D73 Aircraft Accident Investigation and Pilots' Autopsies in General Aviation: A Retrospective Study in France Between 2002 and 2007

Sebastien Budes, MD, and Valéry Hedouin, PhD, Institut de Médecine Légale de Lille, Lille, 59045, FRANCE; Didier Delaitre, MD, B.E.A., Batiment 153, 200 rue de Paris, Zone sud - Aeroport du Bourget, Le Bourget Cedex, 93352, FRANCE; Gilles Tournel, PhD, Institut de Médecine Légale de Lille, 1, place de Verdun, Faculté de Médecine, Lille, 59045, FRANCE; Cedric Houssaye, MD, and; Jocelyn Pollard, MD, Institut de Médecine Légale de Lille, Place de Verdun, Lille, 59045, FRANCE; Anne Becart, PhD, Institut de Médecine Légale de Lille, Lille, 59045, FRANCE; and Didier Gosset, PhD, Institut de Medecine Legale, Faculte de Medecine, Lille, 59045, FRANCE*

The goal of this presentation is to focus on how far medical aspects are taken in account in fatal air accidents investigations and, subsequently, whether they can or not be considered as a "cause" of accident.

This presentation will impact the forensic science community by showing the interest of improving the postmortem investigations in air crashes in France.

Introduction: The autopsies of pilots killed in an aircraft accidents are performed in the context of judicial investigation. Despite European Recommandation 99-3, the decision to perform or not an autopsy varies from a prosecutor to another. This study focuses on how far medical aspects are taken in account in fatal air accidents investigations and, subsequently, whether they can or not be considered as a "*cause*" of accident.

Material & Methods: A study conducted by the Institute of Forensic Medicine of Lille (CHRU Lille) on aircraft accidents occurred between 2002 and 2007. Data have been provided by BEA. Occurrences are sorted by probable cause and fatal accidents due to mechanical causes are eliminated. Other causes (i.e., revealing medical issue, loss of control, and unspecified causes) are included. Contents of *postmortem* examinations, autopsies, and toxicological reports are compared to pilots' *antemortem* medical examinations of fitness.

Results: The number of fatal accidents decreases from 51 in 2002 to 39 in 2007, except a spike in 2003 (54). About five fatal accidents per year are related to a medical disease. Nevertheless, a medical impairment as cause of an accident is questionable in 10 cases per year. It was also reported five cases of suicide. Most of the time, heart attack is suspected on the basis of pilot's medical past-history and similarities between the actual occurrence and incidents or serious incidents in which pilots have survived.

Discussion: This study reveals a lack of medical post-crash information related to: (1) the difference of aims between judicial and technical investigation; and (2) the lack of standard practices in forensic examinations. Despite Standard 5.9 of Annex 13 and European Recommandation 99-3, performing an autopsy of a pilot after a crash is not systematic. French civil aviation authorities have notified this difference to International Civil Aviation Organization that could mean a steady state for the next years. Thus, the medical cause is often established when medical findings and abnormal maneuvers are simultaneous. The lack of data can be a starting point for a discussion about the concepts of "*medical cause*" and "*air risk factor*" to initiate an improvement of *postmortem* data collection in air accident investigation.

Autopsy, Aircraft Crash, Pilot

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