Introduction

Long haul flights are a well-documented risk factor for pulmonary embolism (PE) [1]. The incidence has been reported as being between 0.2-0.4 per million long haul passengers [2,3]. Furthermore, the incidence of PE in passengers travelling over 5000km has been shown to be significantly greater than in those travelling less than this (1.5 vs 0.01 per million passengers) [4].

The Hillingdon Hospital is the main receiving hospital for medical emergencies from Heathrow, the world’s busiest airport by international passenger traffic with over 66 million journeys annually. We observed in our practice that a large number of patients were presenting with PE and associated haemodynamic instability immediately following a long haul flight and often in the absence of additional predisposing factors.

Aim

We aimed to characterise the clinical risk factors and presenting symptoms of long haul associated PE compared with PE within the local population.

Method

We retrospectively selected all patients presenting between April and July 2013 to THW with PE confirmed by imaging (CT pulmonary angiogram or ventilation/perfusion scanning). A comparison was made between those cases arriving immediately after a long haul flight (LHF) and those from the local population (LP) to assess variability in risk factors and presenting features of PE.

Based on Heathrow Airport’s traffic statistics [6] for long haul arrivals in 2012 we calculated the incidence of long haul flight related PE during the study period. We defined a long haul flight as that lasting 6 or more hours. Recognised risk factors for PE were defined as per national guidelines [5].

Results

30 patients were admitted with PE during our study period; 14 were in the LHF and 16 in the LP groups (figure 1).

The LHF group had fewer recognised PE risk factors per patient (1.1 versus 1.9), with most patients (71%) having only one. In the LP group, 63% of patients had two or more recognised risk factors (figure 2). Figure 3 shows the breakdown of risk factors in each group.

Shortness of breath was the primary presenting complaint in both groups (50% LHF, 69% LP). Cardiovascular compromise resulting in dizziness/collapse (n=4) or cardiac arrest (n=2) occurred in the LHF group but not in the LP group (figure 4).

Discussion

There were fewer risk factors per patient in the LHF group. With the exception of age, most passengers had no additional risk factors other than the immobility associated with long haul flying. This reaffirms that long haul flying is an important independent risk factor for PE. Therefore it is difficult to predict who is at risk.

The presenting symptoms in the LHF group were more severe than those in the LP group. Within the LHF group there was a greater proportion of symptoms indicating haemodynamic compromise, including collapse and cardiac arrest. This suggests that the passengers presenting to Hillingdon hospital with PE following a long haul flight may only be the “tip of the iceberg” in terms of total flight associated PE. Patients with less severe symptoms or those with delayed onset of symptoms may present later to their local hospitals.

Our calculated incidence of long haul related PE was 2.3 per million which is significantly greater than previous estimates.

The main limitation of our study was a small sample size. However, this pilot study was intended to be an initial snapshot which we are now planning to expand to better enable us to draw firm conclusions.

Conclusion

Our study shows that patients presenting to us with flight associated PE have fewer risk factors than those presenting from the local population. This make it very difficult to predict those at risk of developing flight associated PE. Every traveller on long haul flights should be aware of the risk and take necessary precautions.

References