NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering
Washington, DC

Medical Factual Report

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Mary Pat McKay, MD, MPH
Chief Medical Officer

A. ACCIDENT: ERA15FA336; Bon Aqua, TN

On September 2, 2015, about 1545 central daylight time, an experimental, amateur-built RV-6A, N216LA, was substantially damaged when it impacted wooded terrain, following a loss of control from cruise flight near Bon Aqua, Tennessee. The commercial pilot was fatally injured. The airplane was registered to Chelsea Aviation Enterprises LLC and operated by a private individual as a personal flight conducted under the provisions of 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed and no flight plan was filed for the planned flight to Shelby County Airport (EET), Alabaster, Alabama. The flight originated from Bomar Field (SYI), Shelbyville, Tennessee, about 1400.

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

2. Methods

   The FAA medical case review, toxicology results, autopsy report, and the investigator's reports were reviewed.

   FAA Medical Case Review

   According to the FAA medical case review, the 66 year old male pilot reported flight experience that included 1,672 total flight hours as of his last medical exam, dated 06/10/2015. At that time, he was 73 inches tall and weighed 218 pounds. He had reported childhood eye surgery, hay

fever, episodes of bronchitis and sinusitis, and beginning in 2011, type 2 diabetes to the FAA. His initial hemoglobin A1C in 2011 was 12.3% (hemoglobin A1C is a measure of blood sugar over the preceding several weeks; non-diabetic is below 5.6% and "good control" for diabetics is considered below 7%). The pilot was treated with a change in diet and weight loss. By August, 2011 his hemoglobin A1C was 6.6% without medication. He was granted an eligibility letter by the FAA on 08/25/2011. His last hemoglobin A1C in the record was 6.9% on 11/25/2014. At the time of his last exam, the pilot was issued a second class medical certificate limited by a requirement to wear corrective lenses.

Autopsy

According to the autopsy performed by the Hickman County Medical Examiner, the cause of death was multiple blunt force injuries and the manner of death was accident. Contributing to the death were hypertensive and atherosclerotic heart disease.

The evaluation of the pilot for natural disease was limited by the absence of the brain due to the degree of injury. The heart was enlarged and weighed 610 grams; average for a 216 pound man is 387 grams with a range of 293- 511 grams.[1] The left ventricle and interventricular septum were 1.5 cm thick and the right ventricle was 0.5 cm thick. Average is 1.23 cm and 0.3 cm.[1] The cardiac valves were described as dilated. There was up to 90% stenosis in the right and left anterior descending coronary arteries with thrombi past the area of stenosis in both. The remainder of the coronary arteries were diffusely 40 percent stenosed.

In addition, there were multiple white, fibrous plaques within the myocardium of the left ventricle and the interventricular septum indicating scarring from previous heart attacks. Finally, there were two areas of erythema and wall softening: on the medial-most aspect of the interventricular septum and on the inner aspect of the posterior aspect of the left ventricle. On the microscopic evaluation, there were dense areas of fibrosis and collagen deposition; hemorrhage into myocardium; wavy myocytes with enlarged, pyknotic nuclei; edema; and inflammatory infiltrates into the myocardium. These indicate prevent scarring and recent damage from heart attacks.

Toxicology

Toxicology testing performed by the FAA's Bioaeronautical Research Laboratory was negative for any tested-for substances.

[1] Kitzman DW, Scholz DG, Hagen PT, Ilstrup DM, Edwards WD. Age-related changes in normal human hearts during the first 10 decades of life. Part II (Maturity): A quantitative anatomic study of 765 specimens from subjects 20 to 99 years old. Mayo Clinic Proc., 1988. 63(2): 137-46.

D. SUMMARY OF MEDICAL FINDINGS

The 66 year old male pilot had reported childhood eye surgery, hay fever, episodes of bronchitis and sinusitis, and type 2 diabetes treated with diet alone to the FAA. On autopsy, severe coronary artery disease with more than 90% stenosis in the right and left anterior descending coronary arteries was found, along with evidence of both remote and recent acute inflammation indicating heart attacks. Toxicology testing did not identify any tested-for substances.