Clinical Study Results

Research Sponsor: AstraZeneca

Drug Studied: Ticagrelor

Study Title: A study to learn how ticagrelor acts in the blood in infants and toddlers with sickle cell disease, and to learn about the safety of ticagrelor in infants and toddlers

Thank you!

Thank you to the participants and to the caregivers of the infants and toddlers who took part in the clinical study for the study drug ticagrelor. AstraZeneca sponsored this study and thinks it is important to share the results. An independent non-profit organization called CISCRP helped prepare this summary of the study results.

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

What is happening with the study now?

The study started in March 2018 and ended in May 2019.

The study included 21 infants and toddlers in Belgium, Italy, Kenya, Lebanon, Spain, and the United Kingdom.

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 infants and toddlers who have sickle cell disease, also called SCD. 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.

SCD is a blood disease that starts at birth and affects red blood cells. Red blood cells are round, disc-shaped cells that help move oxygen throughout the body. In people who have SCD, the red blood cells are thin, curved, and shaped like a farming tool known as a “sickle”. Researchers refer to these abnormally shaped cells as “sickle cells”. Because of their shape, sickle cells can get stuck in blood vessels throughout the body. This can cause pain and damage to parts of the body.

Current treatments for SCD are used to help the body make new red blood cells and stop sickle cells from getting stuck in blood vessels. But in some people, these treatments may not work as well as in other people. They may also cause medical problems.

The study drug, ticagrelor, was designed to stop blood cells from sticking together, which may help blood flow normally throughout the body. Ticagrelor has been studied in older children and adults, but not in infants or toddlers. Researchers think that ticagrelor may be able to help infants and toddlers who have SCD by stopping their red blood cells from getting stuck in blood vessels.

In this study, the researchers wanted to learn more about how ticagrelor acted in the body. They also wanted to know if the participants had any medical problems during the study.

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

- How did ticagrelor act in the blood?
- What medical problems did the participants have during the study?

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 infants and toddlers who have SCD.

To answer the questions in this study, the researchers asked caregivers for the help of their infants and toddlers who have SCD. The infants and toddlers in the study were 3 to 21 months old when they joined.

What kind of study was this?

This was an “open-label” study. This means the researchers and the caregivers of the participants knew which treatment their child was getting.

The participants got ticagrelor by mouth as a powder mixed with water. The ticagrelor doses were given in milligrams per kilogram of body weight, also called mg/kg.

What happened during the study?

Before the participants got study treatment, they visited their study site with their caregivers 1 time over the course of about 1 week. At this visit, the doctors checked to make sure the participants could join the study. The doctors:

- did a physical examination
- took blood and urine samples
- checked the participants’ heart health using an electrocardiogram, also called an ECG
- asked the caregivers about their child’s medical history

During the study, the participants and their caregivers visited their study site 1 time to receive the treatment. At this visit, each participant got 1 dose of ticagrelor. The treatment groups are listed below.

Group	Age	Treatment given (1 dose)
Group 1 (2 participants)	 Less than 6 months	 0.1 mg/kg of ticagrelor
Group 2 (19 participants)	 6 months to less than 21 months	 0.2 mg/kg of ticagrelor

After the participants got study treatment, the participants and their caregivers visited their study site 1 more time within 1 week. At this visit, the study doctors checked the health of the participants.

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 for you or your child.

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

How did ticagrelor act in the blood?

To find out how a drug acts in the body, researchers measure the amount of the drug in the blood at different times after participants get treatment.

