Clinical Study Results

AstraZeneca

Research Sponsor: AstraZeneca AB

Drug Studied: Ticagrelor

Study Title: A study to learn if different forms of ticagrelor reach different levels in the blood in healthy volunteers

Thank you!

Thank you to the participants who took part in the clinical trial for the study drug ticagrelor.

AstraZeneca AB sponsored this study and thinks it is important to share the results of the study. An independent, non-profit organization called CISCRP helped prepare this summary of the study results.

If you participated in the study and have questions about the results, please speak with the doctor or staff at your study site.

What is happening with the study now?

The study started in May 2017 and ended in July 2017. The study included 44 participants in Germany.

The sponsor reviewed the data collected when the study ended and created a report of the results. This is a summary of that report.

Why was the research needed?

Researchers are looking for a better way to treat sickle cell disease. Before a drug can be approved for patients to take, researchers do clinical studies to find out how safe it is and how it works.

People with sickle cell disease have fewer red blood cells than normal. This can cause pain and other severe symptoms. Ticagrelor is already approved to treat people with other diseases. The researchers wanted to know if ticagrelor could help people with sickle cell disease.

In this study, the researchers wanted to find out how much ticagrelor reached the blood of participants when the drug was taken in different forms in the same amount.

The main questions the researchers wanted to answer in this study were:

- How much ticagrelor got into the participants' blood?
- What medical problems did the participants have?

The answers to these questions are important to know before other studies can be done that help find out if ticagrelor improves the health of people with sickle cell disease.

In this study, the researchers asked for the help of healthy men and women. Everyone in the study was 20 to 55 years old when they joined.

What kind of study was this?

This was an "open-label" study. This means the researchers and the participants knew what the participants were taking.

There were 4 ticagrelor treatments in this study. They all had the same amount of ticagrelor in them. All of the participants who completed the study took all 4 treatments, but in a different order. All of the ticagrelor treatments were taken by mouth:

1. Powdered ticagrelor mixed with a liquid
2. Several tablets of ticagrelor that are meant for children
3. Several tablets of ticagrelor that are meant for children, mixed with water
4. A tablet of ticagrelor that is already approved for people to take

Although some of the tablets were meant for children, only adults were in this study. A computer program was used to randomly choose the treatment each participant took. This helps make sure the groups are chosen fairly. Researchers do this so that comparing the results of each treatment is as accurate as possible.

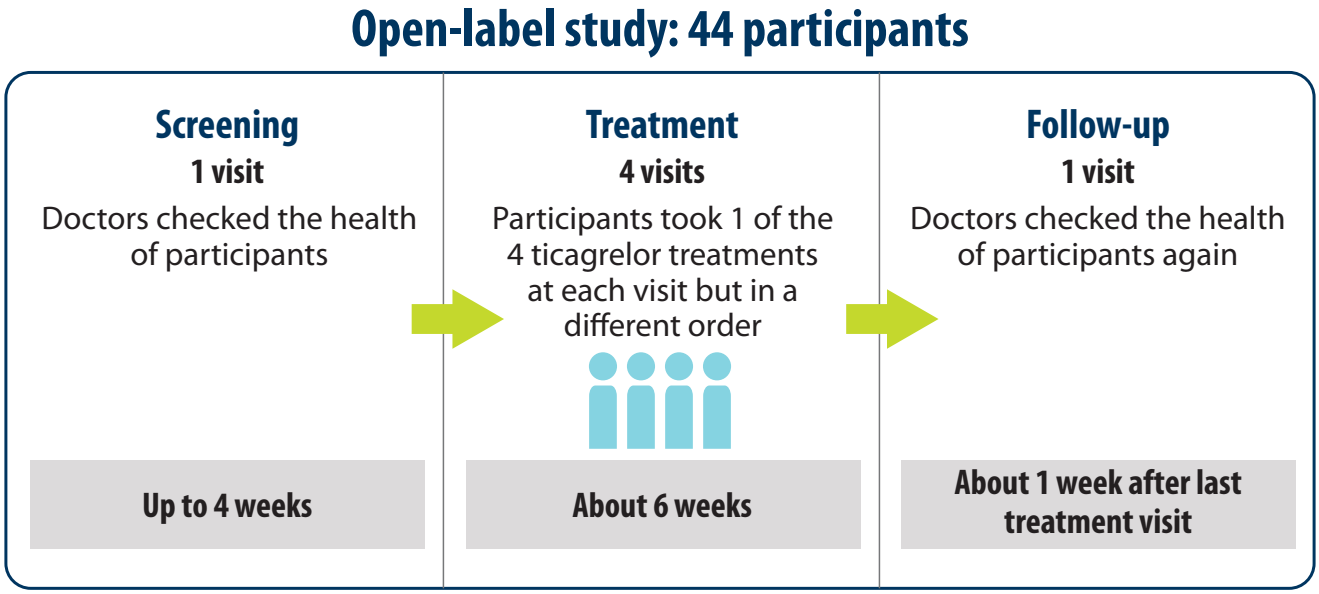
What happened during the study?

