CASE REPORT

Return to the Cockpit after Thrombolysis

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THE CASE

A 30 year old Hungarian gentleman without any relevant past medical history started his carrier as a professional pilot at the age 27. He has a Swedish flight licence but works for a Hungarian company. With 2700 flying hours he works not only as a first officer, but also as a trainer at the airline. During the past years he worked hard, had some stress at the job that caused fatigue and frequent headaches.

He went to a restaurant and had a seafood dinner and the next morning he woke up with nausea, dizziness, light headedness, severe bitemporal headache and had several times diarrhoea and vomiting.

His spouse called the ambulance because of his general condition and slurred speech. Slurred speech is a "red flag" for the ambulance dispatch, so the closest ambulance team was directed to him to transfer the patient urgently to the nearest stroke centre in Budapest, Hungary. During the transport, he received metamizole to reduce the headache. The 30 year old male was referred by the ambulance team as a thrombolysis candidate stroke patient, so as they arrived at the ED (Emergency Department), the assessment and examinations were started immediately.

EMERGENCY DEPARTMENT

The pilot was treated as a patient in critical condition therefore the procedure ran fast and focused. At the ED, vital signs were checked and detailed neurological examination was performed. The cardiorespiratory parameters were in normal range – but during the transport, according to the documentation of the ambulance service, transient bradycardia with 45/min frequency was noted. (During the transport the patient was monitored with a pulse oximeter that is not always reliable due to the vehicle and patient movement). His laboratory test results and ECG were normal, he was afebrile. The venous blood gas analysis showed normal oxygenation and mild respiratory alkalosis due to hyperventilation caused by malaise following several vomiting and diarrhoea. Noticeable was a mild neurological deficit – homonymous hemianopia

on the right side and right-sided latent hemiparesis on the upper limb were found. His NIHSS (National Institute of Health Stroke Score) was 4 at the Emergency Department and 3 at the ICU (Intensive Care Unit).

For patients, admitted with stroke symptoms within 4.5 hours of symptom onset and with no contraindication, reperfusion should be achieved. In this case, the acute skull CT and carotid angiography scan revealed no abnormality.

Summarizing the first treatment, the young male patient was admitted to the ED with stroke-like symptoms. In the background of the focal signs, acute ischaemic stroke in the region of the left posterior cerebral artery was suspected. Due to time pressure, the team focused on the reperfusion therapy, so they decided to perform systemic fibrinolytic therapy within the time window.

NEUROLOGY INTENSIVE CARE UNIT

Systemic thrombolysis with alteplase was performed which was uneventful and the neurological signs decreased. The patient's condition was haemodynamically stable, the oxygen supply was adequate. After 24 hours of observation, he was transferred to the Stroke Unit Department.

STROKE UNIT DEPARTMENT

He was admitted to this department with no neurological symptoms. On the 4th day of his hospitalization skull MRI scan was performed, which revealed no abnormality such as ischemia, bleeding or vascular stenosis. He underwent several investigations to exclude or identify the root cause of this incident. Transthoracic echocardiography, transoesophageal echocardiography, Holter ECG and later, exercise ECG were performed. The results of all the cardiological evaluations to identify a vascular cause were negative. The thrombophilia tests were negative. Finally, the opinion of treating team was following: "the examination did not identify any cardiovascular or haemostatic problem which might have led to thromboembolism. The most likely cause was the temporary perfusion disorder as a consequence of vagotonia."

In one possible point of view – and in light of all these 5 days in the hospital - the pilot received unnecessary thrombolytic therapy. But, according to the guidelines in emergency medicine, the patient was treated with the most adequate treatment at the time of hospital admission.

RETURN TO FLIGHT

Following 5 days of hospitalization, the pilot was discharged with no neurological deficit from the Stroke Unit. He had received thrombolytic therapy – so he should have been diagnosed with stroke,

but in the discharge summary, the event was described as temporary perfusion disorder. He did not require any rehabilitation as he had no disability. The gastrointestinal symptoms also disappeared. What is the next step? Sick-leave or return to flight duties?

