Clinical Study Results

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Study Sponsor: UCB Biopharma SRL

Treatment Studied: Zilucoplan

Protocol Number: MG0010

Short Study Title: A study to learn about how well zilucoplan works and how safe it is in people with generalized myasthenia gravis

Thank you

UCB thanks all the participants of this study. All the participants helped the researchers learn more about using zilucoplan in people living with **generalized myasthenia gravis**.

This is a summary of the main results of this study. An independent, non-profit organization helped prepare this summary of the study results, which included feedback from patients.

We think it is important to share the results with the participants and the public. We hope this summary helps the participants understand their important role in medical research.

The purpose of this summary is only to share information. If you need medical advice, please contact your doctor. If you participated in this study and have questions about the results, please speak with study staff.

Overview of this study

Why was the research needed?

Researchers are looking for a different way to treat generalized myasthenia gravis. Before a treatment is available for all patients, researchers do clinical studies to find out how the treatment works and how safe it is.

What treatments did the participants receive?

The participants in this study received zilucoplan or a placebo. The placebo looked like zilucoplan but did not have any zilucoplan in it.

What were the results of the study?

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

- **Did receiving zilucoplan help improve the participants' generalized myasthenia gravis symptoms?**

  Yes. Overall, the researchers found that the participants who received zilucoplan had improvements in their generalized myasthenia gravis symptoms compared to the participants who received the placebo.

- **What medical problems did the study doctors report as possibly related to the study treatment?**

  There were 33% of participants who received **zilucoplan** who had medical problems that the study doctors reported as possibly being related to the study treatment. This was 28 out of 86 participants.

  There were 25% of participants who received the **placebo** who had medical problems that the study doctors reported as possibly being related to the study treatment. This was 22 out of 88 participants.

More details about the results of this study are included later in this summary.

Where can I learn more about this study?

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

Why was the research needed?

Researchers are looking for a different way to treat generalized myasthenia gravis. Before a treatment is available to all patients, researchers do clinical studies to get information about how well the treatment works and about how safe it is.

The **immune system** is the body's natural defense system. It fights diseases, infections, and anything it does not recognize as a normal part of the body. There are many proteins that help the immune system protect the body. But, in people with diseases of the immune system, these proteins can cause the immune system to attack the body's own healthy cells. These types of diseases of the immune system are called **autoimmune diseases**.

Myasthenia gravis is a rare autoimmune disease that can lead to extreme muscle weakness. Myasthenia gravis can be ocular or generalized. It is called **ocular myasthenia gravis** when only the muscles that move the eyes and eyelids are affected. It is called generalized myasthenia gravis when muscles throughout the body, which may include the eyes, are affected. This can affect activities or body functions that many people take for granted, including seeing objects clearly, speech, and swallowing. It can also affect the limbs, making it difficult for people to do everyday activities, including working or studying. It is a long-term condition that requires constant and often long-term treatment to improve symptoms. The participants in this study had generalized myasthenia gravis. The study drug **zilucoplan** is designed to stop part of the immune system from attacking the body.

The researchers in this study wanted to learn how well zilucoplan worked in participants living with generalized myasthenia gravis. They also wanted to learn if the participants had any medical problems during the study.

What were the main questions studied?

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

- Did receiving zilucoplan help improve the participants' generalized myasthenia gravis symptoms?
- What medical problems did the study doctors report as possibly related to the study treatment?

Who participated in the study?

There were 174 participants with generalized myasthenia gravis who participated in this study, including 99 females and 75 males. They were 19 to 75 years old when they joined.

The study included participants in 10 countries:

Country	Number of Participants
Canada	3
France	7
Germany	3
Italy	4
Japan	16

Country	Number of Participants
Norway	6
Poland	23
Spain	5
United Kingdom	19
United States	88

In this study, the researchers planned to include participants living with generalized myasthenia gravis who had:

- Antibodies that attacked the acetylcholine receptor on their body's own muscle cells. The acetylcholine receptor helps the nervous system communicate with muscle cells. This was determined using a blood test.
- Mild to severe muscle weakness.
- No changes to their other generalized myasthenia gravis medications for at least 1 month before joining the study.