Before the study started, the doctors checked the participants' health, asked how they were feeling, and asked what medicines they were taking. The doctors did this to make sure the participants could take part in the study.

During the study, the participants took treatments for about 6 weeks. They visited their study site up to 4 times. At each visit, they took one of the 4 forms of ticagrelor, but in a different order. In between treatments, there was a "washout period" of 1 week. During the washout periods, the participants were not allowed to take certain medicines. This means that their bodies had processed all of the medicines in their blood, and the medicines had "washed out" of their bodies.

At the end of the study, the participants had a follow-up visit. The doctors checked the health of the participants again at this visit.

The chart below shows how the study was done.



What were the results of the study?

This is a summary of the main results from this study overall. The results each participant had might be different and are not in this summary.

Researchers look at the results of many studies to decide which treatments work best and are safest. Other studies may provide new information or different results. Always talk to a doctor before making any treatment change.

The websites listed at the end of this summary may have a full report of the study results.

How much ticagrelor got into the participants' blood?

The researchers wanted to find out how much ticagrelor got into the participants' blood when it was taken in different forms in the same amount. To do this, the researchers measured how much ticagrelor was in the blood at different times during the study.

The body breaks down ticagrelor into a substance called a metabolite. This metabolite also acts like ticagrelor in the body. So, the researchers also measured how much of the metabolite was in the blood at different times during the study.

The amount of ticagrelor and the metabolite was measured in hours times nanograms per milliliter of blood, also known as h•ng/mL.

How much ticagrelor got into the participants' blood when they took it in different forms?

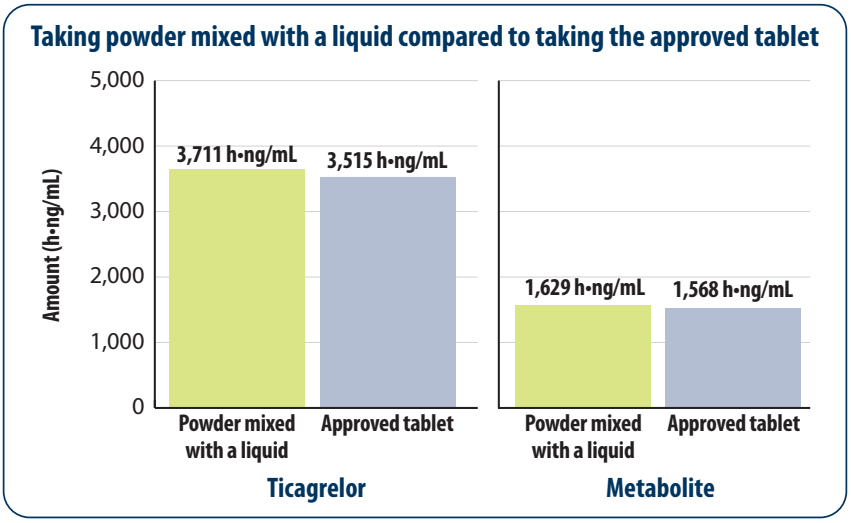
The researchers found that the amounts of ticagrelor and the metabolite in the blood were about the same for each of the treatments they compared.

