

Travel-associated venous thrombosis

Evidence for association between travel and thrombosis

A number of prospective, retrospective, and case control studies have looked at the association between travel and VTE:

- Long duration of travel is a risk factor for the development of VTE. Risk is increased 2-3 fold after flights of more than four hours. This is a higher risk than other modes of transport where there is prolonged seating and immobility.
- Severe symptomatic PE immediately after travel is extremely rare after flights of less than eight hours. For flights more than 12 hours, the rate is five per million.



Deep Vein Thrombosis (DVT)

A condition involving development of a thrombus (blood clot) in the deep veins, usually in the lower leg. Part of the clot can break off and travel to the lungs, causing a Pulmonary Embolism (PE), which can be life threatening.

A venous thromboembolism (VTE) refers to DVT, PE or both.

VTE can result from long periods of immobility, which slows the blood flow from the lower legs. Pressure on the vein in the back of the knee, such as from a seat during prolonged travel, can be another factor in reduction of blood flow and clotting.

VTE has been reported following long car and train journeys, as well as air travel.

Risk factors

The risk of travel-associated thrombosis is higher where there are pre-existing risk factors for development of VTE.

Highest thrombosis risk:

- Major surgery in previous 4 weeks
- Active malignancy undergoing chemo-radiotherapy in previous 6 months, awaiting surgery or chemo-radiotherapy or in palliative phase
- Previous unprovoked VTE no longer on anticoagulation
- Previous travel-related VTE and no associated temporary risk factor
- More than one intermediate risk factor

Intermediate risk:

- Pregnancy, or up to 6 weeks post-partum
- Family history of DVT or PE in a close family member
- Aged over 60 years
- Extremes of height (taller than 1.90m or shorter than 1.60m)
- Inherited blood-clotting abnormalities
- Large varicose veins or chronic venous insufficiency
- Limited mobility (e.g. a lower limb fracture in plaster)
- Obesity (BMI > 30)
- Polycythemia
- Previous DVT or PE
- Recent surgery or trauma, particularly to the abdomen, pelvic region, or legs
- Thrombophilia (such as factor V Leiden or antiphospholipid syndrome)
- Thrombotic states such as heart failure, recent heart attack, severe infection, Inflammatory Bowel Disease
- Oral contraceptives or HRT

Low risk:

- No pre-existing risk factors

Recommendations for prevention of travel-associated VTE

For all travelers, if traveling by road or air for more than 4 hours, it is recommended to maintain mobility by walking around at regular intervals during the journey. Regularly flexing and extending the ankles encourages blood flow from the lower legs. It is also a good idea to wear loose clothing and comfortable footwear.

For travelers in the intermediate and high risk categories, compression stockings are recommended that provide 15-30 mmHg pressure at the ankle. These can be brought over the counter at a pharmacy.

They need to be correctly fitted to provide adequate compression and this can be discussed with a nurse or pharmacist. Poorly fitted stockings can cause discomfort and in extreme cases, affect the blood circulation of the leg.

For travelers in the high risk category, use of a prophylactic dose of an anticoagulant may be indicated. This may be a dose of low molecular weight heparin, which is given as an injection under the skin, or an oral anticoagulant. There is good evidence that aspirin is useful in preventing arterial thrombosis, but it is not recommended for the prevention of VTE during travel. This should be on the advice and prescription of a suitable medical practitioner.

Pregnant travelers

For flights of more than four hours, pregnant travelers should wear graduated compression stockings that are suitably fitted, and follow the general measures for all travelers above.

Pregnant travelers with additional risk factors may be advised to have injections of low molecular weight heparin whatever the duration of the flight. These may be required on the day of the flight

and for a few days afterwards. A letter is required from the doctor prescribing these to enable the injections to be carried onto the plane.

Signs and symptoms

Some patients develop pain in the calf or thigh, with swelling and redness. The skin around the swelling can feel warm and be sore to touch. This usually occurs in one leg only. Sometimes a DVT can occur without symptoms.

You should see a doctor as soon as possible if you develop any of these symptoms, particularly following long-haul travel.

A PE can result in sudden onset of shortness of breath and chest pain. A PE can be life threatening and these symptoms should be reviewed straight away at a hospital.

Always call the Everbridge Assistance line if help is required with medications or any medical issues during travel.

Diagnosis and treatment

If a doctor thinks you might have a DVT, you should be referred to hospital within 24 hours for an ultrasound scan of your leg. A blood test (D-dimer) can be used to aid diagnosis.

If a DVT is diagnosed, treatment with anticoagulants such as low molecular weight heparin injections and an oral anticoagulant such as warfarin or rivaroxaban is usually commenced. This is usually continued for 3-6 months.

If symptoms develop whilst overseas on business travel, please ensure medical assessment and treatment is sought prior to any return travel or flights. Prior to flying, travelers should be stable on treatment and cleared by their doctor.

If you have any questions about prevention of VTE or have any concerns regarding any symptoms you have, the Everbridge clinical team is available 24/7 to discuss these with you.

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