Immune Thrombocytopenia

A brief overview

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Introduction

Being confronted with the diagnosis of ITP disease can be a challenge for you and your family. Whether this concerns you directly or another relative, it may mean that you have to change your priorities for the time being, restrict your activities, or even adjust to a life with the disease over the long term.

Most likely, you now want to know as much as possible about "what you are actually dealing with" and how you can best contribute to healing – if that is possible – or to attaining the best possible quality of life with a chronic disease. The aim of this brochure is to support you in this.

In any case, the number one contact person for questions and information is, of course, above all your treating physician, or your treating physicians.

We wish you all the best and much!

Clinical symptoms of immune thrombocytopenia (ITP)

Werlhof's disease (morbus Werlhof) – an overview [1]

The abbreviation ITP stands for immune thrombocytopenia. This refers to a rare blood disorder which causes a reduction in blood platelets (thrombocytes). Every year, about 2 to 4 people in 100,000 become ill. Children and adults are affected about equally.

In immune thrombocytopenia (ITP), the body's own immune system reduces the new formation of and increases the breakdown of blood platelets (thrombocytes). The resulting thrombocyte deficiency can lead to bleeding.

The disease was first described in 1735 by Paul Gottlieb Werlhof (1699–1767), a court physician working in Hanover.

Therefore "Werlhof's disease" (morbus Werlhof) is also a common name for ITP.

The term "idiopathic thrombocytopenic purpura", which is also a synonym for ITP, is only rarely used nowadays.

Dr. Paul Gottlieb Werlhof

Blood platelets (thrombocytes)[2–4] – formation, breakdown and role in haemostasis

Blood platelets (thrombocytes) are small blood cells that play an important role in haemostasis and in the repair of tissue defects after a blood vessel injury. To be able to perform these functions, the platelets must be "healthy" and present in sufficient numbers in the blood.

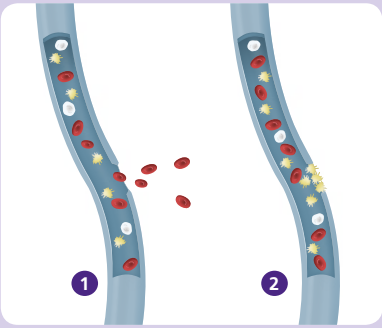


Fig.: In the case of a vascular injury, blood (shown as red and white blood cells) leaks out (1). Thrombocytes (yellow), which are also in the bloodstream, close the gap in the vessel wall (2).

Normal values and deviations

A reference range of 150,000–350,000 thrombocytes/µl of blood is considered normal. If the number of blood platelets falls below 150,000/µl, this is called thrombocytopenia; if it rises above 500,000/µl, it is called thrombocytosis. If too few thrombocytes are available, this can lead to a tendency to bleed. However, very low thrombocyte counts (below 50,000/µl) are usually necessary for this to happen.

Formation in the bone marrow and breakdown in the spleen

Blood platelets are formed in the bone marrow by so-called giant cells (megakaryocytes). When the thrombocytes are mature, they enter the bloodstream. Their lifespan is five to twelve days. They are broken down primarily in the spleen, but also in the liver and lungs.

Activation and contribution to haemostasis

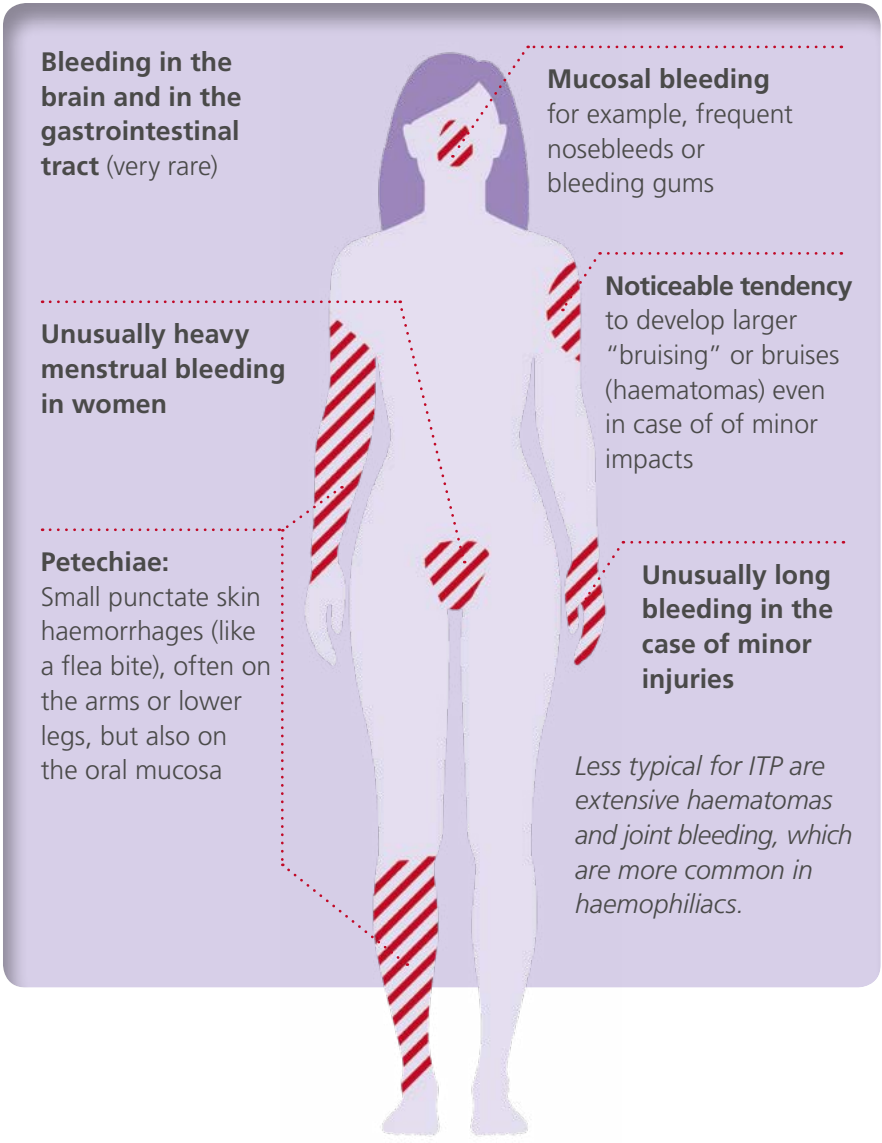
In the blood, the platelets are normally in an inactive state. If a blood vessel is injured, they will become activated and thus able to attach themselves to the vessel wall (adhesion). In addition, they combine with other thrombocytes (aggregation) to form a "blood clot" (thrombus), which can seal the injury. In haemostasis and wound closure, a variety of other complex processes and substances play an important role; these interact with the thrombocytes.

