Clinical Study Results

Research Sponsor: AstraZeneca

Drug Studied: Sodium zirconium cyclosilicate

Study Title: A study to learn how sodium zirconium cyclosilicate affects potassium levels in the blood

Thank you!

Thank you to the participants who took part in the clinical study for the study drug sodium zirconium cyclosilicate, also called ZS. You and all of the participants helped researchers learn more about ZS to help people with high potassium levels in their blood.

AstraZeneca sponsored this study and thinks it is important to share the results of the study with the participants and the public. An independent non-profit organization called CISCRP helped prepare this summary of the study results. We hope it helps the participants understand and feel proud of their important role in medical research.

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 participants were in the study for up to 9 days. But, the entire study took about 9 months to finish.

The study started in June 2017 and ended in February 2018. The study included 103 participants in Japan.

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 patients with high potassium levels in their blood. Before a drug can be approved for patients to take, researchers do clinical studies to find out if it works and how safe it is.

In this study, the researchers wanted to find out if ZS works in participants with high potassium levels in their blood. They also wanted to find out if the participants had any medical problems during the study.

Potassium is found in many foods. It helps the body perform several important functions, like controlling blood pressure and heart rhythm. When potassium levels in a person's blood become too high, his or her body may not be able to perform these functions well. This can lead to several medical problems.

People can develop high blood potassium levels if their diet has too much potassium, or if their body cannot get rid of enough potassium through urine or stool. There are treatments for high blood potassium levels, but these treatments can cause constipation. So, researchers are looking for new ways to treat high blood potassium levels. ZS may be able to lower blood potassium levels by helping the body get rid of potassium through urine or stool.

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

- How did ZS affect the participants' blood potassium levels?
- What medical problems did the participants have during the study?

To answer the questions in this study, the researchers asked for the help of men and women with high blood potassium levels. The participants in this study were 50 to 89 years old.

What kind of study was this?

This was a "double-blind" study. This means none of the participants, doctors, or other study staff knew what treatment each participant took. Some studies are done this way because knowing what treatment the participants are taking can affect the results of the study. When the study ended, the research sponsor found out which treatment the participants took so they could create a report of the study results.

The participants in the study took either ZS or a placebo by mouth. A placebo looks like a drug but does not have any medicine in it. Researchers use a placebo to help make sure any of the effects they see in the participants who take a drug are actually caused by that drug. The participants took either ZS or the placebo as a powder mixed with water.

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?

The participants visited their study site 5 times during the study.

Visit 1 and Visit 2

During the first 2 visits, the study doctors checked the health of the participants. The study doctors also reviewed the consent form with the participants and answered any questions they had before the participants agreed to take part in the study.

The participants could only continue the study if the study doctors determined the participants were healthy enough to receive treatment.

After the health checks during the second visit, the participants who were healthy enough to continue took 1 of the below doses 3 times a day:

- 34 participants took 5 grams, also known as g, of ZS powder with water
- 36 participants took 10 g of ZS powder with water
- 33 participants took a placebo with water

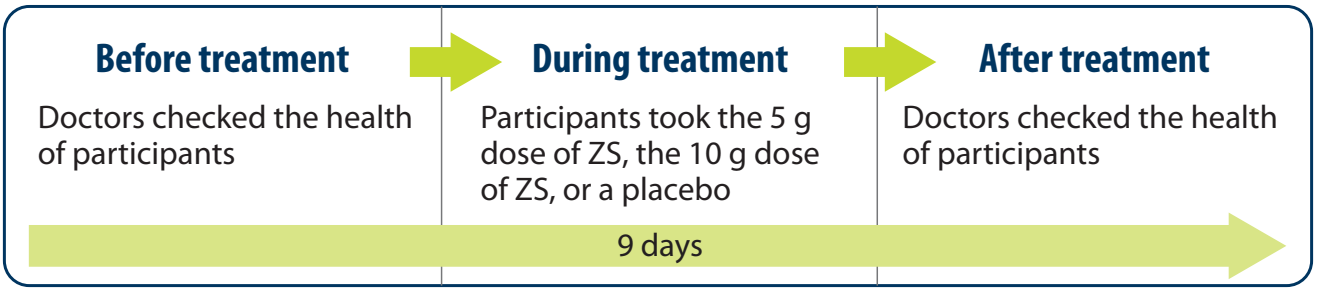
Visit 3

During the third visit, the participants took the same doses they took during the second visit. The researchers also checked the health of the participants again during this visit.

Visit 4 and Visit 5

During the fourth and fifth visits, the study doctors checked the health of the participants again and asked them how they were feeling.

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. A full list of the questions the researchers wanted to answer can be found on the websites listed at the end of this summary. A full report of the study results will also be available on these websites.

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 changes.

How did ZS affect the participants' blood potassium levels?

