

CHAPTER V

MEDICAL CONDITIONS REQUIRING CLOSER LOOK.

1 CARDIO VASCULAR SYSTEM

- (i) Myocardial Infarction - until 2 weeks have elapsed and normal activities have been resumed. Symptom-linked treadmill test prudent. (Lately in USA travel after 10-14 days has been allowed without incident). Complicated myocardial infarction - wait till stable on treatment. Coronary artery bypass graft and other chest surgery - wait about 2 weeks so that any air introduced into chest will have become absorbed. Examine before travel to confirm condition stable with no congestive cardiac failure, serious arrhythmia or ischaemia.
- (ii) Percutaneous transluminal coronary angioplasty - until stable and back to usual daily activities.
- (iii) Severe congestive cardiac failure.
- (iv) Unstable angina or uncontrolled arrhythmias.
- (v) Decompensated major valvular disease, congenital heart disease, and cardiomyopathy.
- (vi) Uncontrolled severe hypertension.
- (vii) Eisenmenger Syndrome.
- (viii) Symptomatic valvular heart disease; assessment required of symptoms, functional status, left ventricular function and pulmonary hypertension.
- (ix) History of deep vein thrombosis.

Additional Investigations For Clearance Of Invalid Passengers

- (a) Pre-flight assessment includes history, physical examination, pulmonary function & cardiac stress tests, and blood gas analysis. Abnormal test results call for further consideration and arterial oxygen tension (PaO₂) is single most helpful predictor of

level in flight. Ground level PaO₂ less than 70mm Hg (9.31 kPa) is likely to call for in-flight oxygen. PaO₂ may be measured while breathing a mixture simulating cabin environment at altitude: if PaO₂ is less than 55mmHg (7.315 kPa) oxygen is likely to be needed. As a rule-of-thumb, if passenger can walk 50 yards or climb one flight of stairs without breathlessness difficulties are unlikely.

- (b) Raised arterial PCO₂ indicates poor pulmonary reserve and increased risk even with in-flight oxygen.
- (c) ECG / TMT reports, if ischaemic status is in doubt.
- (d) Oxygen Requirements. As a thumb rule, every litre of oxygen inhalation raises the alveolar oxygen saturation by 5 mm Hg; 4 l/min can raise the PAO₂ by roughly 20 mm Hg. The ratio between alveolar and arterial oxygen saturation is 0.9, giving you a rough idea of the arterial oxygen saturation. If this is unable to meet the oxygen saturation required, consider deferring the date of travel or travel with medical / para-medical escort.

Deep Vein thrombosis

In cases with a history of DVT, recommend frequent leg movement during flight, adequate fluid intake, support stockings and prophylactic low molecular weight heparin before boarding and after arrival. Low dose aspirin has little role to play in preventing DVT.

CENTRAL NERVOUS SYSTEM AND PSYCHIATRIC DISORDERS

- (i) Cerebro-vascular Accident- until convalescence completed or at least 14 days after the incident and the case is haemodynamically stable.
- (ii) Paraplegia / Quadriplegia.
- (iii) Poorly controlled disorders including epilepsy.
- (iv) Active psychosis / Depression / Manic-depressive Psychosis.

Additional Information For Clearance Of Invalid Passengers

- (i) Active Psychosis is an absolute contraindication for travel by commercial airlines. For all psychiatric cases, ask for a detailed report on symptoms and drug regime for the disorder.
- (ii) Accept as passenger with paramedical / medical escort and adequate sedation for the duration of flight.
- (iii) Passengers travelling as stretcher cases or under sedation must have indwelling urinary catheters / condom drainage and adult diapers for the duration of the flight.

RESPIRATORY SYSTEM

- (i) Asthma - where labile, severe, or hospitalization recently required.
- (ii) Pneumothorax (risk of tension pneumothorax) - until 2-3 weeks after successful drainage or surgery.
- (iii) Pneumomediastinum, subcutaneous emphysema (marker of extra-alveolar air).
- (iv) Pleural Effusion.
- (v) Active or contagious chest infections, including active tuberculosis until documented control (negative cultures) and clinical improvement.
- (vi) Severe chronic obstructive airways disease and other pulmonary disease with hypoxia
- (vii) Lung cysts and bullae - unless connected with airways.
- (viii) Chronic obstructive airways disease. Most patients requiring long-term domiciliary oxygen therapy are on flow rates of 1 or 2 l/min. and can be supported comfortably in-flight with flow rates of 4 l/min, which airline companies can usually supply with facemasks.