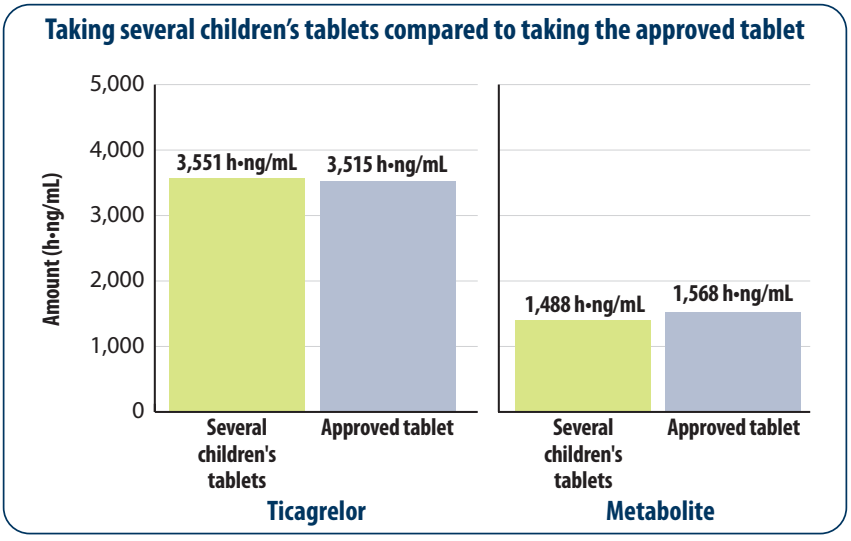
To answer this question, the researchers compared:

- taking ticagrelor as a powder mixed with a liquid to the approved tablet
- taking ticagrelor as several children's tablets to the approved tablet

This information helps the researchers learn if the amount of ticagrelor that gets into the blood is different when taken in liquid form or the tablets meant for children compared to the form meant for adults.

The charts below show the results the researchers found:





How much ticagrelor got into the participants' blood when they took it in forms meant for children?

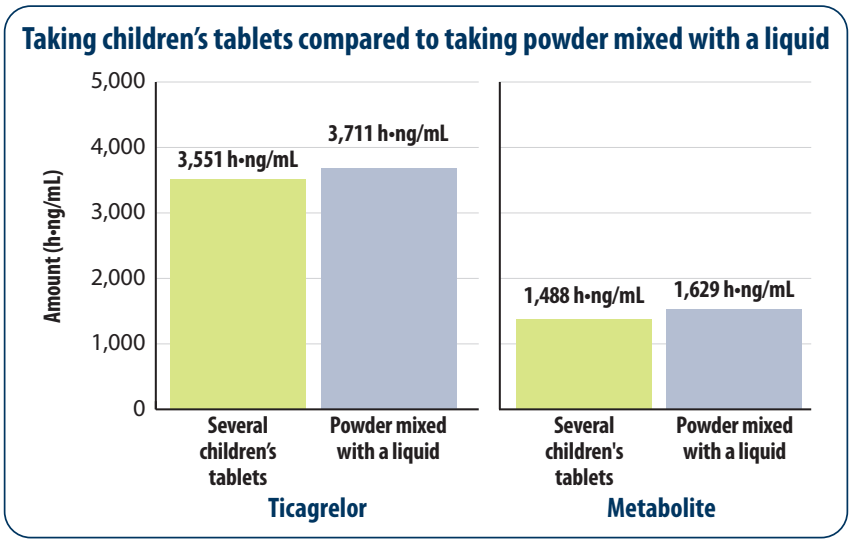
The researchers found that the amounts of ticagrelor and the metabolite in the blood were about the same for each of the treatments they compared.