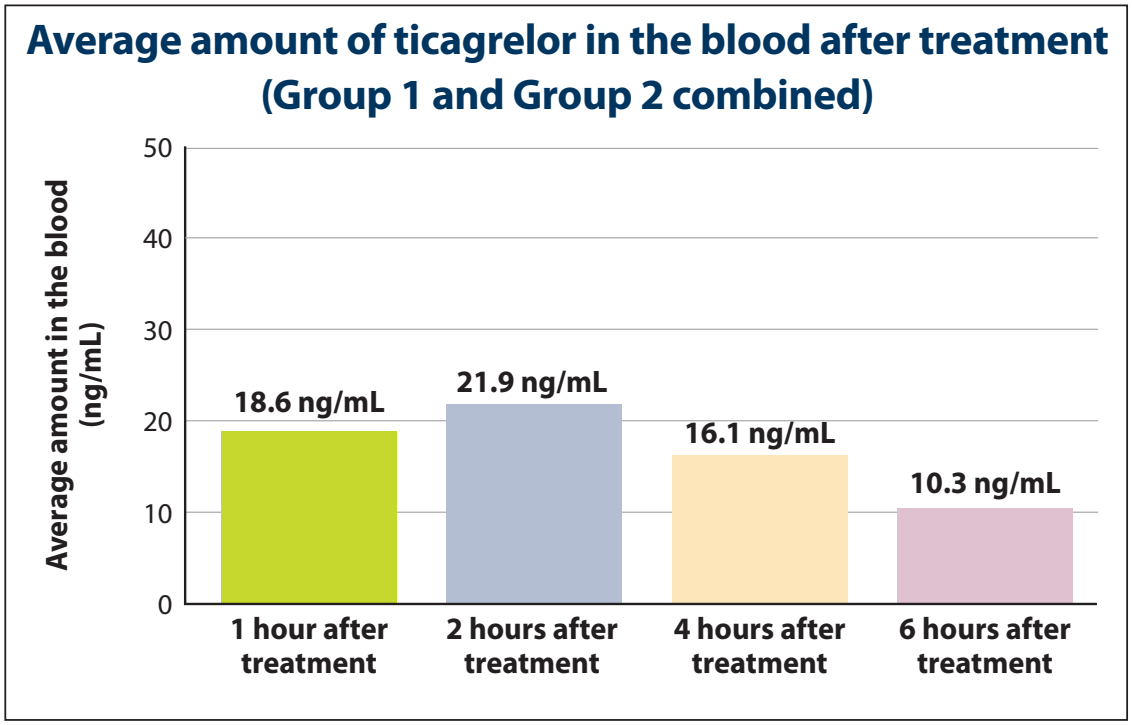
In this study, the researchers wanted to measure the average amount of ticagrelor that was in the participants' blood at 1, 2, 4, and 6 hours after the participants got treatment. These amounts were measured in nanograms per milliliter, also called ng/mL.

The researchers combined the results of these measurements for Group 1 and Group 2 because the ticagrelor amounts in the blood were similar between the 2 groups.

Group 1 and Group 2 combined results

Overall, the researchers found that after treatment:

- at the end of the first hour, the average amount of ticagrelor in the blood was 18.6 ng/mL
- at the end of the first 2 hours, the average amount of ticagrelor in the blood was 21.9 ng/mL
- at the end of the first 4 hours, the average amount of ticagrelor in the blood was 16.1 ng/mL
- at the end of the first 6 hours, the average amount of ticagrelor in the blood was 10.3 ng/mL



What medical problems did the participants have during the study?

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.

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 the study.

How many participants had adverse reactions?

None of participants had adverse reactions during the study.

How has this study helped patients and researchers?

This study helped researchers learn more about using ticagrelor in infants and toddlers who have SCD.

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 one study. Other studies may provide new information or different results.

Further clinical studies with ticagrelor in children who have SCD are planned. Researchers will study the results from this and other ticagrelor studies to learn more about this drug.

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 **"NCT03492931"** into the search box, and click **"Search"**.
- www.AstraZenecaClinicalTrials.com. Once you are on the website, type **"D5136C00010"** into the search box, and click **"Find a Study"**.

Full Trial Title: A Multi-centre, Phase I, Open-label, Single-dose Study to Investigate Pharmacokinetics (PK) of Ticagrelor in Infants and Toddlers, Aged 0 to less than 24 Months, with Sickle Cell Disease (HESTIA4)

AstraZeneca Protocol Number: D5136C00010

AstraZeneca AB sponsored this study and has its headquarters at 151 85 Södertälje, Sweden

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

Thank you!

Clinical study participants and their caregivers 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 patients.