Symptoms of ITP

Bleeding and bruising [1]

The thrombocytes play a central role in blood clotting. A deficiency may result in a limited coagulation capability after injuries and may also lead to spontaneous bleeding. However, the symptoms of ITP can differ very greatly from individual to individual. About one-third of patients affected show no external symptoms at all, so the thrombocyte deficiency may in some circumstances be discovered by accident during a blood test.

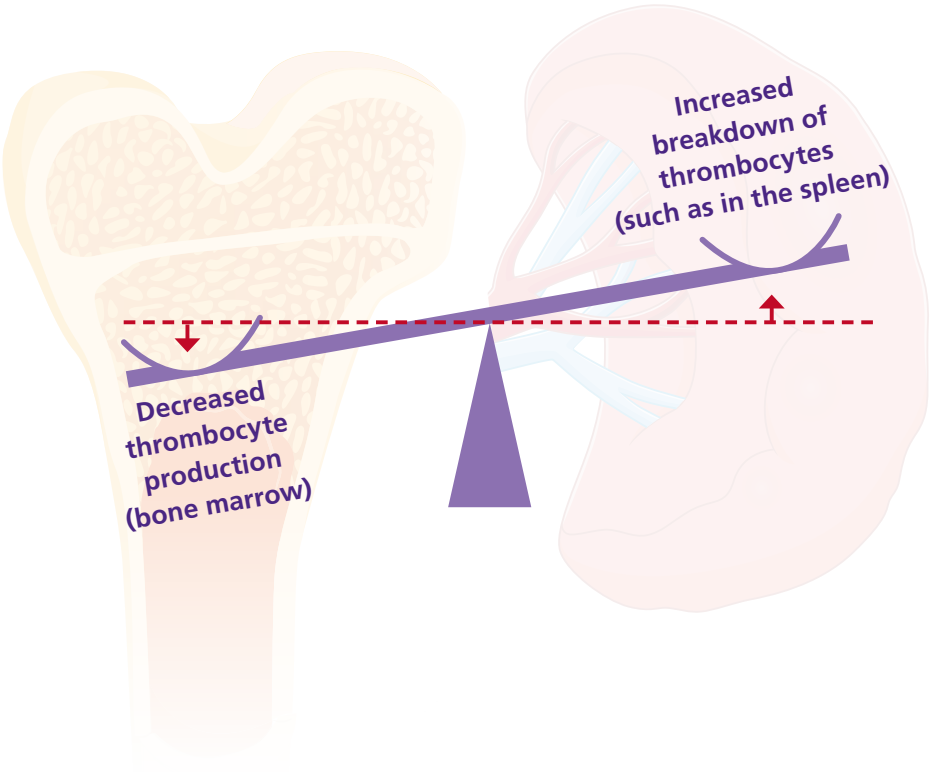
Symptoms that may occur in the context of immune thrombocytopenia are: [1]



Causes of ITP [1]

ITP is an autoimmune disorder similar to many rheumatic diseases. In ITP, antiplatelet antibodies lead to an increased breakdown of the thrombocytes in the spleen. These antibodies are also called autoantibodies. The autoantibodies can also inhibit the formation of new thrombocytes (thrombopoiesis) in the bone marrow. Both together lead to a reduced number of thrombocytes in the blood (thrombocytopenia).