All participants had to be vaccinated against meningococcal infection at the start of the study. This is a type of bacterial infection that can lead to meningitis, which is an infection of the lining of the brain and spinal cord.

Each participant was planned to be in the study for about 4 months, but the whole study lasted for a little more than 2 years. The study started in September 2019 and ended in December 2021.

What treatments did the participants receive?

The participants in this study received zilucoplan or a placebo as an injection just under the skin. The placebo injection looked like the zilucoplan injection but did not have any zilucoplan in it. The researchers used the placebo to help make sure the effects they found in the study were actually caused by zilucoplan. Doses of zilucoplan were measured in milligrams per kilogram of body weight (mg/kg).

None of the participants, study doctors, or study staff knew what treatment each participant was receiving. UCB staff also did not know. Some studies are done this way because knowing what treatment the participants are receiving can affect the results of the study. After the study was completed, UCB learned what treatment each participant received so they could create a report of the results.

The researchers used a computer program to randomly choose if the participants received zilucoplan or the placebo. This helped make sure the treatments were chosen fairly and comparing the results for the treatments was as accurate as possible.

All participants were able to continue taking certain other treatments for their generalized myasthenia gravis throughout the study.

The chart below shows the treatments the researchers planned to study:

	Group 1	Group 2
	86 participants	88 participants
	0.3 mg/kg of zilucoplan	Placebo
	Every day for 12 weeks	

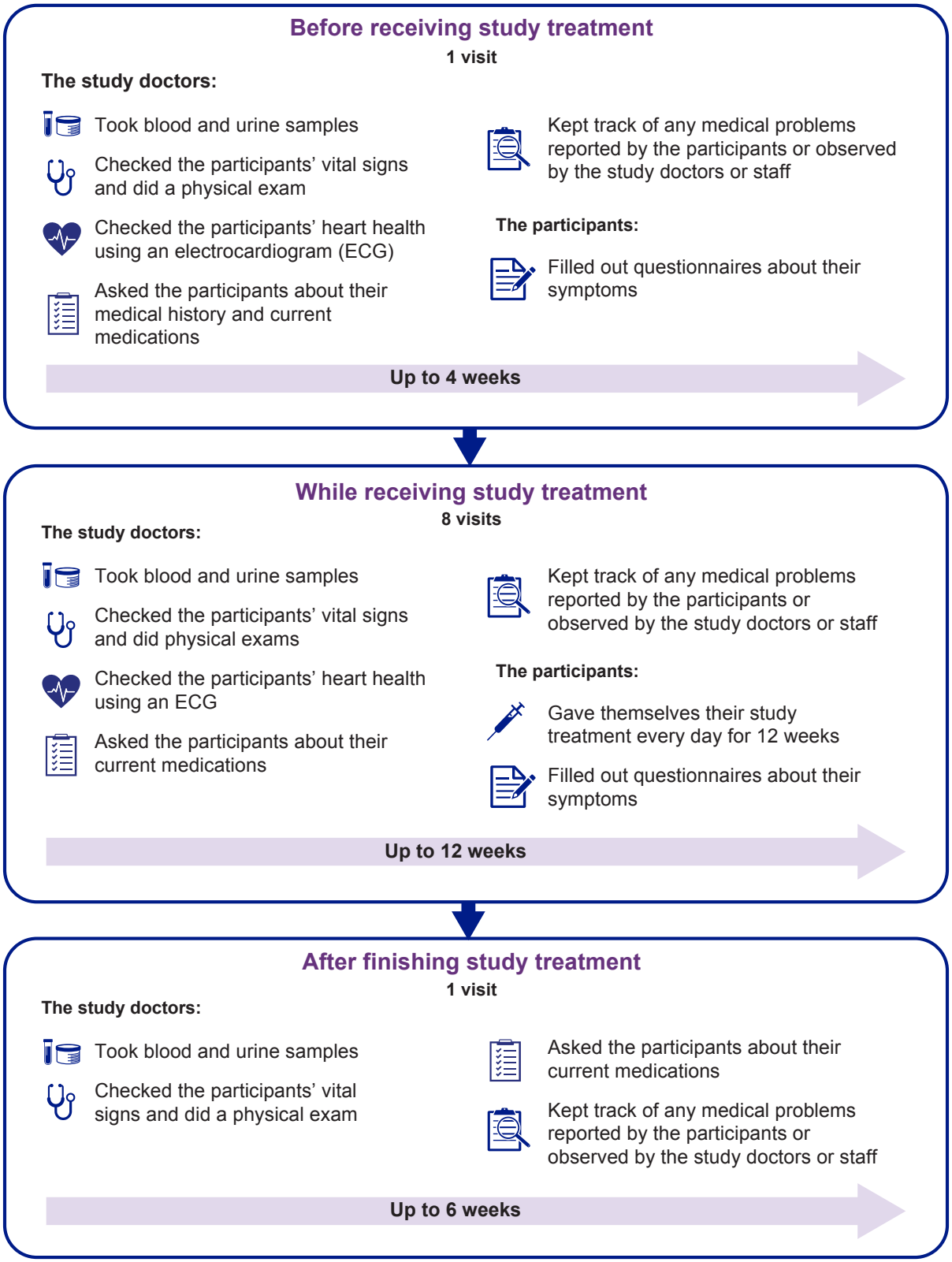
What happened during this study?

