



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering
Washington, DC

Medical Factual Report

August 25, 2022

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Chief Medical Officer

A. CRASH: CEN22FA111; Hutchinson, MN

Date and time: January 31, 2022

Injuries: 1 fatal, 1 serious

B. GROUP IDENTIFICATION

No group was formed for the medical evaluation in this crash.

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, as well as the post crash treatment records, autopsy report, and toxicology findings for the fatally injured pilot under instruction, and the investigator's preliminary report were reviewed. Relevant regulation and medical literature were reviewed as appropriate.

Certified Flight Instructor (CFI)

FAA Medical Case Review

According to the FAA medical case review, the 34 year old male flight instructor had reported 350 total flight hours as of his last aviation medical exam, dated 10/14/2020. At that time, he was 69 inches tall and weighed 149 pounds. He was issued a first class medical certificate limited by a requirement he wear corrective lenses.

Pilot Under Instruction

FAA Medical Case Review

According to the FAA medical case review, the 61 year old male pilot under instruction had reported 138 total flight hours as of his last aviation medical exam, dated 6/12/2020. At that time, he was 68 inches tall and weighed 167 pounds. He had previously reported generalized anxiety disorder to the FAA and received special issuance medical certificates for this diagnosis in 2018 and 2019 but the file contained a letter dated 7/1/2020 that the special issuance was no longer required. At his last exam, the pilot reported no use of medications. No significant abnormalities were identified, and he was issued a third class medical certificate without limitations.

Autopsy

According to the autopsy report issued by the Hennepin County Medical Examiner's Office, the cause of death was multiple blunt force injuries. No significant natural disease was identified.

Toxicology

Toxicology tests performed by NMS at the request of the pathologist on hospital blood did not identify any tested-for substances.

Toxicology testing performed by the FAA's Forensic Sciences Laboratory identified ketamine at 20 ng/ml and its metabolite norketamine at 51 ng/ml in cavity blood; these were also identified in urine. In addition, tests for citalopram were inconclusive in cavity blood but it was found in urine; its metabolite N-desmethylocitalopram was detected in both cavity blood and urine; minoxidil was not detected in cavity blood but was found in urine; carvedilol were detected in cavity blood and urine; and famotidine was identified in both cavity blood and urine.

Postcrash Treatment Records

Records from the pilot's postcrash treatment were reviewed to assess what medications were administered as part of his care. He received several doses of ketamine, a dissociative anesthetic, as well as famotidine, a medication used to prevent stomach ulcers in critically ill patients. The pilot died the day after the crash.

Substance Descriptions

Ketamine is a dissociative anesthetic used for diagnostic and surgical procedures and to induce anesthesia.¹ Famotidine injection is used to inhibit the gastric secretion of acid in critically ill patients.²

Citalopram is a prescription antidepressant that is not known to cause specific performance degradation; however, the underlying depression may do so.³ ⁴ The FAA's Guide for Aviation Medical Examiners states "The use of a psychotropic drug is disqualifying for aeromedical certification purposes – this includes all antidepressant drugs, including selective serotonin reuptake inhibitors (SSRIs)." As of 2008 the following was added, "However, the FAA has determined that airmen requesting first, second, or third class medical certificates while being treated with one of four specific SSRIs may be considered (see Item 47., Psychiatric Conditions – Use of Antidepressant Medications). The Authorization decision is made on a case by case basis. The Examiner may not issue."⁵ The four potentially allowable antidepressants are fluoxetine (Prozac), escitalopram (Lexapro), sertraline (Zoloft), and citalopram (Celexa).

Minoxidil is most often available as an over the counter topical treatment for hair regrowth, a common name for the product is Rogaine. In this use, very little of it enters the blood stream. It is also available as a prescription (in tablet form) for the treatment of high blood pressure; because of the potential for serious cardiovascular side effects, it is typically reserved for patients with severe, difficult to control high blood pressure.⁶ While this drug can have serious side effects, none of them directly degrade performance.

¹ National Institutes of Health. US National Library of Medicine. DailyMed. Ketamine.
<https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=f8b01c77-620d-4734-a771-b8524b65bcca>
Accessed 8/25/2022.

² National Institutes of Health. US National Library of Medicine. DailyMed. Famotidine.
<https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=ce533636-cc9b-45d0-87a6-5390377ff28a>
Accessed 8/25/2022.

³ National Institutes of Health. US National Library of Medicine. DailyMed. Citalopram.
<https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=2f815b0c-6da7-cb61-e89c-7de628092d0d>
Accessed 8/25/2022.

⁴ Snyder HR. Major depressive disorder is associated with broad impairments on neuropsychological measures of executive function: A meta-analysis and review. Psychol Bull. 2013;139(1):81-132.

⁵ Federal Aviation Administration. 2022 Guide for Aviation Medical Examiners. (7/27/2022 update)
https://www.faa.gov/about/office_org/headquarters_offices/avs/offices/aam/ame/guide/media/AME_GUIDE.pdf (Best opened in Chrome) Accessed 8/25/2022

⁶ National Institutes of Health. US National Library of Medicine. DailyMed. Minoxidil.
<https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=ab30461c-f8c8-409d-9e24-d58ed8a34873>
Accessed 8/25/2022.

Carvedilol is a prescription medication used to treat high blood pressure, heart failure, and to manage heart failure after a heart attack. It is not considered directly impairing.⁷

D. SUMMARY OF MEDICAL FINDINGS

Certified Flight Instructor (CFI)

The 34 year old male flight instructor had reported 350 total flight hours and was issued a first class medical certificate limited by a requirement he wear corrective lenses.

Pilot Under Instruction

The 61 year old male pilot under instruction had previously reported generalized anxiety disorder to the FAA and received special issuance medical certificates for is in 2018 and 2019 but the file apparently contained a letter dated 7/1/2020 that the special issuance was no longer required. At his last exam, he reported no use of medications.

According to the autopsy report issued by the Hennepin County Medical Examiner's Office, the cause of death was multiple blunt force injuries. No significant natural disease was identified.

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⁷ National Institutes of Health. US National Library of Medicine. DailyMed. Carvedilol. <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=7a7d3ca1-05b0-4c7e-aefa-492cc441585d> Accessed 8/25/2022.