# Deep Vein Thrombosis

Three letters, DVT, can quickly become a medical emergency. DVT stands for Deep Vein Thrombosis and, along with Pulmonary Embolism, are the results of a blood clotting condition known as Venous Thromboembolism. *The Journal of the American Family Physicians* estimates the incidence of first-time Venous Thromboembolism is 100 per 100,000 person-years. Of these first time patients, roughly two-thirds will develop a DVT while the other third will present with a Pulmonary Embolism. This article will focus mainly on the risk factors, signs/symptoms, tests and treatments for DVT.

The risk factors for DVT fall into three categories. They are hypercoaguability, stasis and endothelial injury. Each one of these categories has specific examples and some risk factors will even fall into two of the three categories. Hypercoaguability can be seen in cancer, hormone replacement and oral contraceptive use. Stasis can be seen in bed rest greater than 3 days, long flights or car rides in excess of 8 hours and even with obesity. Endothelial damage, or damage to your blood vessels, can be seen with bone fractures, especially of the hip but also in knee replacement. Surgery is a great example of a risk factor that can fall into both the stasis and endothelial damage risk factors.

The signs and symptoms of a DVT can vary but there are some that are almost always present. You should look for swelling, redness and pain in your extremities. If the DVT has progressed to a pulmonary embolism, then you might also experience a cough, chest pain, shortness of breath or even a fever. Some patients can present with all or none of the aforementioned symptoms. It is always good to air on the side of caution, if you are experiencing any of these symptoms seek immediate treatment.

After a good history and physical exam, your health care provider will likely order a *D*-dimer if they suspect a DVT. This is a blood test that, if positive, could mean you have a DVT but can also be seen in other disorders. The reason a *D*-dimer is usually the first test ordered is due to its negative predictability. When a *D*-dimer is negative approximately 94 percent of patients will not have a DVT. A positive *D*-dimer will mean more testing. The next test to rule out a DVT of the extremities is an Ultrasound. This imaging is very useful in diagnosing a DVT. There are other studies that can be ordered but they tend to be less useful. They are also seldom ordered due to unavailability in the United States or because of the invasiveness of the test.

Once a diagnosis of DVT has been confirmed, treatment will begin. The overall goals of treatment are to prevent further clot growth, any new clot formation and to stop the progression to a Pulmonary Embolism. The mainstay of treatment is anticoagulation therapy with heparin and other anticoagulants like Coumadin (warfarin). The length of treatment on Coumadin (warfarin) is usually for a minimum of three months but can be longer. Other therapies can be thrombolytic thrombectomy and inferior vena cava filters but these are usually only for specific

types of DVTs. There are some new drugs that are being studied for possible treatment of DVT. They include dabigatran and rivaroxaban; however, more testing and trials are needed to insure they can be added to the treatment protocols for DVT.

In conclusion, Deep Vein Thrombosis is a medical emergency that requires immediate medical attention. If you have any of the above risk factors or questions about DVT, talk to your healthcare provider. They can provide more information and a good plan to possibly prevent a DVT. With early recognition, a DVT can be diagnosed and treated to prevent any further complications.

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