

# BRITISH MEDICAL JOURNAL

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We may return unduly long letters to the author for shortening so that we can offer readers as wide a selection as possible. We receive so many letters each week that we have to omit some of them. Letters should be typed with double spacing between lines and must be signed personally by all their authors, who should include their degrees. Letters critical of a paper may be sent to the authors of the paper so that their reply may appear in the same issue.

Correspondents should present their references in the Vancouver style (see examples in these columns). In particular, the names and initials of all authors must be given unless there are more than six, when only the first three should be given, followed by *et al*; and the first and last page numbers of articles and chapters should be included.

## Dangers of transporting sick children by air

SIR,—Squadron leader Richard Harding and Dr F John Mills warn in their book *Aviation Medicine*<sup>1</sup> that patients who are transported by air may become acutely ill when subjected to the different physiological conditions of flight. Yet specialised medical expertise is not available in some countries, and critically ill children may need to be urgently transferred by air. Our hospital, Hillingdon Hospital, is close to London's Heathrow Airport, and we describe two children whose medical condition deteriorated as a direct result of flying.

A 10 month old Indian girl was born with cyanosis, and investigation showed that she had severe pulmonary stenosis with systemic pressures in the right ventricle and a right to left shunt at atrial level. She had no further treatment until she deteriorated with increasing cyanosis and heart failure. She was then transferred with only a nurse escort on a scheduled flight. Some five hours before arrival in London she became deeply cyanosed with laboured respiration, and she was given 100% unhumidified oxygen by face mask by a doctor who was a passenger. She continued to London and was transferred by ambulance to this hospital.

On arrival she was grossly cyanosed, plethoric, and had gasping respirations at a rate of 12 a minute. Cardiovascular examination showed a single second sound and a soft systolic ejection murmur in the pulmonary area. Blood pressure was unrecordable. A severe hypoxic episode was diagnosed. Resuscitation included intubation and manual ventilation. An initial intramuscular injection of morphine was given followed by intravenous morphine, propranolol, sodium bicarbonate, plasma, and an infusion of noradrenaline. A blood gas estimation showed a pH of 7.0, an oxygen pressure of 4 kPa (30 mm Hg), a carbon dioxide pressure of 6 kPa (45 mm Hg), a bicarbonate concentration of 16 mmol(mEq)/l, and a base deficit of -8 mmol(mEq). With treatment her cardiac output improved and she became more awake. She was transferred to the cardiothoracic

centre where she underwent open valvotomy and has since done very well.

An 11 year old boy sustained a subdural haematoma after a road accident in which his parents were killed. After prolonged intubation and unsuccessful attempts at extubation a tracheostomy was performed. He was transferred to Britain unescorted on a scheduled flight for tracheal reconstruction. During the flight he developed increasing respiratory obstruction, and unhumidified 100% oxygen was given by a doctor passenger on the flight. He was transferred urgently to this hospital, where on arrival he was distressed and cyanosed, and had appreciable intercostal recession. He had a thick mucous plug obstructing the tracheostomy tube. After lavage he recovered.

We present these two cases to highlight avoidable factors. In the first case the child was already hypoxaemic and polycythaemic with an appreciably reduced pulmonary blood flow, and yet she was exposed to a low ambient inspired oxygen due to the cabin pressure being maintained at a pressure equivalent to that at about 1800-2400 m. The reduced oxygen pressure leads to a fall in alveolar oxygen and tissue hypoxia and a consequent fall in pulmonary blood flow due to acidosis. The low relative humidity, which decreases as the flight progresses, results in increased evaporative water loss and subsequent dehydration and makes worse the polycythaemia.

In the second case the dehydration combined with inadequate tracheostomy care led to increased mucous plug formation and so obstruction. Treatment with humidified oxygen would have ameliorated the condition of both children, but the first case required a higher than normal alveolar oxygen pressure, which was unavailable on the flight.

Two further children with congenital heart disease who deteriorated on planes, one of whom died at the airport, have been seen by

our unit within the last year. The deterioration and death could possibly have been avoided. We suggest that if a child with a low arterial oxygen pressure must fly a suitable face mask to deliver humidified oxygen must be provided and extra fluids must be given, as recommended by the Commission on Emergency Medical Services.<sup>2</sup> Furthermore, we think cardiothoracic referral centres and airlines should give specific guidance for their patients.

Our thanks to Dr S M Tucker and Dr P Jaffe for allowing us to report children under their care.

ANDREW RAFFLES  
BARBARA STEWART

Hillingdon Hospital,  
Uxbridge,  
Middx UB8 3NN

<sup>1</sup> Harding RM, Mills FJ. *Aviation medicine*. London: BMA, 1983.

<sup>2</sup> Commission on Emergency Medical Services. Medical aspects of travel. *JAMA* 1982;247:1007-11.

## Payments to doctors and the responsibilities of ethics committees

SIR,—We are the two lay—that is, non-medical—members of an ethics committee that had, some time earlier, unanimously come to the same conclusion as the General Medical Council on the need to disclose to ethics committees payments to doctors from pharmaceutical companies.<sup>1</sup> We were therefore surprised to read the letter from Dr John G Ball and Dr Eric S Snell (17 December, p 1884).

We are deeply disturbed that both the General Medical Services Committee and the Association of the British Pharmaceutical Industry, by rejecting the GMC recommenda-