THE HAEMOPHILIA SOCIETY

FACTSHEET

Glanzmann's thrombasthenia

This factsheet is about a bleeding disorder called Glanzmann's thrombasthenia. It is written to go with our **Rare bleeding disorders booklet**, where you will find much more information on living with one of these conditions.

What is Glanzmann's thrombasthenia?

Glanzmann's thrombasthenia (or GT for short) is a type of bleeding disorder. It is caused by blood cells called platelets not working properly. This is because of an abnormality in the genes for glycoproteins IIb/IIIa. The genes for glycoprotein IIb/IIIa are carried on chromosome 17 of your DNA. Platelets are small blood cells that are very important for blood clotting.

When your body needs the blood to clot to stop bleeding, the platelets normally clump together to form the clot. In GT, you have enough platelets, but they cannot bind to a protein called fibrinogen, which normally binds them together in the clumping process. Because they are not able to stick together they cannot form a stable clot to stop bleeding.

Men and women are affected equally. Infants are often diagnosed early in life and usually before the age of one due to prolonged bleeding episodes or bleeding under the skin causing a rash.

GT is very rare. Doctors estimate that it affects about one in a million people. There are about 149 cases in the UK. It is more common in societies where first cousin marriages are more frequent.

What causes Glanzmann's thrombasthenia?

GT is an inherited genetic disorder. It is what is known as recessive, meaning you have to inherit a gene fault from both parents.

Very rarely, people can develop GT later in life. This is called acquired GT and is caused by the body developing antibodies to the IIb/IIIa receptors that normally bind to fibrinogen.

It is a type of autoimmune disorder and so can occur in association with other autoimmune disorders such as systemic lupus erythematosus (SLE). Or it sometimes happens because the person has another medical condition such as Hodgkin or non-Hodgkin lymphoma, or another platelet disorder called immune thrombocytopenic purpura (ITP). It can also happen for no obvious reason.

Our **Rare bleeding disorders booklet** has more information about how bleeding disorders are inherited.

Symptoms of Glanzmann's thrombasthenia

The symptoms of GT vary in severity but most people can experience bleeding symptoms with little or no injury. In all cases treatment is needed to prevent bleeding around surgery and dental extractions,

Common symptoms include:

- bleeding from the nose or gums (sometimes after losing baby teeth, during teething or even after vigorous brushing)
- easy bruising
- excessive bleeding after childbirth
- excessive bleeding after surgery or injury
- prolonged bleeding after dental or other surgery
- very heavy periods.

Because of bleeding, particularly heavy nosebleeds, children may have low levels of red blood cells (anaemia). Women who have very heavy periods may also become anaemic. Periods are likely to be heaviest when girls first start menstruating.

Less common symptoms include:

- blood in the urine
- bleeding into the head and brain headache, neck ache, drowsiness, loss of consciousness)
- bleeding into the gastrointestinal tract (vomiting blood, bloody or black bowel move-ments).

GT can also cause bleeding into joints and muscles, but this is rare compared to other types of bleeding disorder if there is no direct trauma.

It is very important that you contact your doctor or haemophilia centre if you think you or your child are having a bleed. If you have frequent bleeds such as nosebleeds, you can become anaemic. This means you have low haemoglobin levels because of the frequent loss of blood. Anaemia can make you feel tired and breathless.

There is more information in our **Rare bleeding disorders booklet** about how to spot the different types of bleeds.

Diagnosing Glanzmann's thrombasthenia

Like other bleeding disorders, GT is diagnosed with blood tests. Your platelet count will be measured, but this is usually normal in GT. Blood samples in the laboratory will be tested to see if the platelets aggregate (clump together) when stimulated with certain chemicals. These are specialised tests, so you need to have them done at a haemophilia treatment centre. If the aggregation test is abnormal or if only a small blood sample can be obtained, then a test called flow cytometry can be used to look directly for the IIb/IIIa protein on platelets. Flow cytometry will be the diagnostic test carried out in a baby or child.

Your doctor may suggest these blood tests in a baby or young child because they are showing symptoms of bleeding, such as bruising, rashes, bleeding gums or prolonged bleeding after circumcision. Inherited GT is usually diagnosed very young, before the age of one.

In the rare cases of acquired GT, you would have these tests because your doctor is concerned about unexplained bleeding.

Treatment for Glanzmann's thrombasthenia

For most of the time, you may not need any treatment at all. Generally, you only need treatment if you have a bleed that cannot

be controlled or if you are about to have surgery. Bruising is very common in GT and doesn't need treating. GT may be treated with:

- antifibrinolytic drugs (tranexamic acid)
- recombinant factor VIIa
- fibrin sealants
- hormonal contraceptives (to control excessive menstrual bleeding)
- platelet transfusions (only if bleeding is severe)
- some patients who have extremely severe bleeding may have a stem cell trans-plant to replace their bone marrow with one that produces normal platelets.

Your doctor will ask you never to take medicines that interfere with the way platelets work. This includes:

- aspirin
- other non-steroid anti-inflammatory drugs (NSAIDs) such as ibuprofen (Nurofen)
- some anti-depressants
- high doses of omega 3 fish oils.