This section shows how the study was planned to be done.

Before receiving study treatment, the participants visited their clinic to first learn about the study before deciding to join. This is called **informed consent**. Then, the study doctors and study staff asked the participants about their medical history and checked their health to make sure they could join the study. This part lasted up to 4 weeks. After completing the 4-week period, participants returned to the clinic for additional tests and completed questionnaires about their generalized myasthenia gravis. If they met the conditions to enter the study, the participants then received their randomly chosen treatment.

While receiving study treatment, the participants visited the clinic up to 8 times. The study doctors kept track of any medical problems reported by the participants or observed by the study doctors or staff.

The chart below shows how the study was planned to be done:



What were the results of the study?

This is a summary of the main results from this study. These are the results from all the participants combined. The individual results of each participant might be different and are not in this summary.

Deciding which treatments work best usually takes results from several studies. Other studies may provide new information or different results. Always talk to a doctor before making any treatment decisions.

Did receiving zilucoplan help improve the participants' generalized myasthenia gravis symptoms?

Yes. Overall, the researchers found that the participants who received zilucoplan had improved generalized myasthenia gravis symptoms compared to the participants who received the placebo.

To test this, the participants answered a questionnaire about their generalized myasthenia gravis symptoms and their ability to do their normal daily activities. This questionnaire is called **Myasthenia Gravis Activities of Daily Living** (**MG-ADL**).

The participants completed the MG-ADL before the study and at certain points during the study. The participants' answers were given a score. A higher score means that a person's generalized myasthenia gravis is more severe.

The researchers compared each participant's MG-ADL score from **before** they received study treatment with their scores from **after** they had received all of their doses of study treatment. Then, the researchers calculated and compared the **average change** in the MG-ADL scores after 12 weeks for the participants in the zilucoplan group and the placebo group.

