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Title: COPD and air travel: Does hypoxia-altitude simulation test predict in-flight respiratory symptoms?

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Body: The reduced pressure in the aircraft cabin may cause significant hypoxaemia and respiratory symptoms in patients with chronic obstructive pulmonary disease (COPD). The current study evaluated whether there is a relationship between hypoxaemia obtained during hypoxia-altitude simulation testing (HAST), simulating 2438 m altitude, and the reporting of respiratory symptoms during air travel. Eighty-two patients with moderate to very severe COPD answered an air travel questionnaire. Arterial oxygen pressures during HAST ($PaO_{2\ HAST}$) in subjects with and without in-flight respiratory symptoms were compared. The same questionnaire was answered within one year after the HAST. Mean $PaO_{2\ HAST}$ was 6.3 (0.6) kPa, and 62 (76%) of the patients had $PaO_{2\ HAST}$ <6.6 kPa. Thirty-eight patients (46%) had experienced respiratory symptoms during air travel. There was no difference in $PaO_{2\ HAST}$ in those with and those without in-flight respiratory symptoms (6.3 (0.7) kPa vs. 6.3 (0.6) kPa, respectively, (p=0.93)). Fifty-four patients (66%) travelled by air after the HAST, and patients equipped with supplemental oxygen (n=23, 41%) reported less respiratory symptoms when flying with than without such treatment (4 (17%) vs. 11 (48%), p=0.04). In conclusion, no difference in $PaO_{2\ HAST}$ was found between COPD patients with and without respiratory symptoms during air travel.