NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering
Washington, DC

Medical Factual Report

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Chief Medical Officer

A. ACCIDENT: CEN15FA034

On October 30, 2014, at 0948 central daylight time, a Raytheon Aircraft Company King Air B200, N52SZ, impacted the Flight Safety International (FSI) building located on the airport after departure from the Wichita Mid-Continent Airport (KICT), Wichita, Kansas. The pilot, who was the sole occupant, was fatally injured and the airplane was destroyed. Three building occupants were fatally injured, two occupants sustained serious injuries, and four occupants sustained minor injuries. The airplane was registered to and operated by Gilleland Aviation, Inc., Georgetown, Texas, under the provisions of 14 Code of Federal Regulations Part 91 as a business flight. Visual meteorological conditions prevailed and an instrument flight rules (IFR) flight plan was filed. The flight originated at 0947 and was en route to the Mena Intermountain Municipal Airport (KMEZ), Mena, Arkansas.

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 certification file, FAA medical case review, toxicology results, autopsy report, personal medical records, and the investigator's reports were reviewed.

   FAA Medical Certification file

   The 53 year old male pilot was first medically certified in 1980. In 1981,

he began his career as an air traffic controller for the US Navy and routinely obtained second class aviation medical certificates thereafter. In 1987, the pilot became a civilian air traffic controller. He continued to work for the FAA until he retired in August, 2013. He obtained medical certificates without limitations through August, 1997.

The FAA medical certification file contains reports from mental health providers who evaluated him during 1997, including providing counseling and performing neuropsychiatric testing. The records document the pilot had taken a leave of absence from work due to stress. He was variously diagnosed as having depression, anxiety, anxiety disorder with obsessive-compulsive features, and obsessive compulsive disorder by different providers. At one point he was prescribed buspirone and sertraline, without much improvement. Buspirone is an anxiolytic prescription medication whose mechanism of action is unknown, also named BuSpar.[1] Buspirone is different from other anxiolytics in that it has little if any typical anti-anxiety side effects, such as sedation and physical impairment but it does carry a warning, "May impair mental and/or physical ability required for the performance of potentially hazardous tasks (e.g., driving, operating heavy machinery)."[2] Sertraline is a prescription antidepressant also named Zoloft.[3] By December, 1997, the pilot was no longer on medications and had improved enough to return to work as an air traffic controller. In April, 1998, the FAA approved the pilot's second class medical certificate.

In 1998, the pilot developed vertigo and was diagnosed with Meniere's disease in his left ear (a disease which causes of chronic, relapsing vertigo). When this resolved, the FAA again approved his second class medical certificate (August, 1999). In 2000, the FAA placed the pilot on a special issuance second class medical certificate that required regular status reports from the treating physician about the status of the Meniere's disease; symptoms did not recur. Annually, he continued to obtain second class medical certificates.

In 2006, the pilot reported a kidney stone and medical certificate also became limited by the need to wear corrective lenses, and it remain so thereafter. In addition, in 2007, he developed hypothyroidism (low thyroid hormone). Each time he was required to supply additional information to obtain his medical certificate, but it was granted each time.

In 2008, he passed another kidney stone and obtained a special issuance second class medical certificate, which required him to supply additional information regarding his kidney stones and thyroid disease. Also, for the first time, he reported using medications, simvastatin (a cholesterol lowering agent) and Synthroid (thyroid hormone replacement). In 2009 and thereafter, he no longer reported using any medications, and his doctor

reported the thyroid hormone had been stopped, with normal thyroid test results.

In 2011, the pilot was granted a 6 year authorization for special issuance medical certification regarding his thyroid disease and his kidney stones that allowed him to bring all the required documentation to his AME annually (rather than going through the FAA). There are annual letters documenting the pilot's stable thyroid status in the file. Although the last letter in the FAA medical file regarding the kidney stones is dated 6/29/2011, there are similar letters to the FAA from 2012 and 2013 among the pilot's personal medical records. Each states the pilot had no new disease and the longstanding stones were less than 4 mm in size.

The pilot continued to receive special issuance medical certificates through his final aviation medical examination on 8/2/2014. At that time, he report 3067 total flight hours with 200 in the preceding six months. He did not report using any medication, but did report having had two hernia surgeries (in 2012 and 2013). The record states he was 69 inches tall and weighed 167 pounds.

Autopsy

According to the autopsy report from the Regional Forensic Science Center, Sedgwick County, KS, the cause of death was thermal injuries and smoke inhalation and the manner of death was accident.

In addition, the report states, "A thin diameter plastic medial (sic) catheter is found within the pelvic cavity."

Although the autopsy identified an area of atherosclerotic stenosis of up to 50% in the left anterior descending coronary artery, the heart weighed and the 360 grams myocardium was otherwise unremarkable. (Average heart weight for a man of the pilot's size is 341 grams, ranging from 258 to 450 grams.[4])

Toxicology testing of heart blood by the Regional Forensic Science Center identified carboxyhemoglobin at 39% but no other tested for substances were found.