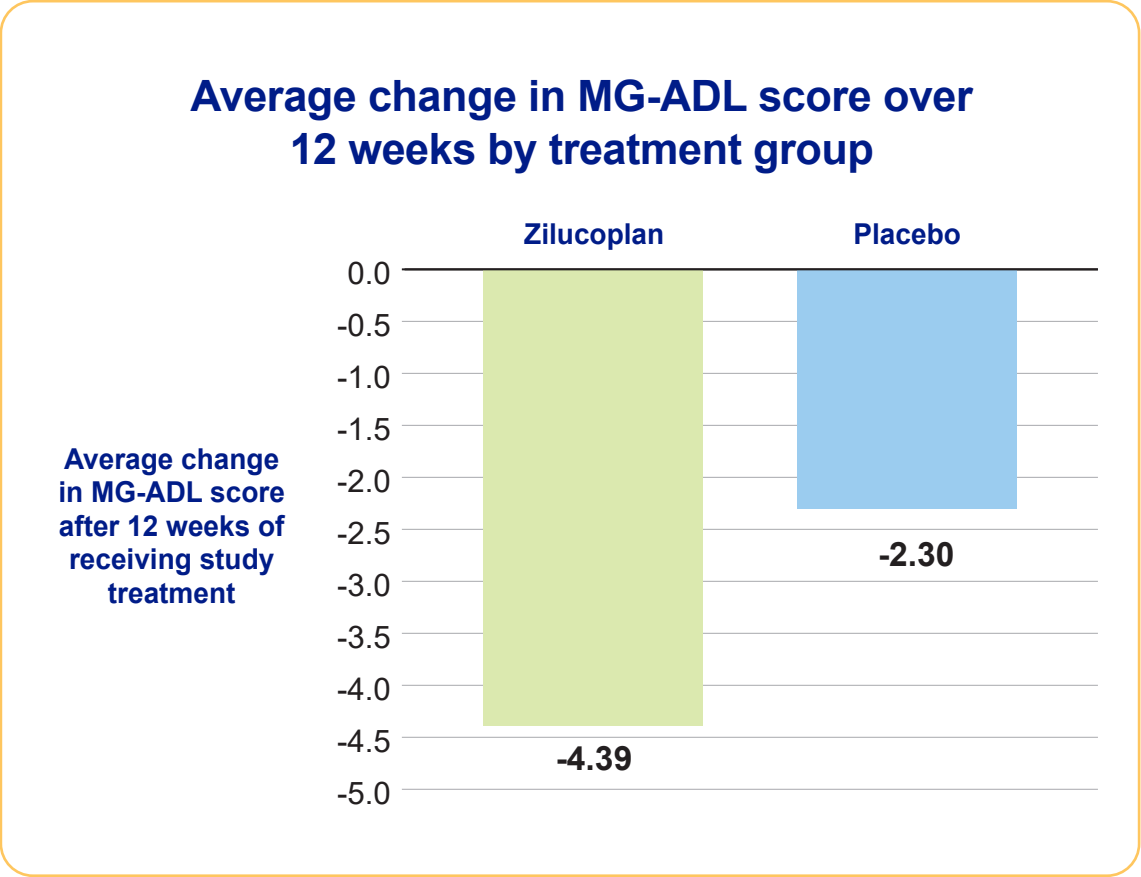
If a participant's scores had decreased over time, so that they had a **negative change in their score**, this meant that their generalized myasthenia gravis had **improved**.

The results from this study were:

- For the participants who received **0.3 mg/kg** of zilucoplan, the average change in MG-ADL score after 12 weeks of treatment was **−4.39**.
- For the participants who received the **placebo**, the average change in MG-ADL score after 12 weeks of treatment was **−2.30**.

Clinical Study Results

The graph below shows the results from this study.



Overall, the researchers found that the participants' MG-ADL scores decreased more in the zilucoplan group compared to the placebo group. This means that the participants who received zilucoplan had a meaningful improvement in their generalized myasthenia gravis symptoms compared to the participants who received the placebo.

What medical problems did the study doctors report as possibly related to the study treatment?

This section is a summary of the medical problems that the participants had during the study that the doctors reported as **possibly related** to the study treatment. These medical problems are called **adverse reactions**.

In this study, the doctors did not know whether the participants were receiving zilucoplan or the placebo when the medical problems happened. This summary does not show if the study sponsor found that any of the adverse reactions were related to the study treatment. Some participants had more than 1 adverse reaction.