- (ix) Other pulmonary diseases with hypoxia.
- (x) Asthma is the commonest chronic respiratory disease amongst the travelling public. It is important to remind patients to keep their medication, including inhalers and reserve oral steroids, with them in hand luggage.
- (xi) Pulmonary hypertension symptoms may be seriously aggravated in flight.
- (xii) Children with cystic fibrosis are liable to marked oxygen desaturation (<90%) during flight; consider aerosolized enzyme deoxyribonuclease pre- and in-flight to reduce sputum viscosity, and pulse oximetry to monitor PaO₂.

Additional Investigations for Clearance Of Invalid Passengers

- (i) Prior assessment with pulmonary function tests and blood gas analysis required. PaO₂ may be measured while breathing a mixture simulating cabin environment at altitude: if PaO₂ is less than 55mmHg (7.315 kPa) oxygen is likely to be needed. In practice if passenger can walk 50 yards or climb one flight of stairs without severe dyspnoea, difficulties are unlikely.
- (ii) Raised arterial PCO₂ indicates poor pulmonary reserve and increased risk even with in-flight oxygen.
- (iii) **Oxygen Requirements. As a thumb rule, every litre of oxygen inhalation raises the alveolar oxygen saturation by 5 mm Hg; 4 l/min can raise the PAO₂ by roughly 20 mm Hg. If this is unable to meet the oxygen saturation required, consider deferring the date of travel or travel with medical / para-medical escort.**
- (iv) In case of doubt or long haul flights (more than 8 hours), consider asking for a paramedical / medical escort or break up flight in to short sectors with adequate rest and if required, consult a physician in an intermediate station.

EAR NOSE & THROAT:

- (i) Surgeries involving opening of inner ear e.g. stapedectomy (risk of perilymph fistula); most surgeons advise wait at least 2 weeks.
- (ii) Middle ear effusions, infections and acute sinusitis, until resolved.

Additional Investigations For Clearance Of Invalid Passengers

- (i) Consider travelling with long acting anti-allergics and nasal decongestants, administered locally or systemically.

SURGERY INVOLVING INTRODUCTION OF AIR OR GAS

- (i) Laparoscopy and colonoscopy - till 24 hours elapsed and bloating absent.
- (ii) Surgery for retinal detachment with introduction of gas (for 2 weeks using sulphur hexafluoride, 6 weeks with perfluoropropane).
- (iii) Air introduced into skull incidentally following surgery or trauma: confirm reabsorption by X-ray or scan - or wait at least one week. Delay flying after spinal anaesthetic as air may have been introduced. Severe headache has been reported 7 days after spinal anaesthesia possibly from dural leak associated with lowered cabin pressure).
- (iv) Dental abscess and filling of tooth cavities, as it may be associated with gas production; travel may be deferred by 48 hours after the surgical procedure.
- (v) Fractures and subsequent application of POP cast may travel at least 48 hours after the cast is applied; expansion of trapped air in the POP cast may cause neuro-vascular damage. It is **advisable to wait 24 hours after a plaster cast is applied before a flight of under two hours and 48 hours if the flight is longer (or bivalve the plaster).**

- (vi) Air and gas in body cavities expand in direct proportion to decreases in pressure, as described by Boyle's law. A cabin pressure equivalent to the pressure at an altitude of 1500 m results in expansion of air or gas volume by up to 30 percent. In healthy passengers, gas expansion causes only minor abdominal cramping or aural symptoms. However, passengers who have recently undergone surgical procedures are at increased risk for wound dehiscence in conditions that cause gas expansion. **Medical devices such as pneumatic splints, feeding tubes, urinary catheters, and cuffed endotracheal or tracheostomy tubes may be affected by the expansion of air or gas. Instillation of water rather than air can avert these problems.**

