Medical Maintenance of Civil Aircrew

By Group Captain SK Mukherjee*

THE co-pilot of a London-New York Boeing 747 flight had a fit and lost consciousness at the time of landing. The Commander of the aircraft however, landed the aircraft safely. A thorough investigation was carried out and the following was revealed. Three years prior to the above incident, the pilot was found to have raised blood sugar suggestive of early diabetes. He was grounded for 3 months. Thereafter he was boarded every six months and every time his GTT was found normal. He did not give history of taking any anti-diabetic drug. During all this period, however, he was taking an antidiabetic drug prescribed by a civilian consultant but he did not disclose it for fear of losing his licence. He continued flying with this drug. On the advice of a friend, he consulted an Ayurvedic doctor who prescribed a medicine containing lead. He had signs of lead toxicity including haemolytic anaemia. He had two more episodes of unconciousness on the gound which he did not disclose. The incident would not have happened if the co-pilot had consulted a doctor having knowledge in Aviation Medicine.

In another incident, Captain of a commercial airliner was involved in a crash landing but he jumped out to safety. Subsequently, he started having disturbed sleep and while flying, he started suspecting the serviceability of the aircraft. On one occasion he was obsessed with this idea and nearly froze on controls. The co-pilot landed the aircraft safely. He refused to take off for base airfield on imaginary grounds of snags though the engineers confirmed that there were none. The aircraft was flown back the next day by another pilot. The symptoms did not develop overnight but had taken a long time. Proper and constant vigilance by colleagues, crew members, supervisors and medical authorities could have helped, in early diagnosis of his psychiatric illness.

The foregoing are only two of the numerous incidents where aircrew were physically and mentally unfit to fly safely. On many such occasions the margin between safety and disaster was dengerously thin. Flight safety demands that the aircrew should be properly selected and trained and are kept under constant medical supervision to ensure that they are fit every time they operate an aircraft.

Civil aircrew are medically assessed for initial issue and renewal of their flying licence as per the medical standards laid down by International Civil Aviation Organisation (Personnel Lincencing). Medical boards for issue of licences are carried out at Air Force Medical Centres, every 6 months to a year depending on the type of licence and age of the pilot. Medical examinations for initial issue of all commercial aircrew licences are carried out at AFCME – Air Force Central Medical Establishment/IAM – Institute of Aviation Medicine. Besides, every 5th renewal medical examination of all categories of licence holders is also carried out at AFCME/IAM. In addition to the laid down intervals, DGCA – Director General of Civil Aviation can direct the aircrew for medical examination as and when it is felt necessary in the interest of safety of operations (Rule 39B of Indian Aircraft Manual).

Medical examination for issue of licence only assesses physical and mental fitness at the time of examination and also the likelihood of remaining fit till due for next renewal examination. But what about medical care in between the two examinations which may be 6 months to 1 year? Aircrew may suffer from illness requiring bed rest and dministration of drugs. In some minor illnesses patients take drugs but remain ambulatory and perform duties. But illness and medication are not compatible with

* JDMS (S) Air Headquarters (VB), New Delhi.

safe flying. Even common drugs like aspirin, sulphonamides, antihistaminics, sedatives which are relatively harmless on ground may be unsafe for flying duties. Drugs and medication alter physiological and psychological functions and make the flyer unfit for safe and efficient flying.

There are panels of civilian consultants approved by DGCA at four major centres *viz.* Bombay, Calcutta, Delhi and Madras. They opine on aircrew referred to them by the Airlines authorities. But aircrew are not obliged to consult them in case of illness and may consult any other doctor of their choice. Information on such treatment remains unknown to the authorities. Who is to certify that they are fit for flying on recovery? Neither the approved consultants nor the civil practitioners have specific knowledge on effects of many illnesses, drugs or operations on flying performance and safety. Aircrew examination is a stringent one and any evidence of illness or departure from normalcy may disqualify the aircrew resulting in financial loss. As per ICAO Personnel Licencing rules, a history of proven myocardial infarction, use of drugs for control of high blood pressure and diabetes mellitus are disqualifying. Provisions of the rules may prompt the aircrew to hide his illness from the Airline authorities and indulge in self-treatment or seek treatment "on the quiet" from civil practitioners. Little does he realise that many disabling diseases which may cause permanent grounding in the long run may be prevented by adequate treatment at the early stages. For example, obesity may predispose to diabetes mellitus or Ischaemic Heart disease but if corrected early may prevent establishment of these diseases.

