Clinical Study Results

Inspired by patients. Driven by science.

Research Sponsor: UCB Biopharma SPRL

Treatment Studied: Levetiracetam

Protocol Number: N01148

Short Study Title: A study to see if levetiracetam worked and to learn about its safety in children and teenagers 1 month and older with epilepsy

Thank you!

UCB thanks all the participants of this study. All the participants and caregivers helped the researchers learn more about using levetiracetam in children and teenagers with epilepsy.

This is a summary of the main results of this study. We hope this summary helps the participants and their caregivers understand and feel proud of their important role in medical research.

This summary is for informational purposes only. If you or the child you care for needs medical advice, please contact your study doctor. If you or the child you care for participated in this study and have questions about the results, please speak with a study doctor or staff at the study site.

Why was the research needed?

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 researchers in this study wanted to learn how well levetiracetam worked in a large number of children and teenagers with epilepsy. They also wanted to learn if these participants had any medical problems during the study.

People with epilepsy have seizures that happen again and again. Seizures are caused by uncontrolled electrical activity in the brain. Some seizures start in just one part of the brain. These are called focal seizures, also called partial onset seizures. The term focal seizures is used throughout this summary. The participants in this study had focal seizures.

Levetiracetam helps to reduce uncontrolled electrical activity in the brain that causes seizures. When this study began, levetiracetam had been approved to treat focal seizures in adults with epilepsy, but not in children or teenagers with epilepsy.

The researchers in this study wanted to find out if levetiracetam worked in participants who were already taking 1 or 2 other anti-seizure medicines.

What were the main questions studied?

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

- How many seizures did the participants have during the study?
- What medical problems did the participants have during the study?

Who participated in the study?

Girls and boys with epilepsy participated in this study. Some participants joined this study right after being in another levetiracetam study. Participants were 1 month to 16 years old when they started this study, or when they started the earlier study.

In this study, the researchers planned to include participants who:

- Had focal seizures when they started the study, or when they started the earlier study
- Were taking a steady dose of 1 or 2 anti-seizure medicines

Vagus nerve stimulation was counted as an anti-seizure medicine. It uses a device put into the body that sends electricity to a nerve to help control seizures.

This study included 255 participants in 16 countries: Belgium, Brazil, Canada, the Czech Republic, France, Germany, Hungary, India, Italy, Mexico, Poland, Romania, the Russian Federation, South Africa, the United Kingdom, and the United States.

Each participant was in the study for up to about 1 year, but the whole study lasted for about 3 years and 8 months. The study started in October 2004 and ended in June 2008.

What treatments did the participants take?

All participants in this study took levetiracetam.

Participants could take levetiracetam as a pill or as a liquid based on which was easier for them to take. All participants also took their usual 1 to 2 anti-seizure medicines throughout the study.

Doses were measured in milligrams per kilogram of body weight, also called mg/kg. Participants took 20 to 60mg/kg of levetiracetam each day. The study doctors could increase or decrease the dose if needed.

Some of these participants joined this study right after being in another levetiracetam study. In that study, the participants did not know what treatment they were taking. To make sure that the results from that study were not affected, it was important that these participants did not know what they were taking in this study. So, some participants took both levetiracetam and a placebo when this study started.

The placebo looked like levetiracetam, but did not have any levetiracetam in it.

The study doctors, other study staff, and UCB staff knew that all the participants in this study were taking levetiracetam.

There were 255 participants who took levetiracetam. The chart below shows the treatments the researchers planned for this study.

	20 to 60mg/kg of levetiracetam each day, based on the participant's body weight Dose could be increased or decreased during Part 2 if the study doctors thought it was needed
	Levetiracetam twice each day for up to 48 weeks
	Levetiracetam as either a pill or a liquid

What happened during the study?

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

Before the study started, each child's parent or caregiver learned about the study and decided to let the child join the study. This is called "informed consent." The study doctors or study staff then asked about the child's medical history and checked the child's health to make sure they could join the study. They also got information about how many seizures each child had before starting to take levetiracetam.