This summary also includes information about **serious adverse reactions**. An adverse reaction is considered **serious** when it is life-threatening, causes lasting problems, or requires hospital admission.

Other studies may or may not show that these medical problems were related to the study treatment. **The results from several studies are often needed to decide which medical problems are caused by the study treatment.** Always talk to a doctor before making any treatment decisions.

Did any adverse reactions happen during this study?

Adverse reactions in this study

	Group 1 Zilucoplan (out of 86 participants)	**Group 2 Placebo** (out of 88 participants)
How many participants had serious adverse reactions?	 5% (4 participants)	 1% (1 participant)
How many participants had adverse reactions?	 33% (28 participants)	 25% (22 participants)
How many participants stopped receiving study treatment due to adverse reactions?	 1% (1 participant)	 none

What serious adverse reactions did the participants have?

The table below shows the serious adverse reactions that happened during the study. Some of the participants had more than 1 serious adverse reaction.

Serious adverse reactions during the study

Serious adverse reaction	Group 1 Zilucoplan (out of 86 participants)	Group 2 Placebo (out of 88 participants)
Sore inside the mouth, also known as a canker sore (Aphthous ulcer)	1% (1 participant)	none
Yeast infection in the mouth, also known as oral thrush (Oral candidiasis)	1% (1 participant)	none
Increased levels of a pancreas enzyme, seen on a blood test (Lipase increased)	1% (1 participant)	none
Sudden swelling that frequently happens along with an allergic reaction that causes itchy and raised red patches of skin (Angioedema)	1% (1 participant)	none
Infection of the linings of the brain and spinal cord from the herpes virus (Herpes simplex meningoencephalitis)	none	1% (1 participant)
An abnormal finding on an imaging scan due to an infection called herpes simplex meningoencephalitis (Lepto-meningeal enhancement)	none	1% (1 participant)

None of the participants died due to serious adverse reactions.

What adverse reactions did the participants have?

The most common adverse reaction was bruising where the injection was given.

The table below shows the adverse reactions that happened in 5 or more participants total. There were other adverse reactions, but these happened in fewer participants.

Adverse reactions in 5 or more participants

Adverse reaction	**Group 1 Zilucoplan** (out of 86 participants)	**Group 2 Placebo** (out of 88 participants)
Bruising where the injection was given	12% (10 participants)	5% (4 participants)
Pain where the injection was given	9% (8 participants)	3% (3 participants)
Headache	3% (3 participants)	3% (3 participants)

What did the researchers learn from this study?

The results of this study have helped researchers learn more about using zilucoplan in people living with generalized myasthenia gravis.

Deciding which treatments work best for patients almost always takes results from several studies. This summary shows only the main results from this one study. Other studies may provide new information or different results.

The purpose of this summary is only to share information. If you need medical advice about your own health or situation, please contact your doctor.

When this document was approved, further clinical studies with zilucoplan were planned.

Where can I learn more about this study?

You can find more information about this study at the websites listed below:

- www.clinicaltrials.gov/ct2/show/study/NCT04115293
- www.clinicaltrialsregister.eu/ctr-search/search?query=2019-001564-30

If you have questions about this study, UCB contact information is available at https://www.ucb.com/UCBCares.

Study Information

Protocol Number: MG0010

Study Sponsor: UCB Biopharma SRL sponsored this study. It is referred to as UCB in this summary.

Full Study Title: A Phase 3, Multicenter, Randomized, Double-Blind, Placebo-Controlled Study to Confirm the Safety, Tolerability, and Efficacy of Zilucoplan in Subjects with Generalized Myasthenia Gravis

National Clinical Trial Number: NCT04115293

EudraCT Number: 2019-001564-30

Thank you

Participants in clinical studies 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.

This summary was last updated on 25 July 2024.
The final clinical study report is dated 30 June 2022.