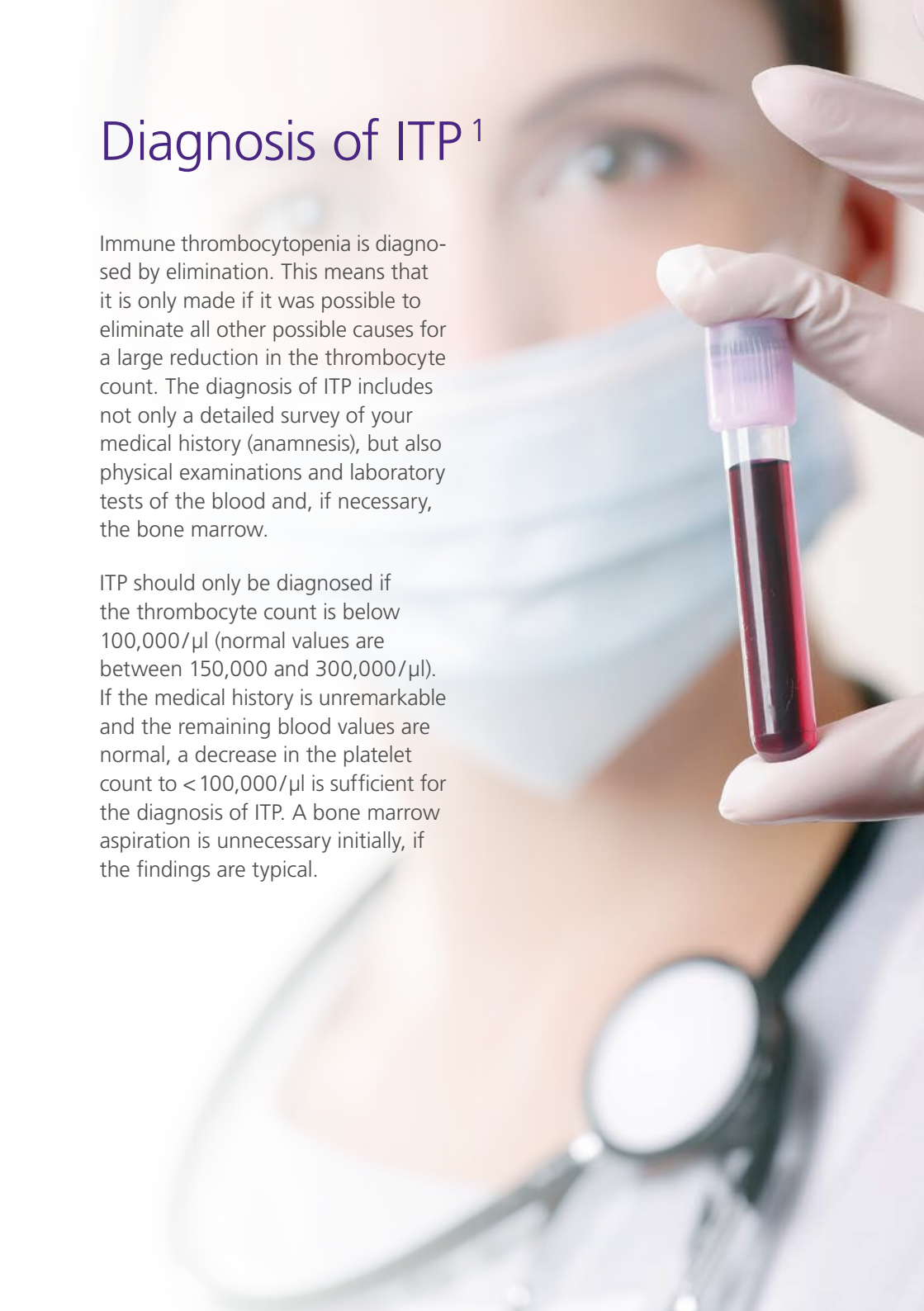
If the disease occurs without any apparent trigger, this is called primary ITP. We speak of the secondary form if a connection is established, for example, with taking certain drugs, an infectious disease or a vaccination.

