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Fit to Fly? Older Adults and Air Travel

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As more older adults travel on commercial airliners, it is important to recognize and help prevent air travel-related medical complications. While the vast majority of older adults travel without incident, clinicians should consider several key issues when providing care for jet-setting older adults (Table 1). Those with recent hospitalization, injury, or surgery should seek medical consultation at least 10 days before flying. For those with complicated cardiopulmonary problems or planning foreign travel, referral to a travel medicine specialist may be helpful.

using oxygen. A widely used approach is to perform a pre-flight evaluation that includes pulse oximetry to assess oxygen saturation. Patients with an oxygen saturation >95% at sea level may fly without any further assessment. Patients with an oxygen saturation between 92–95% at sea level should have supplemental in-flight oxygen if they have additional risk factors including hypercapnia, lung cancer, cardiac disease, or an FEV1 <50% of predicted.

Patients with an oxygen saturation at sea level <92% should typically always have in-flight oxygen regardless of the presence or absence of complicating conditions.

Airline passengers who require oxygen are not typically permitted to bring their own oxygen on board the plane. Oxygen concentrators may be permitted, but it is important to check with specific airlines. Patients should plan to contact the airline at least 7 days before departure to inquire about policies and make arrangements for oxygen to be available for them. Charges associated with providing the oxygen most often range from \$100-\$250, but can be as high as \$1000 depending on the airline and flight duration.

Air Travel with Other Respiratory Tract Disorders

Patients with bullous emphysema are at increased risk for pneumothorax during air travel. While not a specific contraindication to air travel, patient with this condition should be aware of the risk and be able to recognize the symptoms of pneumothorax should they occur.

For patients with a known pneumothorax, air travel is considered unsafe and should be avoided. Air travel is also considered unsafe for patients with severe asthma or asthma that recently required hospitalization. Patients with severe middle ear infections also should not fly. In addition, patients diagnosed with pulmonary hypertension, and especially those requiring oxygen, are at increased risk of hypoxemia and should have an evaluation with their physician prior to travel.

Table 1. Key issues in Evaluating Fitness to Fly

- Pulmonary status - need for oxygen
- Cardiopulmonary contraindications to air travel
- Risk for venous thromboembolism
- Immunizations for foreign travel
- Sufficient supply of medications
- Cognitive status
- Travel insurance for medical care and evacuation
- Airport accommodations (wheelchairs, etc.)

Oxygen Pressures During Air Travel

An important stressor associated with air travel is the low oxygen level in the airplane cabin. With cabin pressures the equivalent of an elevation of 6000-8000 ft above sea level, there may be only 15% oxygen in an airplane cabin instead of the 21% found at sea level. These low oxygen levels may cause arterial oxygen desaturation, resulting in worsening of pulmonary or cardiac conditions. Fluctuations in oxygen level can also cause changes in cognitive status.

Air Travel with Chronic Obstructive Lung Disease

Patients with chronic obstructive pulmonary disease are at risk for hypoxemia due to decreased oxygen in the aircraft cabin. Patients already on supplemental oxygen should increase in-flight oxygen flow by 1-2 liters/minute.

There is some debate about how to determine the need for in-flight oxygen supplementation for patients not already

TIPS FOR ADVISING OLDER ADULTS ABOUT SAFE AIR TRAVEL

- Recommend against air travel for patients with active cardiac conditions, like recent myocardial infarction, unstable angina, uncontrolled hypertension or arrhythmias, severe symptomatic valve disease, or recent bypass surgery
- Recommend compression stockings during long flights for patients with a history of, or risk for, venous thrombosis.
- Check the CDC website for immunization recommendations; and bring extra medication to avoid running out.
- For patients with chronic lung disease who are planning air travel, check pulse oximetry and recommend in-flight oxygen to any patient with an oxygen saturation less than 92%, and also for patients with an oxygen saturation between 92-95 percent if they have hypercapnia, lung cancer, cardiac disease, or an FEV1 below 50% of predicted.

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Air Travel with Cardiovascular Disease

Altitude increases the need of the myocardium for oxygen, but evidence exists that patients without active cardiac disease can safely handle altitudes of up to 11,000 ft. Since commercial flights are pressurized to 6000-8000 ft, older adults with stable cardiovascular disease should be able to fly without risk. However, air travel is considered unsafe and should be avoided by patients with any of the conditions listed in Table 2.

Table 2. Cardiovascular Conditions That Preclude Air Travel

- unstable angina
- uncomplicated myocardial infarction (MI) within the past 2-3 weeks or complicated MI within the past 6 weeks
- uncontrolled hypertension
- coronary artery bypass surgery within the past 10-14 days
- severe compensated heart failure
- severe symptomatic valvular heart disease
- uncontrolled supraventricular or ventricular tachycardia

Air Travel and Venous Thrombosis

There is a 3-fold increase in the risk of venous thromboembolic (VTE) disorders with air travel, and there is a direct correlation between the length of a flight and risk of VTE. Among air travelers over age 50 years, the risk of VTE is approximately 1 in 600 for flights with a duration of more than 4 hours, and 1 in 500 for flights over 12 hours. The risk of pulmonary embolism is 4.8 per million in flights over 12 hours. There are no recommendations, however, that patients use prophylactic aspirin, anticoagulants, or other interventions to prevent air travel-associated VTE if they have no history of or increased risk for VTE. However, selecting an aisle seat will allow frequent walking during a flight; calf muscle stretching may also be of benefit.

But, for patients who have had VTE or have risk factors for VTE, evidence supports the use of graduated compression stockings to prevent VTE during flights longer than 4-6 hours. A meta-analysis of studies involving more than 2,500 long-distance air passengers, many of whom had risks for VTE, found that VTE occurred in 0.2% of those using compression stockings compared to 3.7% in control passengers who did not use them.

References and Resources

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Immunizations and Medications

Clinicians should be prepared to provide advice on recommended immunizations for patients planning foreign travel. The Centers for Disease Control and Prevention provides recommendations about immunizations on its travel website at wwwnc.cdc.gov/travel/page/vaccinations.htm.

For foreign travel, patients generally should bring enough medication to last at least 2 weeks longer than they plan to be away. Medications should be in carry-on luggage, and injectable medications should be in original labeled containers. Airlines cannot refrigerate medications; those requiring refrigeration should be in a cool bag or vacuum flask that is TSA-approved.

Air Travel for Persons Living with Dementia

During early stages of dementia travel can still be enjoyable for patients and their caregivers, but as the disease progresses it often becomes more challenging and unsafe. Even in early stages, drastic environmental changes can lead to wandering behaviors. Avoid tight connecting flights; travel during daylight if possible; and follow the other general precautions highlighted throughout this issue of *Elder Care*. Consider companion or family restrooms if toileting is difficult, and accompany the individual at all times in the airport, especially around security.

Travel Insurance

Advise patients to consider travel insurance that includes air evacuation to the U.S. in case of an unforeseen medical illness. This type of insurance can be particularly important for international travelers with active medical problems.

Airport Accommodations

Patients, especially those with arthritis, chronic pain, or deconditioning, should consider taking advantage of airline and airport services. For example, skycaps can assist with heavy luggage, and in-airport shuttles can aid in transportation between connecting gates. Wheelchairs are available by federal law at no charge to passengers who need them; contacting the airline in advance of travel will assure that a wheelchair is ready and waiting. Similarly, if meals will be offered during a flight, special dietary meals may be ordered in advance.

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