The flight regulation (1178/2011 EU) says, that "if a pilot receives any medical treatment which is likely to interfere with the safe flight operation, he or she must - without undue delay and before exercising the privileges of their license - seek aero-medical advice from the Aeromedical Examiner. "

Most pilots worry about the aeromedical examination. Pilots are subject to strict medical qualification, so they undergo annual aeromedical examination and assessment. The fitness requirements are laid down in 1178/2011 EU Regulation and the related acceptable means of compliance updated at the end of January in 2019. Professional pilots hold a commercial pilot license (CPL) or an airline transport pilot license (ATPL). These license holders shall hold a valid class 1 medical certificate, which contains the most stringent fitness requirements of all of the pilot licenses. Most class 1 cases should be referred to the medical assessor of the aviation licensing authority, who is responsible for the assessment of medical fitness and decision.

The assessment prior to the EU regulation was more restrictive, most of the conditions required mandatory "rest time" following which, the pilot was allowed to return to fly. Nowadays the regulation is more rational. After a cerebrovascular event "a fit assessment may be considered if neurological evaluation is satisfactory and the conditions of the musculoskeletal system are satisfactory. A cardiological evaluation and medical flight test should be undertaken for applicants with residual deficiencies."

In this case, the pilot had an event with cerebrovascular symptoms, from which the recovery was successful. The cardiological evaluation was without any findings. The cause might be a transient perfusion disturbance due to dehydration. The pilot has no musculoskeletal disability therefore no medical flight test is indicated.

The pilot's flight licence is Swedish which means that the licensing Authority is the Swedish Authority.

Explanation:
In the European Union (EU) the European Aviation Safety Agency (EASA) ensures safety and environmental protection in civil aviation. The Agency performs oversight of the authorities of the member states (28 EU countries – until Brexit -, plus Iceland, Liechtenstein, Switzerland, and Norway). Every authority follows the same regulation. Thanks to the mutual recognition principle all the medical certificates and pilot licenses are valid in every state without any additional legal steps. The system allows that a Hungarian pilot working at a German airline holding a Czech pilot license attends an aeromedical examiner in Spain. The key element is the licensing authority, which is competent for the record keeping, certification and in aeromedical questions for the decision making.

DECISION

The role of the Aeromedical Examiner (AME) is to identify the medical conditions which potentially risk flight safety. For the aeromedical assessment is acceptable to ask an expert, who is able to evaluate the probability of the risk identified by the AME.

In this case, the root cause could not be found clearly, so it is also hard to evaluate the risk.

The pilot was referred to the medical assessor of the Swedish Authority who decided to be on the safe side to enter an operative limitation called OML. This limitation applies to holders of a class 1 medical certificate who do not fully meet the aero-medical requirements for single-pilot operations but are fit for multi-pilot operations.

The pilot finally resumed flying after 6 months ground period.

THE REGULAR EXAMINATION AFTER 1 YEAR.

The pilot was examined during the routine examination after 1 year. He is healthy, he has not got any neurological or other problem. He was asked about his health and he claimed to feel well. He had enough rest when he had the neurological problem and he started to deal with fatigue management in the period of unfitness. He said that he was very tired at that time and all of the problems came from his fatigue.

The AME contacted the licensing Swedish Authority about the follow-up procedure. The answer was:

“Thank you for the e-mail regarding XY. It is clear from our medical decision that OML can be reviewed at the earliest in March 2019. In order to remove OML we need a completely normal neurological exam performed by a neurologist, written in English or Swedish. For renewal it is enough to perform the aeromedical examination and a thorough medical history. My recommendation is to keep OML until the next exam and then prepare for a neurological exam well in advance. Please then send the question by ordinary mail together with the exam and neurological documents. “

CONCLUSION

Fatigue is a serious problem among the commercial pilots. They fly 800-900 hours per year and their time table contains a lot of night flights. Their diurnal rhythm is disturbed and it can cause several health problems.

Key Words: thrombolysis, fatigue, aeromrdical examination, temporary perfusion disorder, pilot, diurnal rythm, cerebrovascular event

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