Pre-flight Medical Check

To fly with efficiency and safety the flyer must be fit both physically and mentally. As per current Aircraft Rules and ICAO Regulations, a gap of 12 hours between last drink and flying is mandatory. Yet people are known to violate the regulations and some have met with aircraft accidents. The limit of alcohol in blood for safe flying is zero. 12 hours interval may not be adequate if one consumes a large quantity of alcohol. A late night, a bout of drinking till late in the evening, a heavy meal, disturbed sleep, accumulated fatigue due to disturbed routine over a few days may render a person unfit for flying. In the Air Force, daily preflight medical check has been mandatory for all aircrew. In Indian Airlines preflights medical check for alcohol has been introduced following recommendations of a court of Inquiry into an aircraft accident in 1973. Such a test has not been adopted by Air India and it is understood that none of the International Airlines follow it. It is suggested that we should bring all the aircrew under its purview, in the interest of flight safety.

Suggested Medical Maintenance of Aircrew

The primary function of airline medical department is to keep experienced flight personnel in the air consistent with the safety of operations and the welfare of the individual aircrew. Safety may be compromised if a pilot experiences a disabling illness or impairment of consciousness in flight *e.g.* because of diabetes mellitus, an acute coronary or an epileptic attack. The efficiency of operations is influenced if an aircrew is taken off duty due to illness, resulting in a delay or a disruption in flight scheduling. The welfare of an individual aircrew is jeopardised if he is placed on duty with an illness that may be aggravated by altitude or other stresses, or his professional career may be shortened if a permanently disabling illness is not prevented by adequate treatment in its early stages. Finally, absenteeism due to illness may be of sizeable proportions if there is inadequate health maintenance programme.

The system of health surveillance in between medical examinations needs improvement. Aircrew are stationed at a few major bases. There should be a panel of doctors at these bases covering the specialities of medicine, cardiology, neuropsychiatry, opthalmology, otolaryngology and surgery, who should be available for consultation when the aircrew approach them or are referred. They should have some basic knowledge of effects of illness and the drugs administered, on flight safety. Knowledge in Aviation Medicine is highly desirable for proper care of aircrew and may be provided at the Institute of Aviation Medicine at Bangalore.

In the Air Force, the aircrew are under the medical care of the Squadron doctor. He maintains their medical records, has discussions with them on aero-medical problems and indoctrinates them on various topics of Aviation Medicine. To my mind, such a system suitably modified should be adopted

in the Airlines also. A doctor trained in Aviation Medicine may be positioned at each of the major bases. He will be able to advise on medical matters, refer cases to the consultants and assess their flying fitness, depending on findings of the consultants, recommend to the authorities special medical boards if considered necessary. He would also conduct preflight medical check on aircrew. This will bring him in close contact with them and help in establishing a good rapport.

The primary instinct of any person is preservation of self and security of those under his charge. Each individual crew is concerned with safety of his own self, of his colleagues and the passengers he is carrying. If a good rapport is established between the doctor and the aircrew and the doctor is able to enjoy their confidence, there is no doubt that they would seek his advice in matters of their own health or of their colleagues if they observe something abnormal in them. In fact where psychological abnormalities are involved, they are the people who would be the first to observe even minor changes in behaviour in their colleagues.

The doctor will also be able to assess recovery from illness or minor trauma for which information may not be available at present to the airline authorities. He will maintain the medical records of each aircrew separately, which will include medical category, summary of illnesses, medical fitness record on recovery, hypersensitivity to particular drugs etc. On change of base the medical records may be transferred to the medical officer of the new base.

Conclusion

The ideal method of ensuring flight safety is total care of the aircrew by doctors with high professional competence and knowledge in Aviation Medicine. Aircrew medical care is part of the total responsibility of the medical organisation of civil Airlines. It is suggested that the medical organisation should also cover the following areas in addition to aircrew care :

(*a*) Aeromedical indoctrination of aircrew.

(*b*) Research and studies on aircrew fatigue and flight scheduling, circadian rhythm, problems of aircrew on international flights, work environment and industrial health problems of maintenance personnel.

(*c*) Sanitation of food and water service in aircraft and at airport.