



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering
Washington, DC

Medical Factual Report

December 29, 2020

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Chief Medical Officer

A. ACCIDENT: ERA20FA068; Newborn, GA

On January 6, 2020, about 1415 eastern standard time, a Cessna 172H, N1612F, was destroyed when it impacted terrain near Newborn, Georgia. The private pilot who owned and operated the airplane, was fatally injured. The flight was conducted under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. Visual meteorological conditions prevailed, and no flight plan was filed for the flight that departed Toccoa Airport-RG Letourneau Field (TOC), Toccoa, Georgia, about 1215 and was destined for Cairo-Grady County Airport (70J), Cairo, Georgia.

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, personal medical records, 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 72 year old male pilot reported 344 total flight hours as of his last medical exam, dated 11/15/2013. At that time, he was 66 inches tall and weighed 172 pounds. He had reported having high blood pressure and the use of medication to treat it to the FAA. 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 had not applied for another medical certificate or BasicMed.

Autopsy

According to the autopsy performed by the Division of Forensic Sciences, Georgia Bureau of Investigation, the cause of death was multiple blunt force injuries and carbon monoxide toxicity and the manner of death was accident. There was extensive damage and the brain was only partially available for examination. In addition, moderate atherosclerotic stenosis (70%) of left anterior descending coronary artery and mild (30%) atherosclerotic stenosis of right coronary artery was identified.

Toxicology

Testing by the Division of Forensic Sciences, Georgia Bureau of Investigation identified 61% carboxyhemoglobin in cavity blood.

Toxicology testing performed by the FAA's Forensic Science Laboratory identified 48% carboxyhemoglobin in cavity blood as well as bupropion (a potentially sedating antidepressant), and one of its metabolites, citalopram and one of its metabolites (generally considered a non-sedating antidepressant, trace amount of diphenhydramine (a sedating antihistamine), diltiazem, (a blood pressure medication), atorvastatin (a cholesterol lowering drug), sildenafil (used to treat erectile dysfunction) and one of its metabolites, and a metabolite of aspirin in the pilot's blood and tissues.^{1,2,3,4,5}

Personal Medical Records

A number of medication bottles were identified at the crash scene. Personal medical records were obtained by subpoena from the pilot's primary care doctor. These records were limited to a single visit to obtain bloodwork prior to having a cardiac catheterization; they did not contain a

¹ National Institutes of Health. US National Library of Medicine. DailyMed. Bupropion. <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=f32a4532-7dfd-4aa5-bb48-afbbd2eefb7c> Accessed 12/29/2020.

² National Institutes of Health. US National Library of Medicine. DailyMed. Citalopram. <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=2632b547-2e13-447f-ac85-c774e437d6a8> Accessed 12/29/2020.

³ National Institutes of Health. US National Library of Medicine. DailyMed. Diphenhydramine. <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=f3b177ef-55d5-4525-bf33-99205c414a5b> Accessed 12/29/2020.

⁴ National Institutes of Health. US National Library of Medicine. DailyMed. Atorvastatin. [DailyMed - ATORVASTATIN CALCIUM- atorvastatin calcium tablet, film coated \(nih.gov\)](https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=2ccc6fa6-f8ae-4191-806f-a887244e516a) Accessed 12/29/2020.

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 12/29/2020.

medical history or list of medications. The bloodwork was unrevealing. In addition, a copy of the cardiology record was included.

The cardiology record from a visit dated 10/21/2019 documents the pilot had known coronary artery disease, paroxysmal atrial fibrillation, a previous stroke, high blood pressure, arthritis, and carotid artery disease. At the time, his daily medications included diltiazem, lisinopril (another blood pressure medication), omeprazole, atorvastatin, sildenafil, citalopram, lorazepam (a sedating benzodiazepine), and Eliquis (a blood thinner).^{6,7,8} He had undergone a cardiac catheterization on 7/25/2019 which demonstrated severe calcific diffuse coronary artery disease that was not amenable to procedural intervention.

Carboxyhemoglobin

Carbon monoxide (CO) is an odorless, tasteless, colorless, nonirritating gas formed by hydrocarbon combustion. CO binds to hemoglobin with much greater affinity than oxygen, forming carboxyhemoglobin; elevated levels result in impaired oxygen transport and utilization.⁹ Nonsmokers may normally have up to 3 percent carboxyhemoglobin in their blood; heavy smokers may have levels of 10 to 15 percent.¹⁰ Acutely, low levels of CO may cause vague symptoms like headache and nausea but increasing levels (40 percent and above) lead to confusion, seizures, loss of consciousness, and death.¹¹

D. SUMMARY OF MEDICAL FINDINGS

The 72 year old male pilot had allowed his aviation medical certificate to expire and not reported his complex medical history or recent use of medications to the FAA.

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⁶ National Institutes of Health. US National Library of Medicine. DailyMed. Omeprazole. [DailyMed - BASIC CARE OMEPRAZOLE- omeprazole tablet, delayed release \(nih.gov\)](#) Accessed 12/29/2020.

⁷ National Institutes of Health. US National Library of Medicine. DailyMed. Lorazepam. [DailyMed - LORAZEPAM tablet \(nih.gov\)](#) Accessed 12/29/2020.

⁸ National Institutes of Health. US National Library of Medicine. DailyMed. Eliquis. [DailyMed - ELIQUIS- apixaban tablet, film coated \(nih.gov\)](#) Accessed 12/29/2020.

⁹ 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.

¹⁰ Ernst A, Zibrak JD. Carbon monoxide poisoning. N Engl J Med 1998; 339:1603.

¹¹ Reisdorff Ej and Wiegstein JG. Carbon Monoxide Poisoning. In Emergency Medicine, A Comprehensive Study Guide. Tintinalli, J ed. 4th edition. 1996: 914-919.

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