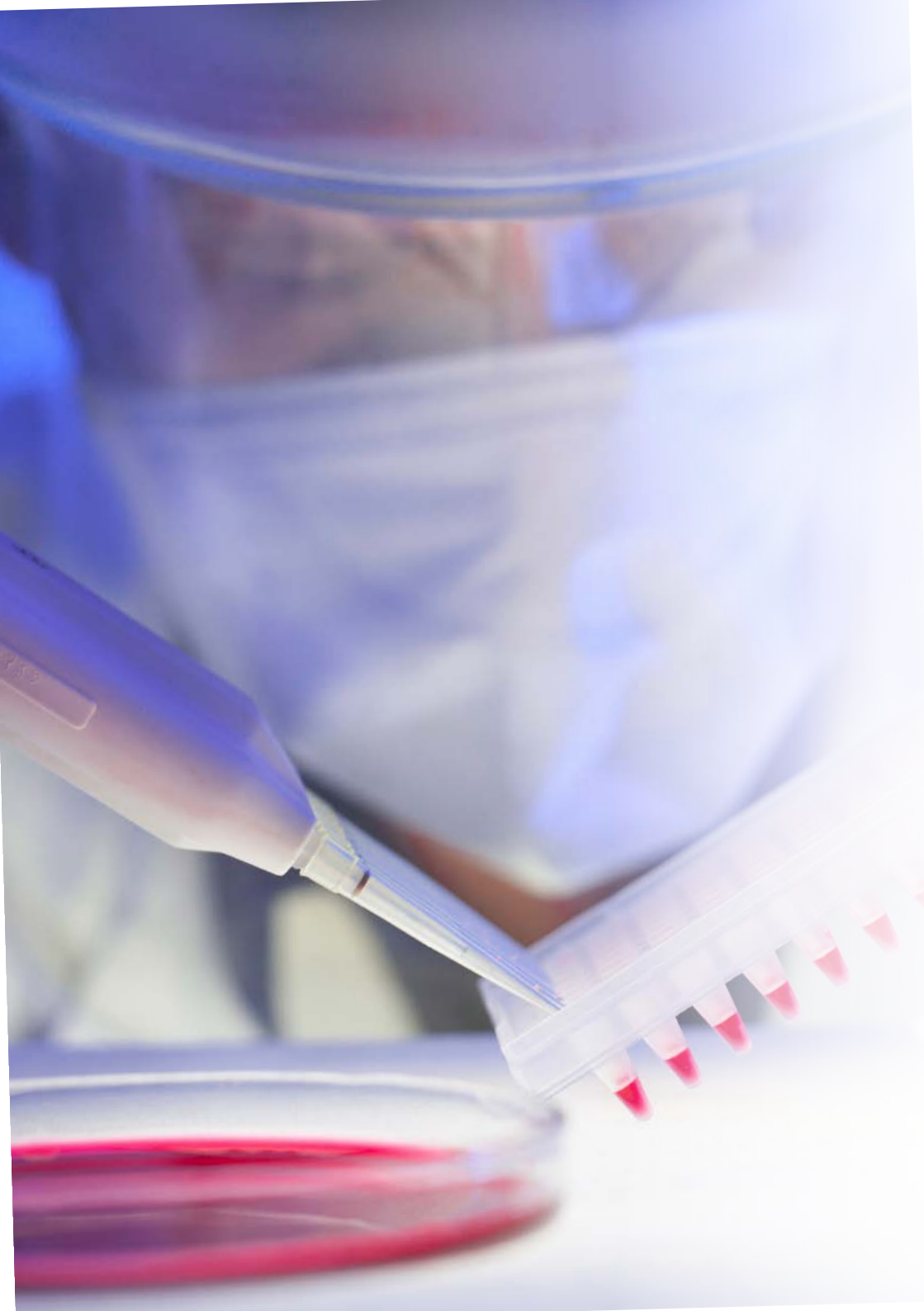


Diagnosis of ITP [1]

Immune thrombocytopenia is diagnosed by elimination. This means that it is only made if it was possible to eliminate all other possible causes for a large reduction in the thrombocyte count. The diagnosis of ITP includes not only a detailed survey of your medical history (anamnesis), but also physical examinations and laboratory tests of the blood and, if necessary, the bone marrow.

ITP should only be diagnosed if the thrombocyte count is below 100,000/µl (normal values are between 150,000 and 300,000/µl). If the medical history is unremarkable and the remaining blood values are normal, a decrease in the platelet count to < 100,000/µl is sufficient for the diagnosis of ITP. A bone marrow aspiration is unnecessary initially, if the findings are typical.





Stages and course of ITP [1]

ITP is divided into different stages; the respective therapy is also determined according to these. While for a long time a distinction was only made between acute and chronic ITP, today a division into three disease and therapy phases has been established:

In children and adolescents, the disease often heals within weeks even without treatment. Severe bleeding is a rarity. In adults, a long-term, chronic course over years or even for life is more common.

Newly diagnosed:

up to three months after diagnosis

spontaneous healing possible

Persistent (sustained):

between three and twelve months after diagnosis

Chronic:

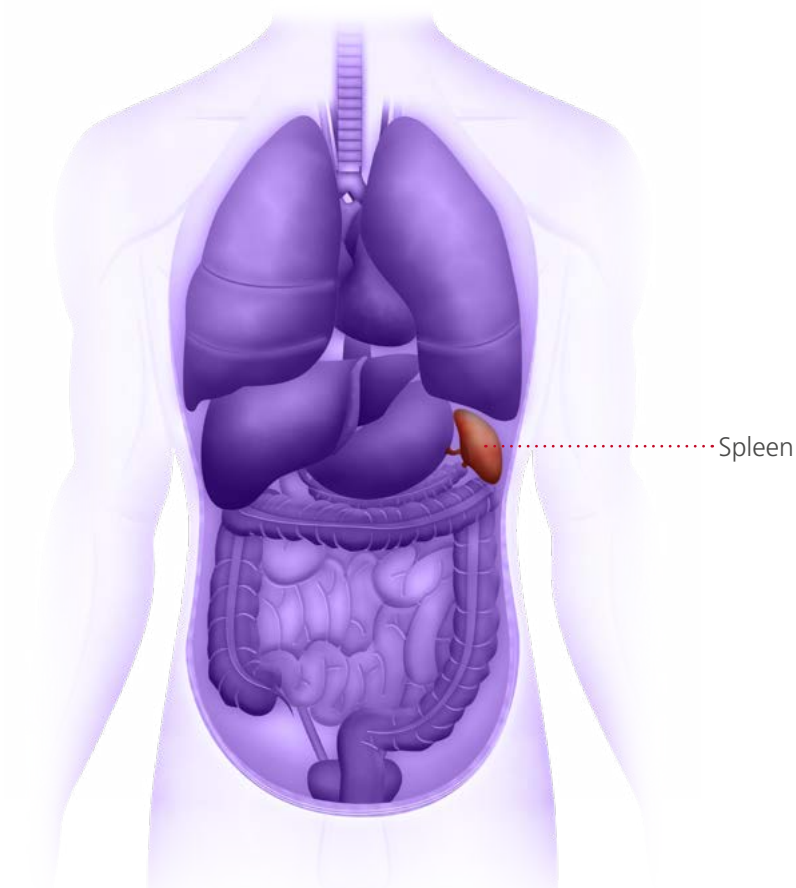
more than twelve months after diagnosis

spontaneous healing less likely

The decision on therapy depends on the individual risk of bleeding and other factors.

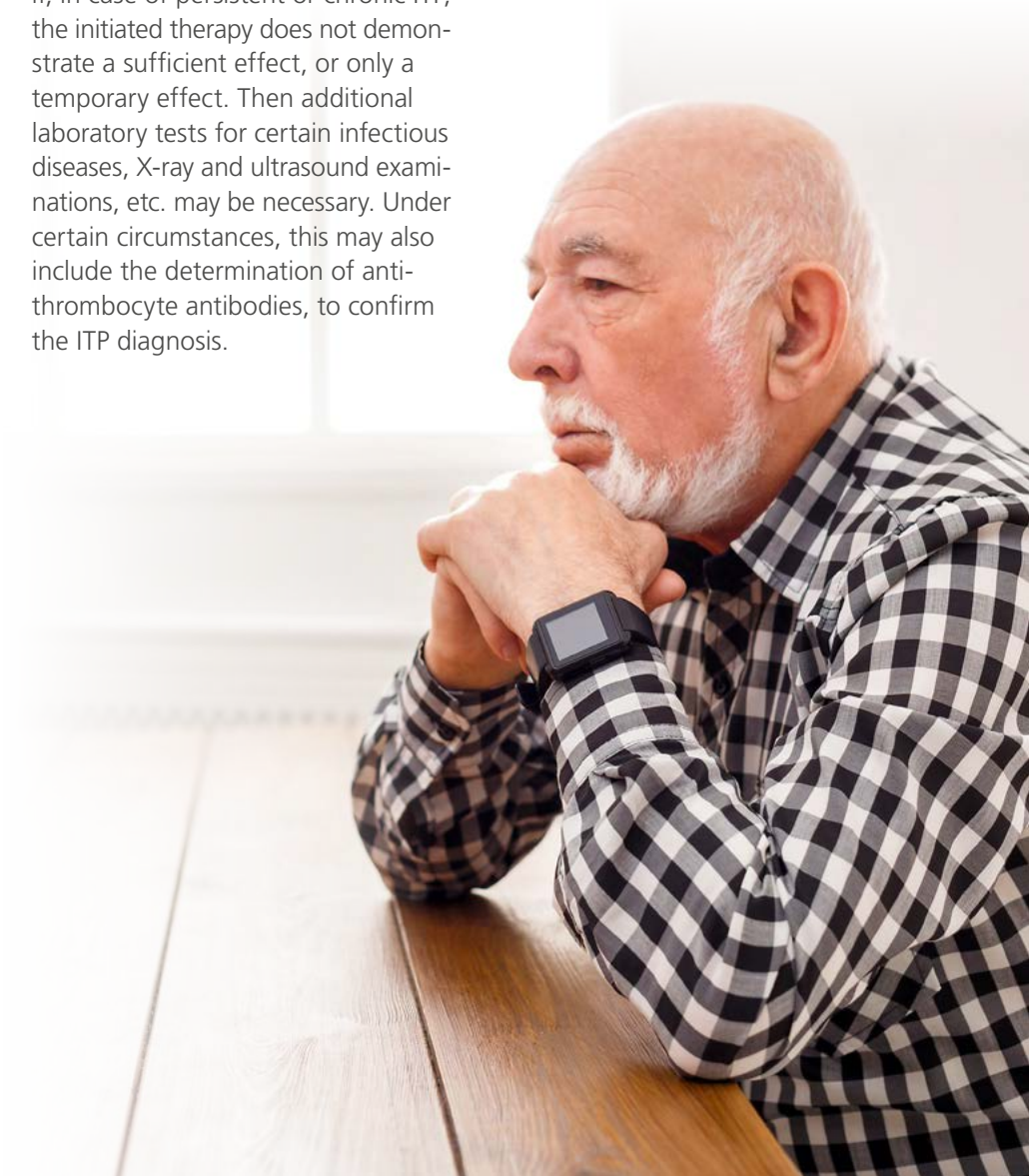
Assessment of the bleeding tendency [1]

To be able to assess the individual risk of bleeding, the doctor primarily focuses on the severity and number of visible signs of bleeding. The World Health Organization (WHO) differentiates between five levels of severity, ranging from "no signs of bleeding" to "brain and organ bleeding". Based on this assessment, the treatment spectrum ranges from waiting up to emergency treatment, through drug therapy extending to therapeutic removal of the spleen (splenectomy).