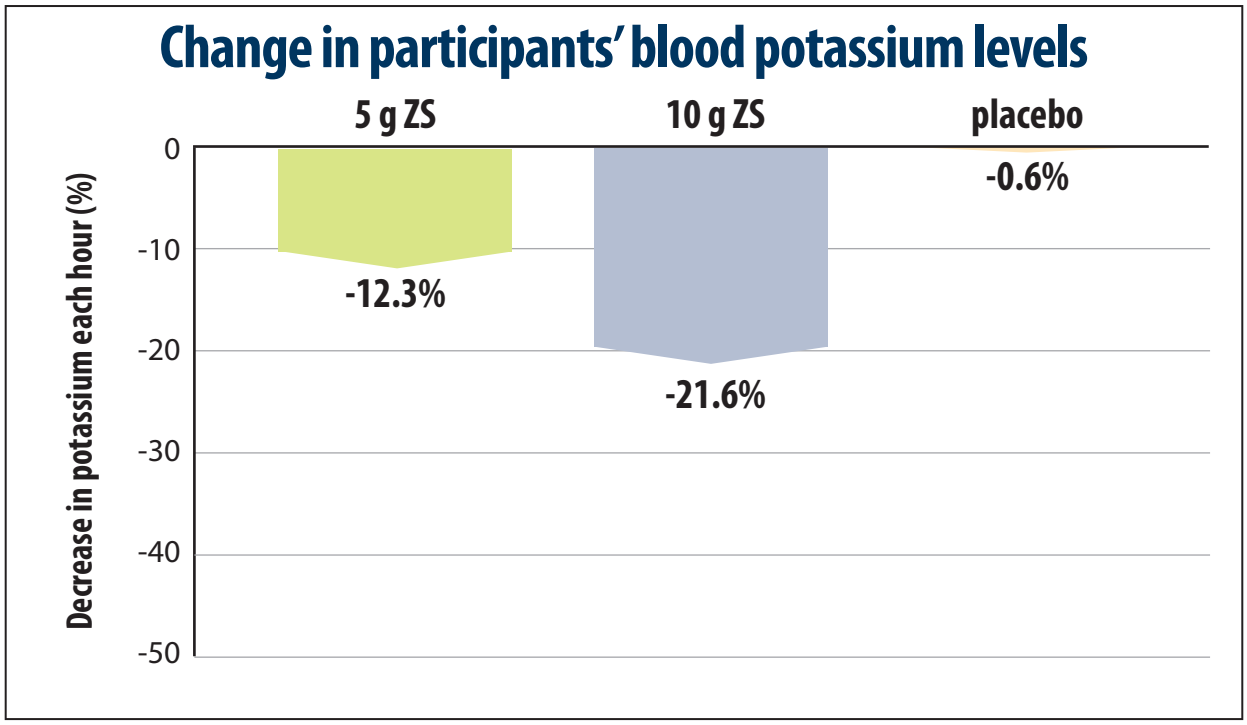
Overall, the researchers found that the participants who took ZS had lower blood potassium levels compared to the participants who took the placebo.

To answer this question, the researchers compared the participants' blood potassium levels before and after treatment.

In general, the researchers found that after the last treatment dose:

- the participants who took 5 g of ZS had a 12.3% decrease in their blood potassium levels
- the participants who took 10 g of ZS had a 21.6% decrease in their blood potassium levels
- the participants who took the placebo had a 0.6% decrease in their blood potassium levels

The figure below shows these results.



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.

These adverse reactions may or may not be caused by the study drug. Other medical problems happened during the study, but the study doctors did not think those other problems were related to the study drug. A lot of research is needed to know whether or not a drug causes an adverse reaction.

The websites listed at the end of this summary may have other information about adverse reactions or other medical problems that happened during this study.

How many participants had serious adverse reactions?

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

None of the participants died during the study.

How many participants had adverse reactions?

There were 2.9% of participants who had adverse reactions during the study. This was 3 out of 103 participants.

The participants who took 5 g of ZS had a similar amount of adverse reactions compared to the participants who took 10 g of ZS. None of the participants who took the placebo had adverse reactions during the study.

None of the participants stopped taking the treatment because of adverse reactions they had during the study.

The table below shows how many participants had adverse reactions during the study.

Adverse reactions during the study

	5 g ZS (out of 34 participants)	10 g ZS (out of 36 participants)	Placebo (out of 33 participants)
How many participants had adverse reactions during the study?	2.9% (1)	5.6% (2)	0.0% (0)
How many participants had serious adverse reactions during the study?	0.0% (0)	0.0% (0)	0.0% (0)
How many participants stopped treatment because of serious adverse reactions?	0.0% (0)	0.0% (0)	0.0% (0)

What adverse reactions did the participants have?

The table below shows the adverse reactions that happened during the study.

Adverse reactions

	5 g ZS (out of 34 participants)	10 g ZS (out of 36 participants)	Placebo (out of 33 participants)
Constipation	2.9% (1)	0.0% (0)	0.0% (0)
Irregular heartbeat	0.0% (0)	2.8% (1)	0.0% (0)
Tremor	0.0% (0)	2.8% (1)	0.0% (0)

How has this study helped patients and researchers?

This study helped researchers learn more about how ZS affects potassium levels in the blood.

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 ZS are planned.

Where can I learn more about this study?

You can find more information about this study on the websites listed below, as well as a full report of the study results.

- www.clinicaltrials.gov. Once you are on the website, type **"NCT03127644"** into the search box and click **"Search"**.
- www.AstraZenecaClinicalTrials.com. Once you are on the website, type **"D9482C00002"** into the search box, and click **"Find a Study"**.

Full trial title: A Phase 2/3 Multicenter, Dose-response Study to Assess Efficacy and Safety of ZS (Sodium Zirconium Cyclosilicate), in Japanese Patients With Hyperkalemia

AstraZeneca Protocol number: D9482C00002

AstraZeneca sponsored this study and has its headquarters at 1800 Concord Pike in Wilmington, Delaware.

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.