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SEVERE PULMONARY EMBOLISM ASSOCIATED WITH AIR TRAVEL

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ABSTRACT

Background Air travel is believed to be a risk factor for pulmonary embolism, but the relation between pulmonary embolism and distance flown has not been documented. The aim of this study was to investigate whether the duration of air travel is related to the risk of pulmonary embolism.

Methods From November 1993 to December 2000, we systematically reviewed all cases of pulmonary embolism requiring medical care on arrival at France's busiest international airport. Data on the geographic origins of all flights and the numbers of passengers were collected in order to evaluate the incidence of pulmonary embolism per million passenger arrivals as a function of the distance traveled.

Results A total of 135.29 million passengers from 145 countries or other areas arrived at Charles de Gaulle Airport during the period of the study, of whom 56 had confirmed pulmonary embolism. The incidence of pulmonary embolism was much higher among passengers traveling more than 5000 km (3100 mi) (1.5 cases per million, as compared with 0.01 case per million among those traveling less than 5000 km). The incidence of pulmonary embolism was 4.8 cases per million for those traveling more than 10,000 km (6200 mi).

Conclusions A greater distance traveled is a significant contributing risk factor for pulmonary embolism associated with air travel. (N Engl J Med 2001;345:779-83.)

AIR travel is considered a risk factor for pulmonary embolism and has been termed "economy-class syndrome."[1,2] Immobility, aggravated by the limited space in economy class, is assumed to be responsible for this risk. Whereas the number of air passengers continues to increase, the relation between pulmonary embolism and the distance traveled by air has not yet been sufficiently investigated.[3,4] Roughly 100 cases of pulmonary embolism occurring after air travel have been reported during the past three decades.[1,2,5-23] Most of these reports were based on small numbers of patients, included cases of both deep venous thrombosis and pulmonary embolism, or included poorly documented cases. We therefore undertook a more comprehensive evaluation of this association.

To test the hypothesis that a greater duration of air travel is a risk factor for pulmonary embolism, we systematically reviewed all documented occurrences of pulmonary embolism requiring medical care on arrival at France's busiest international airport.

METHODS

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