**Title:**

Air travel and cystic fibrosis: An algorithm to assess the risk of In-Flight hypoxemia

**Lay Title:**

Flying with Cystic Fibrosis: A Simple Tool to Assess Fitness for Air Travel

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**What was your research question?**

Can an existing test designed for patients with chronic obstructive lung disease (COPD) be used to determine if adults with cystic fibrosis (CF) are fit to travel safely by air?

**Why is this important?**

During commercial flights, the oxygen pressure inside the aircraft cabin is lower than at sea level. For some individuals with lung diseases like CF, the reduced oxygen pressure can lead to low oxygen levels in the blood (hypoxemia), which can be a health hazard. Therefore, it is important to predict which individuals with CF are prone to develop severe hypoxemia during air travel, in order to equip them with supplemental oxygen for the flight. Our research group has previously developed a simple algorithm for this purpose, but it has only been validated for patients with COPD. Since persons with CF also travel regularly by air, it is important to have a simple and reliable test for predicting in-flight hypoxemia in this group, as well.

**What did you do?**

Seventy-nine adult patients with CF participated in the study of whether a previously developed pre-flight assessment algorithm for COPD patients could identify which persons with CF could fly safely, who should be equipped with supplemental oxygen during flights, and who should undergo more advanced pre-flight testing. By use of a finger probe (finger oximetry), the participants’ blood oxygen level was measured while resting, during a six-minute walk test, and while breathing a gas mixture with a similar oxygen content as in an air craft cabin (hypoxia-altitude simulation test (HAST)).

**What did you find?**

We found that the pre-flight assessment algorithm developed for COPD patients had an excellent ability to identify which persons with CF could travel safely without supplemental oxygen, who should be equipped with supplemental oxygen during flights, and which persons with CF should be referred to more advance preflight testing with HAST. Less than one third of the participants would be in need of further pre-flight testing.

**What does this mean and reasons for caution?**

This study indicates that a simple, accessible test regime with finger oximetry at rest and while walking can help healthcare providers make informed decisions about air travel safety for adults with CF, reducing the need for more expensive and time-consuming tests. However, some patients may have borderline results that require further pre-flight testing.

**What’s next?**

Future research will focus on validating this tool in larger groups of persons with CF, including more individuals receiving treatment with modern modulator medication. The pre-flight algorithm can be incorporating into routine clinical care to help people with CF travel safely by air.

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