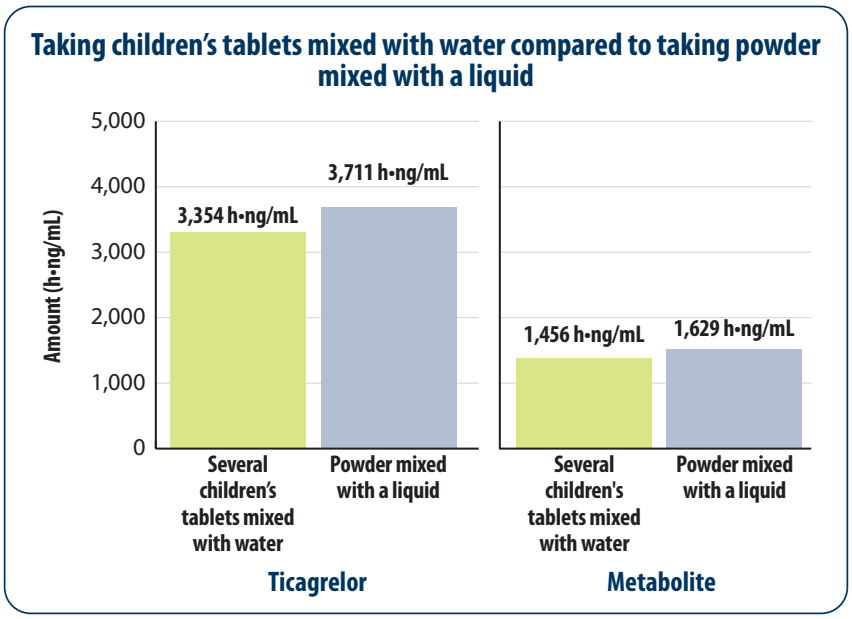
To answer this question, the researchers compared:

- taking ticagrelor as several children's tablets to a powder mixed with a liquid
- taking ticagrelor as several children's tablets mixed with water to a powder mixed with a liquid

This information helps the researchers learn if the amount of ticagrelor that gets into the blood when taken as a form meant for children is different when mixed into a liquid.

The charts below show the results the researchers found:





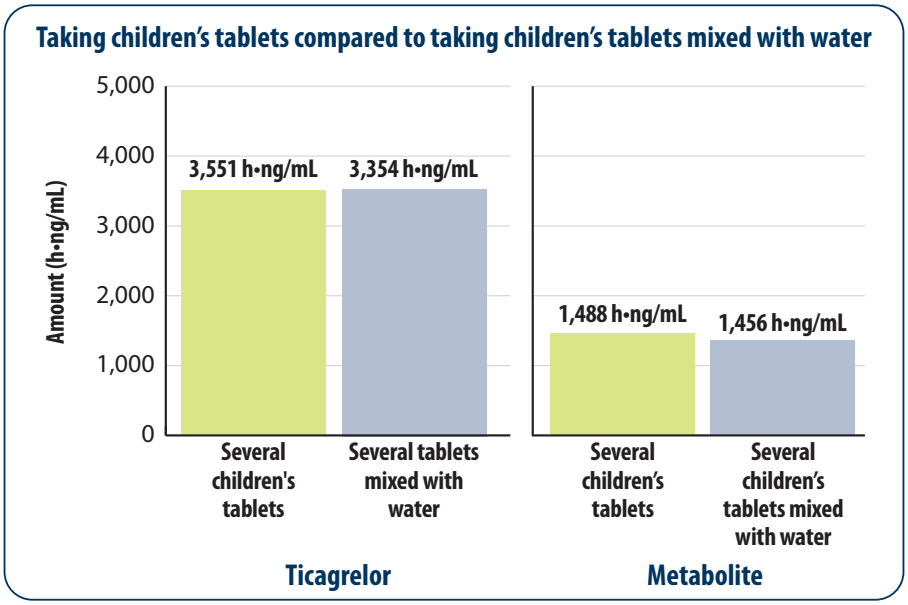
How much ticagrelor got into the participants' blood when they took it as a tablet meant for children?

