The ITP Support Association Platelet Reprint Series

No. 7 – Investigation and Treatment

Platelet article reprinted from: **June 04**

Title: **Investigation and Treatment of ITP**

Author: **Deborah Kenny** (Clinical Specialist ITP Nurse)

Diagnosis

There are no laboratory or clinical parameters, which enable us to diagnose ITP accurately and therefore it is a diagnosis of exclusion, i.e. a diagnosis is made by excluding other conditions and diseases. I will explain the various ways in which ITP is diagnosed.

Clinical History and Physical Examination

The type of bleeding is indicated by the patient's clinical history; people with coagulation problems rather than reduced platelet numbers tend to exhibit hæmatoma type bleeding, i.e. large, swollen, purple bruises. Those with reduced numbers of platelets tend to exhibit muco-cutaneous bleeding (bleeding to the skin and mucous membranes). We would also look for signs of recent infection, and assess the type and severity of any bleeding, both present and historically. Also, the presence or absence of other medical conditions needs to be determined as well as any history of surgical or medical procedures, such as blood transfusions. A social and family history also needs to be obtained in order to exclude such things as excess alcohol consumption, HIV infection or a family history of bleeding problems or bone marrow disorders.

Many people are surprised by the quantity of blood needed in order to exclude other conditions and determine a diagnosis of ITP, but a wide range of tests need to be done. A full blood count and film will determine a normal blood count and the blood film will be examined by a hæmatologist to check the numbers and quality of the red and white cells. An autoimmune profile will highlight the presence of other autoimmune disease. It is essential to check the general health of the patient, so liver and kidney function and hepatitis screening will be done. We would also need to determine blood group and H-pylori status as well as looking at other factors needed for healthy blood clotting.

A bone marrow biopsy is rarely needed in the first instance, although opinions differ about this. It should be performed, however in anyone over the age of 60, who is considering splenectomy, or anyone who has unusual features or who is not responding to treatment.

Investigations

Bone marrow biopsy and aspirate: this is not always needed. I have never personally experienced a bone marrow biopsy so cannot describe how it feels but I have seen a large number being performed and the sensation has been likened to dental pain. This is obviously greatly helped by local anaesthetic although it is impossible to make the whole area numb, hence the comparisons to dental pain.

The procedure is normally carried out as an outpatient and performed by a doctor. The biopsy and aspirate is normally taken from the back part of the hipbone through a needle. You will be asked to lie on your side and the doctor will begin by injecting a local anaesthetic under the skin, as this area gets numb, more will be injected to make the surrounding tissue numb. Unfortunately, it is not possible to numb bone, although the patriotism (the membrane covering bones) can be made numb.

A needle is the passed through the skin and tissue until it reaches the bone; this part is normally relatively painless. The needle then needs to be pushed into the bone as far as the cavity where the bone marrow is. This can be a little painful, but the main sensation is that of pushing. When the bone marrow is reached a syringe is attached to the needle and some bone marrow is sucked out. This tends to be the part where there is some pain, but it will only last for a few seconds.

If a biopsy is needed a second needle is put into the area and a small core of bone marrow cut out, this would be about 2mm wide and 1cm long, again the worst part is when the biopsy is actually being taken, as this area cannot be numbed. Most people prefer to have this procedure with just a local anaesthetic, but it may be possible to be given sedation, although this needs to be arranged in advance as the hospital will need to make arrangements and you will need somebody to escort you home. If a child is having a bone marrow, they should always have a general anaesthetic.On the positive side, this investigation is normally done quickly and any pain short-lived.

continued overleaf

Indium labelled platelet survival studies

We recommend that anyone who is considering splenectomy have this investigation performed before reaching a final decision. Although this cannot tell us the definite likelihood of splenectomy being a success, it can give valuable information as to where platelet destruction is happening and whether splenectomy will not be a success.

This investigation is carried out at Barts and The Royal London NHS Trust and a series of scans taken over 3 days. The platelets are labelled with radioactive indium and a series of scans taken of the abdomen to see where the platelets are being consumed – the spleen, the liver, or both.

When you arrive in the department some blood will be taken for a blood count and for labelling with indium, this blood will also have heparin added to it to prevent clotting. A couple of hours later the blood will be reinjected into a vein in the arm or the back of your hand. Blood samples and abdomen scans will then be taken at 30-60 minutes, 3 hours, 24 and 48 hours. Each scan will take about 20 minutes.

The investigation can still be done if you are pregnant or breast feeding, although you should let the staff know, as they will use a lower dose of indium. You are welcome to bring a friend or family member with you.

Treatment of ITP

ITP can be treated with a number of drugs and blood products; I will give some brief explanations of some common treatment options.

Immunoglobulin: Intravenous immunoglobulin is a large pooled blood product and is given into the vein via a cannula. It usually takes a few hours, especially when given for the first time.

Immunoglobulin works by blocking the destruction of platelets by the immune system, but a transient response can only ever be achieved. Some common side effects are headache, nausea and allergic reaction. Immunoglobulin is a pooled blood product with an excellent safety record; it is screened for all known pathogens. Many people find this particularly useful prior to surgery or dental treatment, but it does not offer a long-term solution.

Anti–D: this is the same drug as that given to rhesus negative women who have given birth to rhesus positive babies, it basically ‘mops up’ rhesus positive cells.

In ITP the recipient needs to be rhesus positive and should not have had their spleen removed. Anti d is given into a vein, a procedure lasting a few minutes, and causes the body to busy itself destroying rhesus positive red cells instead of platelets. There are relatively few side effects, although some experience anaemia afterwards, but this resolves quite quickly.

Steroids: the usual steroids used in ITP are prednisolone and dexamethasone. The side effects are similar, no matter what the particular drug. Steroids are usually given in tablet form, although can be given intravenously in emergencies. They work by damping down the immune system.

The severity of steroid side effects vary from person to person and according to the dose being taken, obviously they tend to be worse at higher doses. Common side effects are osteoporosis, diabetes, fat redistribution, increased appetite sleepless-ness and mood swings. There is also reduced resistance to infection, especially when use is long term.

Rituximab: this is a relatively new drug to ITP, having been previously used to treat Lymphoma. It is a monoclonal antibody, which locks onto the surface of B-lymphocytes, the cells that destroy platelets. It is given through a drip into the vein over a few hours.

As far as we know Rituximab is relatively free from major effects, although some people get flu like symptoms. This drug is very expensive and would not be considered a therapy for acute ITP and would not be first choice for chronic ITP.

Needles and cannulas

As a number of treatments for ITP involve intravenous therapy I would like to offer you some advice regarding the use of needles and cannulas, as they are a frequent source of stress.

Firstly, needles and cannulas shouldn’t hurt after the initial prick so let a doctor or nurse know if a cannula is painful, especially if you have an infusion running, as there may be a problem which is easily rectified, but potentially painful if left.

Some hints to make cannulation less painful and more successful sure to keep your arm relaxed and warm, try to stay relaxed in yourself. The cannula is best positioned above the wrist and below the bend of the elbow; the cannula is the naturally splinted by the bone. If a nurse or doctor is having problems getting a cannula into the vein, ask for them to get somebody else to try, often we can have bad days, but the more stressed everybody gets, the less likely there is to be a successful cannulation! Ω