SKILLED MEDICAL ATTENTION LIKELY TO BE URGENTLY NEEDED

- (i) Unstable & Poorly Controlled Diabetes. The aircraft cabin environment does not affect diabetes itself. However, the disruption of the timing and nature of meals, and of strict medication dosing and scheduling, on long-haul flights (particularly across many time-zones), can present major challenges to the insulin-dependent diabetic and problems for others. The diabetic air traveller should obtain appropriate advice, and preferably written instructions to be kept on the person, before any flight.
- (ii) Significant Anaemia.
- (iii) Rapidly Progressive Renal Or Liver Failure
- (iv) Post-Operatively Following Any Major Surgery. Post-abdominal surgery patients have relative ileus for several days - risk of tearing suture lines, bleeding, and perforation. Discourage flight for 1-2 weeks (1 week if intestinal lumen not opened)

- (v) Peripheral Vascular Surgery in preceding 2 weeks (Risk of thrombosis affecting graft).

MISCELLANEOUS

- (i) After diving: single dives wait 12 hours; allow at least 24 hours after multiple dives or staged decompression.
- (ii) 'Ethical' contraindications: patients with infections may be a hazard to fellow passengers. Children with chickenpox may infect susceptible adults - with possibly even fatal results.
- (iii) Passengers with gruesome injuries / foul smelling infections e.g. gangrene, facial disfigurement may be advised to travel after control of infection / disease, as a matter of consideration for fellow passengers in commercial airlines.
- (iv) Pregnancy after 36 weeks, unless request accompanied by a certificate from the attending physician, certifying that air travel is unlikely to cause problems. However, escort by a physician will become required if traveling by aircraft within 14days of the expected confinement on international flights and within 7days of the expected confinement on domestic flights.
- (v) People with some eye conditions, and those who wear contact lenses, may be particularly affected by the dry cabin air and may need to use "artificial tears" when flying. Patients needing regular medication with eye-drops such as those with glaucoma or conjunctivitis are not at risk provided they maintain their medication throughout flight.

CHAPTER VII

GUIDELINES FOR CARRIAGE OF PSYCHIATRIC CASES

SOPs' for air transportation of psychiatric patients are a necessary requirement, to reduce the probabilities of their becoming a threat to the safety of the flying public, aircraft or crew. Mentally challenged, for whom a competent medical authority has determined the need of an escort, should not be carried unless the following conditions are met.

The air carrier should be furnished the following information at least 48 hours before planned departure, in addition to MEDIF. In an emergency, the airlines should be notified as soon as practical.

- (i) Assurance by competent medical authority that a mentally challenged passenger accompanied by an escort can be transported safely.
- (ii) The escorted person should be adequately sedated for the flight and does not have on or about his person or property an article that could be used as a deadly or dangerous weapon during flight.
- (iii) The escort is equipped with adequate restraining devices to be used in the event that restraint is necessary.
- (iv) The escorted person and escort (as far as possible) should be boarded before all other passengers and deplaned after all other passengers have left the aircraft.
- (v) Seated in the rearmost passenger seats that are not located next to or directly across from any aircraft exit.
- (vi) The captain and the IFS need to be advised in advance, that an escorted mentally challenged passenger is being transported.

- (vii) The escort and the psychiatric case shall be seated together and not on adjacent seats separated by the aisle or another passenger.
- (viii) At all times accompany the escorted person and keep him/her under surveillance; and make a personal inspection of the restroom / lavatory prior to its being used by the patient and determine from the cabin attendant the best means to unlock the lavatory door from the outside.
- (ix) The air carrier should not serve food or beverages, or provide sharp cutlery, to an escorted person unless authorized by the escort.
- (x) The air carrier should not serve alcoholic beverages to an escort, or the person being escorted.

Persons escorting mentally challenged passenger are urged to follow the additional procedures below:

- (i) Arrive at the airport with the patient in sufficient time before flight departure to assure a smooth process of ticketing, security check and early boarding.
- (ii) In the event of an interline connection, make certain that the connecting airline is advised in ample time to implement necessary special procedures.
- (iii) Escorts carrying any article that may trigger the security metal detector or require a search of carry-on baggage should request assistance from security/ airline personnel in clearing the passenger screening point.
- (iv) Brief cabin crew members regarding the handling of a patient in the event of an occurrence that might affect safety of the occupants.