



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering
Washington, DC

Medical Factual Report

September 21, 2021

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Medical Officer

A. ACCIDENT: CEN21LA200; Richmond, Indiana

Date/Time: April 25, 2021; 7:45 a.m. (EDT)
Aircraft: Aeropro CZ A240; N417R
Injuries: 1 Fatal
Flight Conducted under Part 91 personal flight

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

Methods

The Federal Aviation Administration (FAA) medical certification file and FAA medical case review and the pilot's autopsy and FAA Forensic Sciences Laboratory toxicology¹ reports were reviewed. Other relevant medical and regulatory issues were reviewed.

FAA Medical Certification File and FAA Medical Case Review

According to the FAA medical certification file and FAA medical case review, the 78-year-old male pilot had an expired third class medical certificate with the limitation that he must wear corrective lenses. He had a special issuance that was withdrawn on 10/27/20 due to a change in medical status. At the time of the most recent exam (9/9/19), the pilot reported 100 total hours of civil flight experience and was 72 inches tall and weighed 222 pounds. The pilot reported taking gabapentin for chronic back pain; metoprolol, amlodipine, and ramipril for high blood pressure; rosuvastatin for high cholesterol; and clopidogrel (commonly marketed as Plavix) to prevent blood clots. The pilot also reported a history of having bilateral corneal implants, gallbladder surgery, and prostate cancer surgery. The pilot reported having five vessel coronary artery

¹ See <https://jag.cami.jccbi.gov/toxicology/> for a complete list of tested-for substances.

bypass surgery in 1999. While there was an eligibility letter dated 4/10/20 for coronary artery disease and surgery, the special issuance was withdrawn because his 7/23/20 stress test revealed myocardial ischemia and severe stenosis in several of his native and stented coronary arteries that required angioplasty on 8/13/20. The pilot had one other medical certification examination in 2016 which was denied when he failed to provide all the requested medical records. At the 2016 exam, in addition to conditions reported in the 2019 exam, the pilot reported taking the antidepressant citalopram (commonly marketed as Celexa) for anxiety.²

Autopsy

According to the autopsy report from the Montgomery County, Ohio Coroner's Office, the cause of the pilot's death was multiple blunt force injuries. In addition to the injuries, the forensic pathologist reported that the pilot had an enlarged heart (610 grams), 90% atherosclerosis in his left anterior descending coronary artery, 50% stenosis of his left circumflex artery, and evidence of coronary artery bypass grafts.

Toxicology

FAA Forensic Sciences Laboratory toxicology testing detected the chronic nerve pain medication gabapentin in the pilot's cavity blood at 1,426 nanograms per milliliter (ng/mL) and the antidepressant medication duloxetine at 219 ng/mL; both medications were also detected in his liver tissue. The high blood pressure medication metoprolol, the high cholesterol medication rosuvastatin, and the gastric reflux medications cimetidine and pantoprazole were detected in the pilot's cavity blood and liver tissue; these four medications are non-impairing.³ Postmortem toxicological testing by the coroner's office was negative for drugs of abuse and volatiles including ethanol in the pilot's heart blood.

Relevant Toxicological and Medical Information

Gabapentin, commonly marketed as Neurontin, is an antiseizure medication that is also used to treat chronic nerve pain and postherpetic neuralgia (shingles). It carries a warning that it "may cause dizziness, somnolence and other symptoms and signs of central nervous system depression" and patients should be advised not to operate complex machinery "until they have gained sufficient experience on gabapentin to assess whether gabapentin impairs their ability to perform such tasks." The therapeutic range of gabapentin is 2,000 to 10,000 ng/mL. Gabapentin has a long half-life that ranges from 6.5 to 52 hours.^{4,5}

Duloxetine, commonly marketed as Cymbalta, is a prescription medication used to treat depression, anxiety, and chronic musculoskeletal pain. The treatment of depression would

² FAA. Updated 1/16/19. Forensic Toxicology's WebDrugs. Citalopram.

<https://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=208>

³ FAA. Updated 1/16/19. Forensic Toxicology's WebDrugs.

Metoprolol. <https://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=171>

Rosuvastatin. <https://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=318>

Cimetidine. <https://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=31>

Pantoprazole. <https://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=236>

⁴ National Institutes of Health (NIH). U.S. National Library of Medicine (NLM). Updated 4/29/21. [DailyMed - GABAPENTIN capsule \(nih.gov\)](https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?id=20222)

⁵ FAA. Updated 1/16/19. Forensic Toxicology's WebDrugs. Gabapentin.

<https://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=254>

require FAA review before flying and duloxetine is not one of the drugs that FAA will permit use for depression. Duloxetine carries the warning that its use may impair mental and physical ability to perform potentially hazardous tasks. The therapeutic range is 22 to 55 ng/mL and it has a half-life of 8 to 17 hours.^{6,7,8}

D. SUMMARY OF MEDICAL FINDINGS

The 78-year-old male pilot had an expired third class medical certificate with the limitation that he must wear corrective lenses. He had a special issuance for coronary artery disease and coronary bypass surgery that was withdrawn on 10/27/20 because follow-up stress testing revealed myocardial ischemia. On his most recent FAA medical certification examination (9/9/19), the pilot reported taking gabapentin, metoprolol, amlodipine, ramipril, rosuvastatin, and clopidogrel. In addition to the coronary artery disease, the pilot reported having chronic back pain, high blood pressure, and high cholesterol.

According to the autopsy report, the cause of the pilot's death was multiple blunt force injuries. In addition to the injuries, the forensic pathologist reported that the pilot had an enlarged heart (610 grams), 90% atherosclerosis in his left anterior descending coronary artery, 50% stenosis of his left circumflex artery, and evidence of coronary artery bypass grafts.

Toxicology testing detected gabapentin in the pilot's cavity blood at 1,426 ng/mL and liver tissue. Duloxetine was detected in the pilot's cavity blood at 219 ng/mL and liver tissue. Metoprolol, rosuvastatin, cimetidine, and pantoprazole were detected in the pilot's cavity blood and liver tissue.

⁶ FAA Last modified 2/28/18. Guide for Aviation Medical Examiners. Decision Considerations - Aerospace Medical Dispositions. Item 47. Psychiatric Conditions - Psychiatric Conditions Table of Medical Dispositions. https://www.faa.gov/about/office_org/headquarters_offices/avs/offices/aam/ame/guide/app_process/exam_tech/item_47/amd/table/

⁷ NIH. NLM. Updated 12/22/20. [DailyMed - DULOXETINE capsule, delayed release \(nih.gov\)](https://pubmed.ncbi.nlm.nih.gov/33088888/)

⁸ FAA. Updated 1/16/19. Forensic Toxicology Drug Information. Duloxetine. <https://jag.camii.jccbi.gov/toxicology/DrugDetail.asp?did=264>