Toxicology

Toxicology testing performed by the Bioaeronautical Research Laboratory at the FAA's Civil Aerospace Medical Institute identified buspirone, citalopram, and its metabolite n-desmethylcitalopram in heart blood and urine. In addition, the carboxyhemoglobin was 35%; no ethanol, cyanide, or any other tested for substances were identified.

Buspirone was described above. Citalopram is prescription antidepressant also named Celexa. It carries a warning, "May impair mental and/or physical ability required for the performance of potentially hazardous tasks (e.g., driving, operating heavy machinery)."[5]

Personal Medical Records

Medical records were obtained from the pilot's two primary care physicians (one of whom was his AME), two urologists, a general surgeon who performed hernia surgery in 2012 and 2013, and his gastroenterologist for the period from January 1, 2009 until his fatal accident.

Briefly, these records generally reflect the findings from the FAA medical records. The pilot had at one time diagnoses of high cholesterol and hypothyroidism, but these had resolved and he was no longer being treated for them.

However, there are two issues discussed in the personal records that are not addressed in the FAA medical file. Although there are annual visits and letters from one urologist describing stable kidney stones, in September, 2013, the pilot developed blood in his urine and was seen by a second urologist. The evaluation identified a large (9mm) stone stuck at the junction of the renal pelvis and the ureter. In November 2013, the pilot underwent lithotripsy to break up that stone so the smaller fragments could pass. The procedure included the placement of a stent into the ureter to ensure it could not be clogged up by stone fragments. There is no record of it being removed.

In addition, in October 2013, the pilot complained to his second primary care physician (not the AME) that he was having worsening anxiety. According to those records, he was prescribed Lexapro, a serotonin reuptake inhibitor indicated for the treatment of anxiety and depression; its generic name is escitalopram. In the body, escitalopram is metabolized to the active agent, citalopram.[6] In November 2013, he was described as "doing better at first," but in December 2013, he was not sleeping well and felt the effects of the medication were wearing off. However, the physician described his mood and affect as appropriate and his judgment as normal. His medication was switched to Zoloft, another serotonin reuptake inhibitor also known as sertraline (described above).

In January 2014, the pilot returned for a visit with the primary care physician and, according to the records, reported that he was still not sleeping well and not really doing any better. Buspirone was added to his medications and the physician strongly encouraged the pilot to seek counseling, noting "relationship problems." The physician noted in the record, "He continues to have quite a bit of anxiety but is really not able to

take any sort of sedative hypnotic for anxiolytic do (sic) to flying limitations from the FAA."

Eight days after that visit (January 2014), the record includes a telephone contact note in which the pilot called and complained of trouble sleeping with racing thoughts at night and a request to be returned to the escitalopram because it seemed to work better. The physician switched him back to escitalopram and increased the dosing regimen for the buspirone.

Next, according to the records, the pilot called on September 24, 2014 asking if his medications could be causing headaches. He had a follow up appointment two days later to evaluate the headaches. At that time he still complained of trouble getting to sleep but the note also states he was stable on the medications and that they were helping with his anxiety. No further comment is made in the records regarding his anxiety or depression.

D. SUMMARY OF FINDINGS

This 53 year old male pilot had been an air traffic controller for more than 20 years at the Wichita airport. He retired in 2013. Over the years since his first medical certification in 1980, the pilot had reported thyroid disease, hernias, and recurrent, symptomatic kidney stones to the FAA. Beginning in 1997, he had episodes of anxiety and depression which required treatment with medication. During the first episode, he was unable to work for a period of time. A second episode began in October 2013 and continued through the accident. He did not report his recurrent anxiety or his use of buspirone and escitalopram to the FAA, but saw his primary care physician about a month before the accident and was noted to be stable on the medications. In addition, the pilot had a procedure to treat kidney stones in 2013 that he did not report to the FAA. At the time of the accident, the pilot held a second class medical certificate limited by the need for corrective lenses.

References

[1] Drugs.com. BuSpar: FDA prescribing information, side effects, and uses. http://www.drugs.com/pro/buspar.html Accessed 7/29/2015

[2] Federal Aviation Administration. Forensic Toxicology Drug Information. Buspirone. http://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=21 Accessed 7/29/2015.

[3] Drugs.com. Zoloft: FDA prescribing information, side effects, and uses. http://www.drugs.com/pro/zoloft.html Accessed 7/29/2015.

[4] Kitzman DW, S.D., 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): p. 137-46.

[5] Federal Aviation Administration. Forensic Toxicology Drug Information. Citalopram. http://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=208 Accessed 7/29/2015.

[6] Drugs.com. Lexapro: FDA prescribing information, side effects, and uses. http://www.drugs.com/lexapro.html Accessed 7/29/2015