

iTRANSFUSEFACTSHEET

all about blood

I NEED TO KNOW ABOUT CLOTTING FACTORS

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What are blood clots?

A group of platelets and some plasma proteins, especially one called fibrin, clump together to form a clot.

Why does our body make clots?

Blood is meant to stay in our arteries, capillaries and veins (often collectively known as “blood vessels”). When a blood vessel is torn, crushed or cut, blood can leak out. Clots form to stop this bleeding until the blood vessel is repaired.

How does the body make a blood clot?

Platelets are small disc-shaped cells that can change shape and clump together to form a plug (see the iTRANSFUSE fact sheet *I Need to Know About Platelets*, Vol. 1, No 4). Clotting factors help the platelet plug stick together and keep it in place. The most important clotting factor is fibrin. Platelets and clotting factors can be thought of as the bricks and cement that dam up bleeding sites.

What are clotting factors?

Clotting factors are plasma proteins, mostly made in the liver, that help stabilise the clot and seal the edges of the wound. There are several different clotting factors, and they act in a specific sequence called the clotting cascade. Each clotting factor activates a large amount of the next clotting factor and so on. The final protein made is fibrin which glues the clot together. If one clotting factor step is missing, the clot cannot form properly.

Which patients have trouble with clotting?

There are many conditions that affect clot formation. Some people are born with the inability to produce some clotting factors. Other people develop clotting factor deficiencies later in life. People with liver disease may not make enough clotting factors. Medications such as Warfarin prevent patients from making clots.



Can patients be given clotting factors if they have low levels?

Yes. Plasma, such as Fresh Frozen Plasma (FFP) contains all of the different clotting factors. Cryoprecipitate is a good source of fibrin. Plasma can also be “fractionated” in Australia by CSL and concentrates of some clotting factors are made by a number of companies.

When do patients need clotting factors?

Patients with massive blood loss, eg trauma, can use up and lose a great deal of their own clotting factors. Patients with chronic liver failure may not make enough clotting factors. As a replacement, FFP may be given. Some patients are missing just one clotting factor and may receive a concentrate of that particular clotting factor. More on this in future fact sheets.

Warfarin is a commonly prescribed medicine for the treatment of excessive clotting like Deep Venous Thrombosis (DVT), where

PACKFACT
It takes 8,562 whole blood donors' plasma to make one batch of Prothombinex®-VF which reverses the effects of Warfarin.

abnormal blood clots form in a vein deep inside the body. If too much Warfarin is given, bleeding can occur and this can be reversed by giving the specific clotting factors that Warfarin affects.

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