If you are not sure whether to take any particular drug, always check with your haemophilia centre or specialist nurse.

Girls and women are very likely to have very heavy periods. You will need to take tranexamic acid and the combined oral contraceptive pill to control this bleeding.

Your doctor may also suggest that you don't take part in contact sports.

You should not use Non-Steroidal Anti-Inflammatory Drugs (NSAIDs such as ibuprofen) as this increases the risk of bleeding. Other methods of pain relief should be used instead. Speak to your doctor if you are unsure.

You should have immunisations or other injections subcutaneously (under the skin) rather than intramuscularly (into a muscle) to reduce the risk of a painful bruised swelling (haematoma) developing.

Antifibrinolytics: drugs that stop clots breaking down

The most commonly used drug is called tranexamic acid (TA). Your doctor may suggest you take tranexamic acid tablets three or four times a day if you have a bleed, or before and after procedures that are likely to cause bleeding such as minor dental work or minor surgery. If you are having a tooth out, for example, your doctor will ask you to take TA the day before and for up to a week afterwards. Women should also take it during their periods and for at least two weeks after having a baby.

If you have a mouth bleed, TA comes in a mouthwash. If needed you can make your own mouthwash by dissolving a TA tablet in 10 ml of water. If you have a nosebleed, your doctor may put gel or gauze up your nose that is soaked in TA or another treatment called topical thrombin (another clotting factor).

Platelet transfusion

Platelet transfusions are often used to stop bleeding in GT. The platelets are given through a drip into a vein. This can work very well, but some people develop antibodies to platelet transfusions. This means the platelets get removed from the blood quicker and are less effective at stopping bleeding.

To try and reduce the risk of this, your doctor may prescribe 'HLA matched platelets' when the transfusion is planned (for example to cover surgery).

These are platelets that have been matched to your own blood proteins, so you are less likely to develop antibodies. It takes around six hours to get hold of the right HLA matched platelets, so in an emergency, you will have to have non-matched platelets.

You may also develop antibodies against the IIb/IIIa protein. This can reduce the effectiveness of platelet transfusions and mean that additional treatments need to be used.

Recombinant factor VIIa

This is a blood clotting factor called factor VII (seven). It is sometimes written as rFVIIa. 'Recombinant' means that it can now be made in the laboratory rather than getting it from blood donors. As it doesn't have to be purified from donated human blood, there is no risk of infection. You have this treatment as an injection into a vein (intravenously).

rFVIIa is often chosen for minor bleeds to avoid the development of antibodies against platelets or because patients have already developed antibodies to them. You may have it if a minor bleed can't be controlled with tranexamic acid. You may also have it before and after planned surgery or during childbirth.

When you have treatment with rFVIIa for a bleed or after surgery, you are likely to have several infusions about 90 minutes to two hours apart. You may have platelets at the same time. rFVIIa doesn't work for everyone, but can be very helpful for many people with GT.

It is less likely to work in severe bleeding, mouth and nose bleeding, or if treatment has been delayed. If it doesn't work, your doctor will give you platelets as well.

Stem cell transplant

This is intensive treatment and you are only likely to have this if you have very severe GT, with frequent heavy bleeds that are difficult to control. Most transplants that have been done so far are in children.

To have a stem cell transplant, you usually have to have a stem cell donor who is a family member (almost always a full brother or sister) with a very similar blood type to yours (an HLA matched).

The patient has to have drug treatment that kills off their own bone marrow. This is to stop the body rejecting the donor stem cells. You have this treatment through a drip into a vein over several days. After that, the donor stem cells are given through a drip.

Because your own bone marrow has been killed off, you will be at risk of infections and will have to stay in an isolation room in hospital. The doctors will monitor you very closely in hospital for a number of weeks, until your stem cells have 'taken' and you can fight off infections once again.

Treatment complications

When you receive a platelet transfusion your body can develop antibodies to HLA markers that are not identical to yours. HLA matched platelets can be supplied to try to reduce the risk of developing antibodies. There is still a risk that you may develop antibodies to the IIb/IIIa protein.

Coping with your condition

Finding out that you or your child has a bleeding disorder can be upsetting and bring on a range of different emotions. Of course, this will take time to accept. Finding out as much as you can about your condition can help you learn to cope with it.

How much your bleeding disorder affects your daily life will depend on how severe it is. For many people, it will not have much effect at all. It may only be an issue if you are having dental work, major surgery, are having a baby or have an accident. Others may need treatment from time to time to treat minor or more serious bleeding. A small number may need regular treatment to prevent bleeding.

Do find out as much as you can about how to prevent bleeding and when it is likely to cause a problem. Our **Rare bleeding disorders booklet** has a lot of information about what to look out for and precautions you can take to keep yourself healthy. There is information on:

- carrying medical information with you
- dental care
- how to spot the early signs of a bleed
- information for girls and women about problems with periods and pregnancy
- ways to make bleeding less likely.

A new diagnosis can feel scary or overwhelming but there's lots of great support available.