



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering
Washington, DC

Medical Factual Report

May 12, 2021

Mary Pat McKay, MD, MPH
Chief Medical Officer

A. ACCIDENT: CEN21LA030

Date and time: October 26, 2020, 15:58 local

Injuries: 1 fatal

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 69 year old male pilot had reported 3767 total flight hours as of his medical exam dated in 2015 (he left this section blank on 3/22/2016 at his last exam). At the 2016 exam, he was 67 inches tall and weighed 237 pounds. He reported having had a high blood pressure, type 2 diabetes, and obesity treated with a gastric sleeve surgery to the FAA. He had been on special issuance medical certificates since 2011. At his last exam, he reported using amlodipine and enalapril to treat his blood pressure and aspirin to prevent heart problems. His weight loss following surgery meant he no longer required medication for

diabetes. No significant abnormalities were identified on the physical exam and he was issued a special issuance third class medical certificate limited by a requirement he wear corrective lenses. The pilot had completed the BasicMed course most recently on 7/27/2020 and signed that he had completed the comprehensive medical examination checklist on 3/30/2020.

Autopsy

According to the autopsy performed by the Office of the Chief Medical Examiner, Tarrant County Texas, the cause of death was massive crush injuries and the manner of death was accident. In addition, moderate left ventricular hypertrophy of the heart, thought to be consistent with his history of high blood pressure, was identified. The autopsy reports a carboxyhemoglobin level of 16% in cavity blood but no formal laboratory results were attached.

Toxicology

Toxicology testing performed by the FAA's Forensic Sciences Laboratory identified amlodipine and phentermine in cavity blood and urine. In addition, a carboxyhemoglobin level of 13% was identified in cavity blood.

Medication Descriptions

Amlodipine is a prescription blood pressure medication, often marketed with the name Norvasc.¹ Enalapril is another prescription blood pressure medication.² These are not considered impairing.

Phentermine is a prescription medication intended for the short-term treatment of obesity. It is a Schedule IV controlled substance because it is related to amphetamines and has the potential for abuse. It carries this warning as a result, "Phentermine may impair the ability of the patient to engage in potentially hazardous activities such as operating machinery or driving a motor vehicle; the patient should therefore be cautioned accordingly."³

Carbon monoxide (CO) is an odorless, tasteless, colorless, nonirritating gas formed by combustion as in a piston engine. CO binds to hemoglobin with much greater affinity than oxygen, forming carboxyhemoglobin;

¹ National Institutes of Health. US National Library of Medicine. DailyMed. Amlodipine. <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=b52e2905-f906-4c46-bb24-2c7754c5d75b> Accessed 11/16/2019.

² National Institutes of Health. US National Library of Medicine. DailyMed. Enalapril <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=e109e7b1-4650-4416-9d89-7c1185d5cf48> Accessed 5/11/2021.

³ National Institutes of Health. US National Library of Medicine. DailyMed. Phentermine. <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=1c6651a6-b588-4873-9f13-41b7af1c3d58> Accessed 5/11/2021.

elevated levels result in impaired oxygen transport and utilization.⁴ Nonsmokers may normally have up to 3 percent carboxyhemoglobin in their blood; heavy smokers may have levels of 10 to 15 percent.⁵ This pilot was not a smoker. Acutely, lower levels of CO may cause vague symptoms like headache, nausea and mild confusion; increasing levels (40 percent and above) lead to profound confusion, seizures, loss of consciousness, and death.⁶

D. SUMMARY OF MEDICAL FINDINGS

The 69 year old male pilot had reported having high blood pressure, type 2 diabetes, and obesity treated with a gastric sleeve surgery to the FAA. At the time of the accident, he was certified through BasicMed.

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Toxicology testing identified amlodipine and phentermine in cavity blood and urine. In addition, a carboxyhemoglobin level of 13% was identified in cavity blood.

⁴ Clardy PF, Manaker S, Perry H. Carbon monoxide poisoning. UpToDate Reference Manual. <http://www.uptodate.com/contents/carbon-monoxide-poisoning?source=preview&language=en-US&anchor=H9&selectedTitle=1~34#H9> Accessed 12/23/2015.

⁵ Ernst A, Zibrak JD. Carbon monoxide poisoning. N Engl J Med 1998; 339:1603.

⁶ Reisdorff Ej and Wiegstein JG. Carbon Monoxide Poisoning. In Emergency Medicine, A Comprehensive Study Guide. Tintinalli, J ed. 4th edition. 1996: 914-919.