DVT and Economy Class Syndrome

Troy Perkins
Otterbein University, troy.perkins@otterbein.edu

Follow this and additional works at: https://digitalcommons.otterbein.edu/stu_msn

Part of the Cardiovascular Diseases Commons, Medical Pathology Commons, and the Nursing Commons

Recommended Citation
Perkins, Troy, "DVT and Economy Class Syndrome" (2014). Master of Science in Nursing (MSN) Student Scholarship. 58.
https://digitalcommons.otterbein.edu/stu_msn/58
Pathophysiological Processes

Venous stasis, anatomic narrowing (e.g., inflamed valves in the deep veins of the leg), and conditions that cause the blood to pool in the veins is the least space allotted per passenger. It is uncommon in one's medical career to account for eight or more hours in an environment that require many hours of travel. Travel is one of the conditions that provide an environment for increased risk of clot formation. During a flight a passenger may have a window seat and cannot get up and move around. A flight attendant serving food and beverages, thereby blocking the aisle limits the opportunity for a passenger to get up and move around. The cabin environment on an airplane can expose a passenger to a hypobaric hypoxic state which may limit the opportunity for a passenger to exercise, thereby increasing the risk for DVT formation occurring during travel.

Reference

- Venous stasis, vessel wall injury - hypercoagulability - hypobaric hypoxic state - decreased seat space - leg room - space also leading to poor venous return and poor venous return and return to the legs that may occur only while traveling long distance travel.

Signs and Symptoms

- Pain or tenderness in one or both legs that may be only while standing or walking
- Tugging or tightness in the affected leg when walking
- Leg fatigue
- Increased swelling in the affected leg
- Warmth in the skin of the affected leg
- Vein distention in the affected leg

Figure 2. Venous Thrombosis: Thrombosis formation occurs in one of the three aspects of the travel. (Photo adapted from www.isms.org)

Figure 3. Anyone can be at risk for developing a DVT while traveling long distances. (Photo adapted from US National Blood Clot Alliance http://stoptheclot.org)

DVT formation can be found under many circumstances. Long distance travel is one of the conditions that provide an environment for increased risk of clot formation. During a flight a passenger may have a window seat and cannot get up and move around and so to inconvenience a passenger next to them leading to venous stasis. In addition, a passenger may fail to loosen in the limited space allotted per passenger and one’s legs especially tend to be immobilized for lack of leg room (Mednachef, 2012). Developing a DVT can cause physical discomfort and even life-threatening illnesses such as venous thromboembolism, pulmonary embolism, or myocardial infarction. There are many circumstances leading to an extended period of immobility and an increased risk of DVT formation occurring during travel.

Prolonged periods of inactivity caused by space limitations may slow circulation and produce edema (leg swelling). In addition, heat losses comprized the popliteal vein (the deep vein behind the knee), creating a potential site for clot formation over time. Loss oxygen, loss humidity (dry air), and low cabin pressure at high elevations have a depolymerizing effect that concentrate the blood, making it sluggish. The cabin environment on an airplane can expose a passenger to a hypobaric hypoxic state which may activate the clotting system. There are many studies that have shown an increase in the activity of clotting factor VII, VIII, and of D-dimer concentration from this type of environment. (Schejaer, 2006)

Underlying Pathophysiologic Leading to DVT formation

- Venous stasis – decreased seat space – leg room
- Hypercoagulability - dehydration, hypothermia, or fever
- Blood vessel injury - hypercoagulability, hypocapnic state

Underlying Risk Factors for development of DVT

DVT can potentially affect anyone, however, a variety of risk factors can increase your risk of developing a DVT. It is important to identify patients or individuals who may be at high risk for DVT. By using the risk factors that were discussed above, venous stasis combined with air travel can increase the likelihood of DVT formation.

- Pain or tenderness in one or both legs that may be only while standing or walking
- Tugging or tightness in the affected leg when walking
- Leg fatigue
- Increased swelling in the affected leg
- Warmth in the skin of the affected leg
- Vein distention in the affected leg
- Red or bluish discoloration of skin in the affected leg
- A DVT can feel like a pulled muscle, cramp or "charley horse" in the affected extremity

**Signs and symptoms of DVT usually occur faintly only in the affected extremity, while some patients may experience no symptoms at all.**

Figure 4. DVT formation can lead to serious complications, including DVT and PE. (Photo adapted from www.pyroenergen.com)

DVT can be prevented, however, a variety of risk factors can increase your risk of developing a DVT. It is important to identify patients or individuals who may be at high risk for DVT. By using the risk factors that were discussed above, venous stasis combined with air travel can increase the likelihood of DVT formation.

- Pain or tenderness in one or both legs that may be only while standing or walking
- Tugging or tightness in the affected leg when walking
- Leg fatigue
- Increased swelling in the affected leg
- Warmth in the skin of the affected leg
- Vein distention in the affected leg
- Red or bluish discoloration of skin in the affected leg
- A DVT can feel like a pulled muscle, cramp or "charley horse" in the affected extremity

**Signs and symptoms of DVT usually occur faintly only in the affected extremity, while some patients may experience no symptoms at all.**