Further diagnostics – when does it make sense? [1]

Further diagnostics only make sense if, in case of persistent or chronic ITP, the initiated therapy does not demonstrate a sufficient effect, or only a temporary effect. Then additional laboratory tests for certain infectious diseases, X-ray and ultrasound examinations, etc. may be necessary. Under certain circumstances, this may also include the determination of anti-thrombocyte antibodies, to confirm the ITP diagnosis.



How can you treat ITP? [1]

There are various therapy options available for the treatment of ITP. Whether any treatment is necessary at all depends on the individual bleeding tendency. The doctor and patient must always decide jointly on a case-by-case basis whether the ITP requires therapy.

While the number of blood platelets (thrombocytes) was also an important factor in making this decision in the past, the current guidelines recommend taking into account the patient's bleeding tendency as well as other life circumstances.

The aim of therapy is to increase the platelet count and thus to minimise the risk of bleeding. Special situations such as upcoming surgery or dental treatment may require additional measures.

A therapy tends to be ...

... definitely an option
if severe bleeding occurs.

... possibly an option,
if moderate bleeding occurs.

... out of the question,
if there is little or no bleeding tendency (this should first be checked and monitored). However, any increased risk of injury or additional existing diseases, for example, tend to justify the decision for therapy.

First-line therapy in the case of ITP [1]

For ITP, so-called corticosteroids are the drug of choice for patients requiring treatment. The substances are related to the body's hormone cortisone, which regulates the immune system. Corticosteroids inhibit the production of anti-thrombocyte antibodies. If severe bleeding occurs, additional therapeutic measures such as the administration of so-called immunoglobulins or platelet concentrates will be considered. Immunoglobulins usually lead to a rapid, but short-term increase in thrombocytes for 2–4 weeks. They are therefore administered in the case of acute severe bleeding or non-deferrable operations. In the case of severe bleeding, the use of thrombocyte concentrates may also result in a short-term increase in the thrombocyte count in some patients and may stop the bleeding.

First-, second-, and third-line therapy

In medicine, a first-line therapy means the treatment which has proven itself as a standard therapy directly after diagnosis. Only in the case of the failure of this therapy, is a second- or third-line therapy used.

Spleen removal (splenectomy) in case of ITP[1]

If there is no improvement in the ITP with medications, surgical removal of the spleen may be considered as a therapy option. In the case of ITP, there is an increased breakdown of thrombocytes, among other things. This happens especially in the spleen, but in many patients also in the liver. If the first- and second-line therapies do not work, surgical removal of the spleen may be an option for some patients.

Surgical removal of the spleen

The surgical removal of the spleen is called a splenectomy (also: spleen extirpation). It can be performed both as open surgery (abdominal section) or using the laparoscopic technique (keyhole surgery). After that, many patients experience a permanent increase in thrombocytes. However, not every patient responds to the removal of the spleen and/or suffers a relapse at some point. The removal of the spleen is possible because the spleen is not a vital organ and much of its work can be taken over by the liver. However, the spleen plays an important role in the defence against pathogens, so that there is a life-long increased risk of infection after a splenectomy. Patients who have had their spleen removed should therefore be vaccinated against certain infectious diseases.

Who could benefit from a splenectomy

The removal of the spleen is particularly useful for patients who continue to develop severe bleeding despite corticosteroid therapy and other medications. Since spontaneous remissions of ITP occur relatively frequently up to 12 months after diagnosis, attempts should be made to postpone a splenectomy up till this point in time.

Further therapy options for ITP [1]

Not all patients attain the desired treatment outcome, or, after an initial success, there is a relapse. Then further potential treatments become an option:

- A renewed therapy with corticosteroids
- Second-line therapy: treatment with thrombopoietin receptor agonists
- Surgical removal of the spleen (splenectomy)
- In later lines of therapy: immunosuppressive drugs

Thrombopoietin receptor agonists are substances that can stimulate the formation of new blood platelets (thrombocytopoiesis) in the bone marrow. Immunosuppressants are medicines that are normally administered to prevent rejection after organ transplants, in the case of other immunological diseases, or for the treatment of blood and lymph node cancer. They can slow down the formation of autoantibodies against thrombocytes.


Living
with ITP

Sports [1, 5]

Sports and exercise with ITP

Sports and exercise can contribute significantly to physical and mental well-being and mental fitness. For many people, they play an important role in daily life. The social component should also not be forgotten, as these activities often take place in the community. Therefore, they should not be unnecessarily restricted for patients with ITP.

Find out what works for you!

