



Blood Clots and Blood Thinners

- ◆ A blood clot is when your blood changes from a liquid to a solid.
- ◆ Good blood clots will help you stop bleeding
- ◆ Bad blood clots are when your body makes a clot when it does not need one.
- ◆ Blood clots can form in veins (going away from the heart) or arteries (going towards the heart).
- ◆ A blood clot in the vein is called a DVT (deep vein thrombosis). A DVT can cause pain, swelling or a difference in temperature in one of your limbs.
- ◆ A blood thinner may be ordered to prevent a bad clot from forming or to stabilize a clot that is already present.
- ◆ Your body has its own 'clot busters' to break up a clot.
- ◆ A blood thinner doesn't really "thin" the blood. It slows down the time it takes to make a clot.
- ◆ Blood thinners can also be called "anticoagulants"

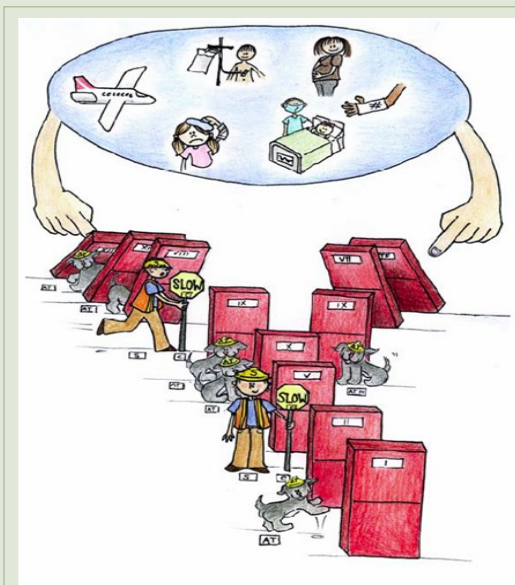


Illustration:

Dominoes = clotting factors

Workman = Protein S

Stop sign = Protein C

Dog = AT

KEY POINTS

A clotting order does not mean you have done something wrong or that you are sick.

A clotting disorder may affect life or health insurance

Call if you have a clotting disorder and a risk factor for a clot occurs.

How Does the Blood Clot?

- ◆ There are small proteins in the blood called **factors** that work together to make a blood clot.
- ◆ These **factors** work like dominoes. When an event occurs it can turn on the factors, just like tapping the dominoes. When a factor is turned on it then turns on the next factor until the last one falls. A clot then forms to stop bleeding.
- ◆ An event that can 'turn-on' the factors can include immobility, injury, pregnancy, IV therapy/ central line, surgery, or illness.
- ◆ Protein C, S and AT work to slow down the clotting system and get in the way of the falling dominions.
- ◆ These factors and proteins work together to make sure the body does not make a clot when one is not needed.
- ◆ Some people have a factor or a protein that is different.
- ◆ Sometimes these differences can cause a blood clot to form when it is not needed.
- ◆ Your doctor can check your factors or proteins to see if you may be at risk for a bad blood clot. This is called a thrombophilic work-up
- ◆ The doctor may test your blood if you have previously had a blood clot or if there is a strong family history of blood clots or strokes.
- ◆ If the thrombophilia work-up is positive for a clotting disorder, it may affect the ability to get life or health insurance for the family. Please discuss the work-up with your doctor to discuss the risks and benefits.
- ◆ The thrombophilia tests results that may cause a clotting disorder include:
 - Factor V Leiden
 - Prothrombin Gene 20210A
 - Low Protein S
 - Low Protein C
 - Low AT

**Alberta Health Services—Stollery Children’s Hospital
Pediatric Thrombosis—KIDCLOT Program**



Antiphospholipid Antibodies

An antibody may alter the clotting proteins and produce a bad clot. This may occur with illness then go away or may stay indefinitely. Follow-up testing may be required.

Low Protein S OR Low Protein C

If your test show you have low levels of protein S or protein C it means your body does not have enough proteins to slow the clotting process down. A clot can then form when not needed. Young children will naturally have lower levels. The test will need to be repeated when they are older to confirm.

PT G20210A (too much factor 2)

If your test is positive for PT G20210A it means that you have too much factor 2 (domino 2). This means that the AT (dog) has trouble slowing factor 2 from falling a a clot can form when it is not needed.

Antithrombin

If your AT is low it means that your body does not have enough AT (dogs) to slow down the dominoes from clotting. A clot may form when not needed. If your AT level is low a retest may be needed to confirm.

Factor V Leiden (Abnormal factor 5)

FVL mean that your factor 5 ((domino V) is different. This could mean that protein C (stop sign) has trouble slowing factor 5 from falling and a clot can form when not needed. 3/100 people have FVL.

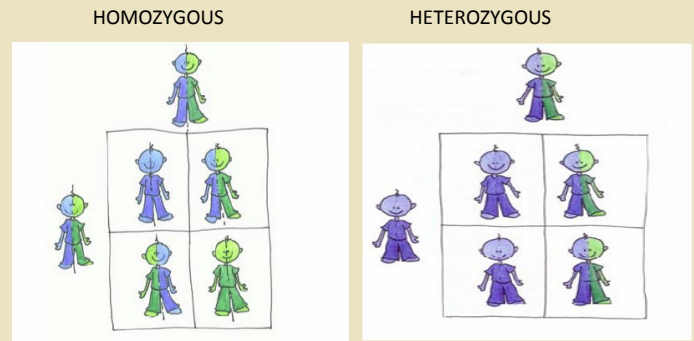
How did I get the Clotting Disorder?

- ◆ The DNA that you have came from both of your parents. One or both of your parents will have DNA that will make a blood clot when it is not needed.

Illustration

Blue = Normal protein/ factor levels

Green = Abnormal protein/ factor level



What can I expect if I have a Clotting Disorder?

- ◆ A clotting disorder doesn't mean you did anything wrong or that you are sick.
- ◆ If your test comes back positive that means your blood may make a clot when it is not needed
- ◆ Any of the following situations may put you at risk of a blood clot:
Airplane travel/ long distance travel
immobilization/ Unable to walk
Central IV line (IV in one of the larger veins)
Pregnancy
Injury/ Broken bone
Hospital admission / Surgery
- ◆ **Call the kidclot team if you have a risk .**
- ◆ Your doctor may put you on a blood thinner to prevent the risk of blood clots

WHAT A BAD CLOT FEELS LIKE:

- ◆ Pain or puffiness in an area of the blood clot (even if you have not hurt that area)
- ◆ Hard to breath (even if you do not have asthma of a cold)
- ◆ **Go to emergency and call the kidclot team if any of these symptoms occur.**

Special Consideration

- ◆ Medications with estrogen (birth control pills) can put you at higher risk of a blood clot. Talk to your doctor before taking these pills.

◆ **780-248-5640—messages will be answered before 4pm , business days**

◆ **After hours (urgent matters only) - 780-407-8822 (ask for the KIDCLOT physician on call)**

◆ Email: kidclot@albertahealthservices.ca