant abnormalities were uncovered during the rest of the exam and the pilot was issued a third class medical exam without limitations.

Autopsy

According to the autopsy performed by UAB Medicine's Department of Pathology, the cause of death was multiple blunt force injuries. The brain was not available for examination, due to the extent of injury. The heart was 360 grams and was multiply lacerated. There was mild atherosclerosis, with 20% stenosis in the left anterior descending coronary artery and widely patent right and circumflex arteries. The various marginal arteries were not described. The left ventricle was mildly hypertrophic with a myocardial thickness of 1.4 cm. There was a 1 x 0.3 x 0.3 cm scar in the posterior wall of the left ventricle. Microscopy of the area of scar demonstrated focal fibrous tissue and collagen admixed with adipose tissue, consistent with an old infarct.

Toxicology

Toxicology testing performed by the FAA's Bioaeronautical Sciences Research Laboratory identified N-propanol and ethanol at 0.046 gm/dl in muscle, but no ethanol in liver, and found amphetamine in lung and heart tissue (0.114 ug/g). No blood was available for examination.

Ethanol is the intoxicant commonly found in beer, wine, and liquor. It acts as a central nervous system depressant. After ingestion, at low doses, it impairs judgment, psychomotor functioning, and vigilance; at higher doses it can cause coma and death. The effects of ethanol on aviators are generally well understood; it significantly impairs pilots' performance, even at very low levels.¹ Federal Aviation Regulations, Section 91.17 (a) prohibits any person from acting or attempting to act as a crewmember of a civil aircraft while having 0.040 gm/dl or more ethanol in the blood.² Because ingested alcohol is distributed throughout the body, levels from different post mortem tissues are usually similar. Ethanol may also be produced in body tissues by microbial activity after death; in this case levels may vary widely.³

Amphetamine is a Schedule II controlled substance that stimulates the central nervous system. It is available by prescription for the treatment of attention deficit disorders and narcolepsy; commonly marketed names

¹ Cook, C.C., Alcohol and aviation. *Addiction* (Abingdon, England), 1997. 92(5): 539-555.

² US Government Printing Office .eCFR- Code of Federal Regulations. 91.17. <http://www.ecfr.gov/cgi-bin/text-idx?rgn=div8&node=14:2.0.1.3.10.1.4.9>. Accessed 6/16/2016.

³ Federal Aviation Administration. Forensic Toxicology Drug Information. Ethanol. <http://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=60> Accessed 12/02/2016.

include Adderall, Dexedrine, and Vyvanse. It carries a boxed warning about its potential for abuse and has warnings about an increased risk of sudden death and the potential for mental health and behavioral changes.⁴ Amphetamine is also prepared and used as a street drug, often by snorting, inhaling, or injecting.

D. SUMMARY OF MEDICAL FINDINGS

The 45 year old male pilot had reported no medical conditions to the FAA but on his last exam he reported using finasteride and testosterone. Neither are considered impairing.

According to the autopsy performed by UAB Medicine's Department of Pathology, the cause of death was multiple blunt force injuries. The brain was not available for examination, due to the extent of injury. The heart was 360 grams and was multiply lacerated. There was mild atherosclerosis, with 20% stenosis in the left anterior descending coronary artery and widely patent right and circumflex arteries. The various marginal arteries were not described. The left ventricle was mildly hypertrophic with a myocardial thickness of 1.4 cm. There was a 1 x 0.3 x 0.3 cm scar in the posterior wall of the left ventricle. Microscopy of the area of scar demonstrated focal fibrous tissue and collagen admixed with adipose tissue, consistent with an old infarct.

Toxicology testing identified N-propanol and ethanol at 0.046 gm/dl in muscle, but no ethanol in liver. In addition amphetamine was found in lung and heart tissue (0.114 ug/g). No blood was available for examination.

⁴ National Institutes of Health. US National Library of Medicine. Amphetamine salts.
<https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=72ddd1c9-ddbd-4c95-acd9-003189a353a3>
Accessed 4/20/2017.