If you are already active in sports, after diagnosis you should definitely discuss with your doctor whether you can continue to practise your sport to the same extent, despite your disease. There are some sports that focus on fitness and endurance, while others are more about physical activity and strength. Depending on your individual bleeding tendency, you should avoid sports that are associated with any increased risk of injury. Types of sports with a lower risk of injury, for example, are walking and cycling, swimming, rowing, competitive dancing, bowling, etc. Contact and team sports such as football, ice hockey, judo or types of apparatus gymnastics are less suitable.

Talk to your consulting physician about which sport is right for you.

Take care of yourself!

Only you can find know what and how much is right for you:

- Listen to your body and make note of what is the healthy medium for you in sport; listen to your training level.
- For example, wear a helmet, joint protectors, impact protectors and appropriate clothing.
- Discuss with your doctor what might be useful and sensible in your case.
- Do not forget the fun and vitality that sports and exercise can give you.

Travel

Travelling with ITP

You should take note of a few things so that you can enjoy your holiday:

- It is best to find out about the local medical facilities even before you start your trip. If necessary, discuss your travel plans for exotic travel destinations with a tropical medicine specialist.
- When travelling by air, be sure to carry essential emergency medications and important documents (such as an emergency ID card) in your carry-on luggage.
- For some medications, certain storage instructions apply (such as refrigeration).
- Check if these are available on the trip and at the holiday location.
- Check your insurance coverage.

Travel vaccinations [1]

For many long-distance journeys, prophylactic vaccinations are required. In this case you have to decide together with your doctor what is important and possible for you, in your highly individual case. At the same time, such factors as whether you are being treated with cortico-steroids or if you have had your spleen removed also play a role. In these cases, not all vaccines can be considered for you or you may also require some special vaccinations.

Medical care at the holiday location

For many people, travelling means a great deal for their quality of life. As a rule, ITP is not a hindrance to travel activities. However, it can be helpful to find out in advance about the local conditions so that you feel safe and well looked after there.

Living with ITP


Living
with ITP

Pregnancy [1, 6]

Desire for a child and pregnancy with ITP

Pregnancy is a very special time even for healthy women.

For patients with ITP, many questions arise about the well-being of the mother and child.

The desire to have a child raises a number of questions for patients with ITP:

- Can the condition affect me and my child negatively during pregnancy?
- What should I pay attention to?
- What can I do myself?
- Is ITP hereditary?

Regular check-ups are important

Although the course of the disease is individual for every patient, it has to be noted that thrombocyte values regularly fall off somewhat during pregnancy. As long as the thrombocyte count is above 50,000/µl, serious bleeding is very rare.

Therefore, the thrombocyte levels should be consistently checked during the course of the pregnancy. This allows the haematologist – ideally in consultation with the gynaecologist – to decide when treatment or adaptation of the existing therapy is required. Other comorbidities and the planned type of childbirth (vaginal or caesarean section) also play a role here. It is also important, in cases where pain medication is used during childbirth, that the attending physicians know about the ITP disease.

When can treatment of ITP become necessary?[1]

It may become necessary to treat ITP during pregnancy if bleeding occurs or if procedures such as a caesarean section or spinal anaesthesia are necessary. Do not hesitate to ask your gynaecologist and oncologist any questions that you want explained.

Plan the childbirth as well as possible

In the past, a caesarean section was often recommended in the case of ITP. The thrombocyte counts and whether bleeding has already occurred in previous births, for example, are important factors when making a decision in individual cases.

After the birth

First things first: ITP is not hereditary. However, it is possible that antibodies from the mother's blood may pass into the child's blood, so that the newborn can also have low platelet counts. In most cases these low values only need to be monitored, but not treated. As for breastfeeding, there is basically no reason that speaks against it. Here again, do not hesitate to approach your attending physicians and/or midwives with any questions or concerns.

Further medical questions [1, 8]

Vaccinations

Patients with ITP should have all the necessary and advisable vaccinations (such as flu, pneumococci, hepatitis B). When using drugs that inhibit the immune system, vaccination with a live vaccine (such as measles, rubella, mumps, chickenpox, tuberculosis) should not be administered. Please talk to your doctor about this, if it is an issue for you.

Medications

Take paracetamol or metamizole for pain. Ibuprofen or acetylsalicylic acid (ASA) are generally unsuitable, as they work as inhibitors of thrombocyte aggregation. Under certain circumstances, however, a low-dose ASA therapy of 75 – 100 mg/day can be continued up to a platelet value of 30,000/µl.

Menstrual bleeding

Excessively heavy menstrual bleeding can be normalised by taking the "pill" (oral contraceptive).

Nutrition [8]

There is no diet that affects thrombocyte counts positively or negatively. Stimulants such as coffee, tea, and alcohol in moderation do not affect primary ITP. Iron deficiency could occur after bleeding. Here foods with a high, easily utilisable iron content can be helpful, but also a medicinal iron supplement.

Dental treatments/operations [1, 7]

Dental treatments and operations with ITP

Patients with ITP have an increased risk of bleeding. This should be taken into account for planned dental or surgical procedures. Unlike the case for individualised treatment planning, thrombocyte counts play an important role in the planning of surgical or diagnostic procedures. A Bundesärztekammer [German Medical Association] guideline for different procedures – from dental cleaning to more abrasive operations – specifies different guideline values for the platelet counts to be aimed for. Since these data were collected from patients with thrombocyte formation disorders (and not from ITP patients), it is necessary to consider in individual cases whether the patient has had bleeding at the indicated thrombocyte counts in the past.

