ERA 12FA051

Monck's Corner, SC; 10/13/2011

MEDICAL FACTUAL

The following were reviewed by the Chief Medical Officer for the National Transportation Safety Board, Mary Pat McKay, MD, MPH: the investigator's reports, the FAA blue ribbon file, the autopsy and toxicology results, and a conversation with the medical examiner. Personal medical records were not able to be located.

According to the FAA blue ribbon medical file, the 64 year old pilot underwent his last medical certification exam on 4/15/2011 and was awarded a third class certificate, limited by a requirement to use corrective lenses. He had reported the use of salsalate, a prescription nonsteroidal anti-inflammatory medication used to treat arthritis pain, omeprazole, a proton-pump inhibitor used to decrease stomach acid, and terazosin, a prescription medication used to treat symptoms of prostatism (enlarged prostate) as well as hypertension.

In this case, the pilot crashed his airplane two weeks before he was discovered within a few feet of the plane. According to the medical examiner, the body's level of decomposition suggested that he survived for at least 8-9 days after the crash. Toxicology testing did not identify any carbon monoxide, cyanide, or ethanol. However, toxicology testing revealed bupropion in urine but not in blood; lamotrigine was found in the urine and at a level of 1.187ug/mL in the blood. According to the autopsy, the pilot successfully self-extricated from the plane and his injuries were limited to a broken nose, contusions, and two broken ribs. On histological examination of the kidneys the pathologist found "a large amount of tubular necrosis and/or autolysis and the interstitium appears somewhat edematous. When viewed with polarized light, there are numerous fan shaped, birefringent crystals within the tubules." In conversation, these crystals were described as "textbook" results of ethylene glycol poisoning. Analysis of vitreous fluid revealed the following: sodium = 146 mmol/L, chloride = 130 mmol/L, urea nitrogen = 287 mg/dl, creatinine = 14.1 mg/dl. The medical examiner interpreted these results as indicating renal failure (urea nitrogen and creatinine are stable in the vitreous post mortem; urea should be less than 30 mg/dl and creatinine less than 1.3 mg/dl).[1] The cause of death was listed as "probable toxic effects of ethylene glycol" and the manner of death was unknown. No ethylene glycol was identified in blood or urine.

Buproprion is an antidepressant marketed under the trade names Wellbutrin and Zyban and is used to treat depression and as a smoking cessation aid. Buproprion carries the following FDA warnings: Warnings include a dose dependant risk of seizures. Warnings - may impair mental and/or physical ability required for the performance of potentially hazardous tasks (e.g., driving,

operating heavy machinery).[2] Lamotrigine is marketed under the trade name Lamictal and is an atypical anti-seizure medication that is also used to treat bipolar disease.

Ethylene glycol is the active ingredient in antifreeze. None was found at the scene; the single engine airplane was air cooled.

References

1. Finkbeiner, W.U., PC; Davis, RL., *Autopsy Pathology: A manula and Atlas*. Second ed. 2009, Philadelphia, PA: Saunders Elsevier.
2. *Federal Aviation Administration. Civil Aerospace Medical Institute. Toxicology Drug Information: Buproprion*. Accessed 4/8/3013]; Available from: http://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=20.