

18. Arterial clots and Factor V Leiden or other thrombophilias

Last Updated: 2/15/2004

Q1: "My 30 year old brother who was healthy and active died 10 days after a MI [= myocardial infarction = heart attack] due to blood clots. They put him on all types of anticoagulants. They had to put him on dialysis and he kept clogging his dialysis. They could not stabilize him enough to transport him so that he could get a heart transplant. Upon autopsy they determined that he had blood clots all over his body and that he was heterozygous for factor V Leiden. Is this just a very unusual case? And if we had known he had the FVL would there have been anything different that we could have done?"

A1: Factor V Leiden is very unlikely the cause of this patient's heart attack. Factor V Leiden does not cause arterial clots, except for in the young woman who smokes. Other causes for arterial blood clots need to be considered in the patient described. Factor V Leiden also does not typically cause such an aggressive clinical course with "blood clots all over the body". With the information available to me I do not see what the family could have done differently if they had known that he was heterozygous FV Leiden.

Q2: "My son lost his leg due to FV Leiden."

A2: Clots that lead to the loss of a limb are almost always arterial clots. Factor V Leiden is not a risk factor for arterial events, except for in the young woman who smokes. If the described patient had an arterial clot, other causes for the clot have to be looked for. Only very rarely does a massive clot in a vein lead to the need for leg amputation. In such a massive DVT the swelling in the tissues of the leg compresses and occludes the arteries of the leg, so that the leg dies off. In medical terms this is called "phlegmasia cerulea dolens".

Q3: "I have had documented clots in the arteries that supply my foot. This has been blamed on the factor V Leiden and I have been placed on coumadin®."

A3: With clots in arteries it is important to determine where and why the clot formed, because this determines whether one treats with medications such as Aspirin and Plavix®, or with Coumadin. Whatever the cause, arterial clots are not caused by factor V Leiden, except for in the young woman who smokes.

Q4 "I am a 61 year old who never had a clot or a problem until this summer, when I had my back injected with steroids and received steroids tablets for a herniated disk. Five days after the injection I developed a pain in my calf, and then a lot of numbness in my foot. It also turned white and cold. I also had what I thought was a cardiac event, which sent me to the emergency room: I was having long spells of palpitations and a fear of dying, broke into a sweat, but had no chest pain. At the emergency room they said my EKG was abnormal and there was no pulse in my foot. I am now on coumadin for life.

1. "Do you think the cortisone could have contributed to the formation of the clot?"
2. "Should I have further cardiac workup to rule out atrial fibrillation?"
3. "Do you agree with coumadin for life?"

A4:

1. No. Corticosteroids, such as Cortisone, do not appear to increase the risk for either arterial or venous thrombosis.
2. Yes, definitely.
3. Not knowing the patient in detail I am not able to give solid recommendations. However, the history is suspicious for arterial thromboembolism due to atrial fibrillation, a condition in which long-term coumadin is indicated.

Factor V Leiden has been extensively studied in patients with arterial thrombosis; heterozygous FVLeiden does not appear to be a risk factor for these clots, except for in young women who have an additional risk factor for thrombosis and arteriosclerosis: smoking. The heterozygous prothrombin 20210 mutation is also not a risk factor for arterial clots. It has, to my knowledge, not been studied whether homozygous factor V Leiden, double heterozygous factor V Leiden plus prothrombin 20210 mutation, and homozygous prothrombin 20210 mutation are risk factors for arterial clots. The other thrombophilias (antithrombin III-, protein C-, and protein S deficiency) can cause arterial thrombosis, but much more frequently cause venous thrombosis. High homocysteine levels are a risk factor for both, venous thromboembolism and arteriosclerosis with thrombosis. Antiphospholipid antibodies can cause both, arterial and venous blood clots.