In an emergency, immunoglobulins

If an emergency procedure or operation has to be carried out, there is no time to wait for an increase in the thrombocytes. In this case, it is possible to achieve sufficiently high platelet levels rapidly by using immunoglobulins, but only for a short period of time. The corticosteroids used in the ITP therapy can generate a sufficient thrombocyte count within 1 to 2 weeks.

Inform your doctor

If a dental or surgical procedure is planned for you, be sure always to inform your attending physician about your disease. It also makes sense to always carry with you documents or an emergency ID card which provide(s) information about your disease for any emergency.


Living
with ITP

Self-help

Self-help with ITP – strong together

Patients with ITP can benefit from exchanging experiences with other patients or their relatives in self-help groups. Immune thrombocytopenia is a rare disease. Therefore, affected patients usually have a great need for information.

Exchange of experiences and up-to-date information

The exchange with other patients can be very valuable, especially for newly diagnosed patients and their relatives. Although you have probably already heard what is most important about the disease from your attending physician, it is now a matter of finding your way in everyday life and living with ITP. Here, in addition to very practical information such as addresses of specialists or recommendations, topics about dealing with the disease and the associated fears and anxieties are also be of great help.

Where can I find self-help groups?

Ask your attending physician for addresses of self-help groups. He can potentially give you the names of some regional groups or give you tips on how to get this information.

Glossary

Acute
"Rapid" or "suddenly occurring"

Anti-inflammatory
"Directed against an inflammation"

Antibody
Protein molecules formed by the immune system to combat pathogens; also referred to as immunoglobulins. All antibodies differ from each other in details; however, they fit into their target structure like the key in a lock

Autoantibodies
Autoantibodies are antibodies that the organism forms against the body's own components

Autoimmune, autoimmune disorders
Diseases in which the immune system of the body is directed against the body's own tissue

Blood platelets
See platelets or thrombocytes

Bone marrow
Bone tissue in which blood cells are formed

Chronic
Permanently existing or recurring symptoms

Corticosteroid
Another term for cortisone; an endogenous hormone that is administered successfully for a wide variety of diseases. It has anti-inflammatory properties and suppresses immune reactions

Diagnosis
Detection of a disease by a doctor

Diagnosis via elimination
A diagnosis can only be made if it was possible to rule out other causes of the symptoms

Differential diagnosis
All diagnoses that can serve as an explanation for the symptoms are taken into account in the diagnosis and reviewed for correctness

Idiopathic
Unknown cause

Immune system
The body's own system to ward off pathogens, alien substances and tumour cells

Immune thrombocytopenia (ITP)
An autoimmune disease in which the immune system attacks and destroys thrombocytes. ITP also stands for idiopathic immune thrombocytopenic purpura and is also known as morbus Werlhof or Werlhof's disease

Inflammation
A natural reaction by the body to activate the immune system

Macrophage
Scavenger cells of the immune system

Megakaryocytes
Bone marrow cells responsible for the formation of thrombocytes

Monocytes
Immune system cells in the blood, precursors of macrophages

Persistent
Sustained

Petechiae
Red or purple spots on the skin or mucous membranes

Platelet count = thrombocyte count = thrombocyte value
A quantitative value that indicates the amount of thrombocytes in the blood. Usually this is given in thousands per microlitre (for example, 50,000) or in 10^9 per litre (for example, 50 x 10^9/l). A value of 50 x 10^9/l corresponds to 50,000 thrombocytes per microlitre

Platelets / blood platelets
The technical term is thrombocytes; small, disc-shaped cell bodies in the blood. They play an important role in blood clotting. If a blood vessel is injured, they attach themselves to the injured vessel wall; this rapidly results in a closure of the vessel and the bleeding stops. Thrombocytes usually live for five to nine days and are subsequently broken down in the spleen, liver and lungs

Proteins
Proteins – biological molecules made up of amino acids with multiple functions, found throughout the body

Purpura
Small haemorrhages in the skin, subcutaneous tissue or mucous membranes

Refractory
Insensitive, cannot be influenced; a treatment-refractory disease cannot be influenced by the usual treatment methods

Spleen
The spleen is an organ in the left upper abdomen that plays a part in the circulation of the bloodstream. It helps in the defence against foreign substances (antigens). In addition, it is an important storage site for monocytes, which count among the white blood cells, and is used to identify obsolete blood cells

Splenectomy
Removal of the spleen

Symptoms
Complaints that occur in a particular disease

Syndrome
Presence of several symptoms that are typical of a particular disease

Thrombocytes
See platelets

Thrombocytopenia
A reduced number of thrombocytes in the blood

Thrombopoiesis
New formation of platelets

Thrombosis
The blood coagulates and forms blood clots that clog the blood vessel

Werlhof's disease or morbus Werlhof
Alternative name for ITP, after the physician Paul Gottlieb Werlhof, who described the disease for the first time

Literature

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More information about ITP and blood disorders at:

hemaportal.at

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