The researchers found that the amounts of ticagrelor and the metabolite in the blood were about the same for each of the treatments they compared.

To answer this question, the researchers compared taking ticagrelor as several children's tablets to several children's tablets mixed with water.

This information helps the researchers learn if ticagrelor and the metabolite were found in similar amounts in the blood when the tablet meant for children was not mixed with water.

The chart below shows the results the researchers found:



What medical problems did participants have?

This section is a summary of the medical problems the participants had during the study that the study doctors thought might be related to the study drug. These medical problems are called "adverse reactions". An adverse reaction is considered "serious" when it is life-threatening, causes lasting problems, or requires hospital care.

These adverse reactions may or may not be caused by the study drug. A lot of research is needed to know whether a drug causes an adverse reaction.

How many participants had serious adverse reactions?

None of the participants had serious adverse reactions during this study. None of the participants died during this study.

How many participants had adverse reactions?

There were 25% of participants who reported adverse reactions during this study. This was 11 out of 44 participants.

None of the participants stopped taking the study drug because of adverse reactions.

What adverse reactions did the participants have?

The most common adverse reactions were headache and nausea. The adverse reactions in the table below happened in at least 2 of the total participants. There were other adverse reactions, but these happened in fewer participants.

Adverse reactions that happened during this study

	Powdered ticagrelor mixed with a liquid (Out of 43 participants)	Ticagrelor as several children's tablets (Out of 41 participants)	Ticagrelor as several children's tablets mixed with water (Out of 43 participants)	Approved tablets of ticagrelor (Out of 42 participants)
Headache	7.0% (3)	4.9% (2)	7.0% (3)	7.1% (3)
Nausea	0.0% (0)	0.0% (0)	4.7% (2)	2.4% (1)

How has this study helped patients and researchers?

This study helped researchers learn how much ticagrelor got into the blood when taken in different forms by healthy participants. It also helped researchers learn what adverse reactions the healthy participants had while taking the different forms.

Researchers look at the results of many studies to decide which treatments work best and are safest. This summary shows only the main results from this 1 study. Other studies may provide new information or different results.

Further clinical studies with ticagrelor are planned.

Where can I learn more about this study?

You can find more information about this study on the websites listed below. If a full report of the study results is available, it can also be found here.

- www.clinicaltrials.gov. Once you are on the website, type **"NCT03126695"** into the search box and click **"Search"**.
- www.clinicaltrialsregister.eu. Once you are on the website, click **"Home & Search"**, then type **"2017-000371-93"** in the search box and click **"Search"**.

Full study title: An Open-label, Randomized, 4-period, 4-treatment, Cross-over, Single-center, Single-dose Study to Assess the Relative Bioavailability of Ticagrelor in Different Formulations in Healthy Adult Subjects

AstraZeneca protocol number: D5136C00011

AstraZeneca AB sponsored this study and has its headquarters in Södertälje, Sweden.

The phone number for the AstraZeneca Information Center is +1-877-240-9479.

Thank you!

Clinical study participants belong to a large community of people who take part in clinical research around the world. They help researchers answer important health questions and find medical treatments for participants.

CISCRP
THE CENTER FOR INFORMATION & STUDY ON CLINICAL RESEARCH PARTICIPATION

The Center for Information & Study on Clinical Research Participation (CISCRP) is a non-profit organization focused on educating and informing the public about clinical research participation. CISCRP is not involved in recruiting participants for clinical studies, nor is it involved in conducting clinical studies.

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