NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering
Washington, DC

Medical Factual Report

November 1, 2022

Mary Pat McKay, MD, MPH
Chief Medical Officer

A. REMOTE CONTROL RUNOVER: RRD22FR006; Denver, CO

Date and time: February 9, 2022
Injuries: 1 fatal

B. GROUP IDENTIFICATION

No group was formed for the medical evaluation in this crash.

C. DETAILS OF INVESTIGATION

1. Purpose

   This investigation was performed to evaluate the remote control operator helper for medical conditions, the use of medications/illicit drugs, and the presence of toxins.

2. Methods

   The BNSF occupational health record, autopsy report, toxicology findings, and the investigator's preliminary report were reviewed. Relevant regulation and medical literature were reviewed as appropriate.

   BNSF Occupational Health Record

   According to the BNSF occupational health record, the 40 year old male remote control operator helper had a pre-employment exam in 2005 and since then had had only vision and hearing testing. He required glasses but had passed vision testing while wearing them and had passed hearing testing. He had reported no chronic medical conditions in 2005 but the medical history/screening questions had never been repeated other than exposure to noise. At no time had the remote control operator's vital signs such as blood pressure, height, weight, temperature, or body mass index

(BMI) been measured and at no time had questions such as use of regular medications been asked.

Autopsy

According to the autopsy report issued by Office of the Medical Examiner, City and County of Denver, the cause of death was blunt force injuries and mechanical (traumatic) asphyxia. The manner of death was accident. The remote control operator helper was noted to have an enlarged heart (cardiomegaly) with a total heart weight of 560 gm. Heart weight is most closely related to body weight; at autopsy he was 72 inches tall and weighed 345 pounds (BMI 46.8 kg/m^2). In addition, his heart demonstrated somewhat thickened septum at 1.7 cm. Average is 1.3 cm.[1] These types of changes are often associated with obesity and hypertension. He had mild coronary artery disease with 50% stenosis of the left anterior descending coronary artery. No other significant natural disease was identified.

Toxicology

Toxicology tests performed by Quest Diagnostics as required by the Federal Railroad Administration under Code of Federal Regulations Title 49 Part 219 Subpart C, identified ethanol in blood at 0.011 grams per deciliter (gm/dl). All other test-for substances were negative.

Toxicology testing performed by the FAA's Forensic Sciences Laboratory identified ethanol at 0.011 gm/dl in cavity blood but none in vitreous. N-propanol was also detected in cavity blood but not in vitreous fluid. Ibuprofen was detected in both cavity blood and urine.

Description of Substances

Ethanol is a social drug that acts as a central nervous system depressant. After ingestion, ethanol is quickly distributed throughout the body's tissues and fluids fairly uniformly. The distribution pattern parallels the water content and blood supply of each organ. Ethanol may also be produced in the body after death by microbial activity.[2] In this case, levels in various tissues may vary widely. N-propanol is another type of alcohol that many be produced in postmortem tissues and fluids.

Ibuprofen is an anti-inflammatory medication that treats fevers and aches and pains. It is available over the counter and is commonly marketed with the names Motrin and Advil. It is not considered impairing.

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[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 Study of 765 Specimens from 20 to 99 Years Old. Mayo Clin Proc. 1988; 63:137-146.

[2] Federal Aviation Administration. Forensic Toxicology Drug Information. Ethanol. http://jag.cami.jccbi.gov/toxicology/DrugDetail.asp?did=60 Accessed 03/02/2015.

D. SUMMARY OF MEDICAL FINDINGS

The 40 year old male remote control operator helper had required glasses but had passed vision testing while wearing them and had passed hearing testing. He had reported no chronic medical conditions during pre-employment testing in 2005 but the medical history/screening questions had never been repeated other than exposure to noise. At no time had the remote control operator helper's vital signs such as blood pressure, height, weight, temperature, or body mass index (BMI) been measured and at no time had questions such as use of regular medications been asked.

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