



(DVT) Deep venous thrombosis and travelling

The exact incidence of symptomatic venous thrombo-embolic problems during long-distance flights is unknown. It is not yet clear if an elevated risk exists for healthy persons without risk factors.

Over the last years studies have shown that in general there is an elevated risk of symptomatic deep venous thrombosis with risk of complications such as potentially lethal lung emboluses during long-distance flights from 4 hours: 1/5.000 travellers, in accordance to the incidence in the general population, it would mean an elevation with at least a factor 2 to 4. Although not confirmed by all studies, a strongly elevated risk with pre-existing risk factors clearly exists (see further). The risk also increases with travelling time, certainly when longer than 10 hours or more than 10.000 km. Some authors claim that at least 5 % of all venous thrombo-embolic problems are related to travelling.

Over the coming years the current studies should provide us with more precise information.

The prolonged immobility (very likely although not certainly enhanced by a limited sitting place) during flights is responsible for the creation of venous stasis. Other factors such as dehydration and low oxygen content may be leading causes, but recent studies don't confirm these hypotheses. The term "economy class syndrome" is not correct and should not be used anymore; the problems may also arise in travellers who booked "business class", or in those travelling by car, bus or train: the term "travel related thrombosis" is therefore preferred by the WHO.

DVT and/or PE symptoms do not always occur immediately. They can appear from within a few hours to 2 weeks after arrival, the risk remaining elevated until 8 weeks after return.

Different pre-existing factors are advanced as risk factors (based on the directives of WHO 2007 and CDC 2007):

- a personal anamnesis of deep venous thrombosis or lung embolisms; an anamnesis of deep venous thrombosis or lung embolisms in a relative in the first degree
- the use of oestrogen (oral contraceptives; menopausal complaints);
- pregnancy and the first month post natal;
- recent surgery or trauma, especially in case of surgery of the abdomen or of the lower limbs;
- cancer;
- congenital or acquired increased blood clotting;
- obesity

Severe chronic venous insufficiency (varicose veins); congestive heart failure; recent long-lasting immobilization; age above 40 years (the risk increases with the age and is especially elevated at elderly age); severe dehydration due to gastroenteritis, etc are furthermore quoted. But also minor injuries and acute infections in a community setting are possible causes.

Persons with one or more of these risk factors are recommended to gain medical advice before undertaking a long journey (> 3-4 hours).

A study in Lancet (May 2001) shows that asymptomatic deep venous thrombosis occurs not unfrequently: it was discovered in 12 % of the travellers who flew for more than 8 hours. Asymptomatic deep venous thrombosis generally disappears spontaneously without consequences.

In the same study, no deep venous thrombosis was reported in travellers wearing support stockings. For now no scientifically based preventive recommendations can be given to the general public (lack of good studies), except for the general recommendation to stretch the legs regularly during a long-distance flight.

The following is advised (WHO, CDC, 2007):

- Wear loose, comfortable clothes;
- Keep the leg/foot space underneath the seat of the passenger in front of you empty (no hand luggage) in order to facilitate leg movements;
- Change position regularly and exercise the lower limbs a few times per hour (on board specific instructions are offered by many airplane companies);
- If possible, stand up and walk around regularly (problem: turbulences);
- Although sufficient intake of (non-alcoholic) beverages during long-distance flights are recommended to avoid dehydration, the role of it in the prevention of deep venous thrombosis is uncertain. Although the air in the plane is dry, it is not the cause of deshydration. Drinking large volumes forces the passenger to stand up regularly (every 2 to 3 hours) to go to the toilet, which may induce a favorable effect.
- CDC as well as WHO formally advice against the use of aspirin as a preventive measure against “travel related thrombosis”.

Persons with **significant to strongly elevated risk of flebothrombosis** need to take **supplementary precautions** in case of long-distance flights:

- Wear specially adapted support stocking up to the knees;
- For persons with a anamnesis of deep venous thrombosis and other high-risk persons, the only logical medicinal approach is the subcutaneous administration of one preventive dose of a low-molecular weight heparine before a long-distance flight (at least 2-6 hours before departure). (This should be kept at room temperature and the subcutaneous injection can be explained from the doctor to the patient). These recommendations also apply for long haul bus trips, f.ex. with a night bus. Limited studies have shown a favorable effect.
- Aspirin is not mentioned here (CDC, WHO). Aspirin has indeed a proven risk reduction of 30% for DVT and possibly 50% for fatal PE in the postoperative period. The advice to start with aspirin a few days before departure, is controversial, because the preventive effect is probably a lot lower than 30% and furthermore there is a risk for side effects which could not be underestimated (potential serious stomach bleedings, especially – but not exclusively – with patients with previously existing erosive gastritis or ulcerations, combination with alcohol, etc.)