When the study started:

	The participants who had not taken levetiracetam before took 20mg/kg or 25mg/kg of levetiracetam each day.
	The participants who had taken levetiracetam in the earlier study took the same dose of levetiracetam that they were taking when they left the other study. They took this dose each day.

During the study:

	The participants or their caregivers kept track of their seizures every day using diaries.
	The study doctors kept track of any medical problems reported by the participants or observed by their caregivers, the study doctors, or the study staff.
	The participants gave blood and urine samples at some clinic visits.
	The participants had electroencephalograms, also called EEGs. These are tests to record the electrical activity in the brain.
	The participants had electrocardiograms, also called ECGs. These are tests to record the electrical activity in the heart.
	The study doctors studied the participants' behavior and other functions of their brain.
	The participants kept taking their usual 1 or 2 anti-seizure medicines during the entire study.

There were 3 main parts to the study.

Part 1 lasted 8 weeks. During this part:

	The participants could stay on the same levetiracetam dose.
	The study doctors could slowly increase participants' levetiracetam dose if they thought a higher dose was needed.

Part 2 lasted 40 weeks.

	During this part, the participants kept taking the levetiracetam dose they had reached in Part 1.

Part 3 lasted 2 weeks.

	During this part, some of the participants chose to enter a program where they could continue taking levetiracetam. The rest of the participants took smaller and smaller amounts of levetiracetam for 2 weeks until they were not taking any.

They took their usual 1 or 2 anti-seizure medicines during this time.

They had a final clinic visit 2 weeks after they stopped taking levetiracetam.

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.

The researchers looked at the results in 2 age groups. The groups were based on the age of the participant either when they joined this study, or when they joined the earlier study. It is important to know that this study was designed to get the most accurate answers to the questions below. It was not designed to compare the 2 age groups.

How many seizures did the participants have during the study?

The researchers wanted to learn how many seizures participants had on a steady dose of levetiracetam in Part 2 compared with how many they had before taking levetiracetam. They counted participants' seizures before they took levetiracetam and in Part 2. They looked at the number of seizures the participants had in 1 week.

The researchers looked at the results using the median. The median is the middle number in a set of numbers. It is between the highest and lowest numbers.

The researchers found that during Part 2, the median number of seizures was less than the median number before the participants took levetiracetam:

- Participants between 1 month and less than 4 years old had a median of 56.0% fewer seizures during Part 2.
- Participants between 4 years and 16 years old had a median of 86.4% fewer seizures during Part 2.

What medical problems did the 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 treatments. These medical problems are called "adverse reactions". Some participants had more than 1 adverse reaction.

An adverse reaction is considered "serious" when it puts the participant's life at risk, requires hospitalization, causes disability, causes a baby being born with medical problems, or may have turned into one of these problems if not treated.

These adverse reactions shown may or may not be caused by the treatments in the study. The results from several studies are needed to decide if a treatment causes an adverse reaction.

In this study, adverse reactions include seizures that got worse during the study.

The results below are shown by age group, but the study was not designed to compare the age groups.

How many participants had serious adverse reactions?

There were 3.9% of participants who had serious adverse reactions during the study. This was 10 out of 255 participants.

None of the participants died due to serious adverse reactions.

The table below shows how many participants in each age group had serious adverse reactions.

Number of participants with serious adverse reactions during the study

	Levetiracetam 1 month to less than 4 years old (out of 152 participants)	Levetiracetam 4 to 16 years old (out of 103 participants)
How many participants had serious adverse reactions?	4.6% (7)	2.9% (3)
How many participants died due to serious adverse reactions?	0.0% (0)	0.0% (0)

What serious adverse reactions did participants have?

The serious adverse reaction of seizure happened in more than 1 participant in each age group. In both age groups, seizure was the most common serious adverse reaction.

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

Serious adverse reactions during the study

	Levetiracetam 1 month to less than 4 years old (out of 152 participants)	Levetiracetam 4 to 16 years old (out of 103 participants)
Seizure	3.9% (6)	1.9% (2)
Lower than normal amount of blood cells called neutrophils	0.0% (0)	1.0% (1)
Inhaling fluids or solids into the airway	0.7% (1)	0.0% (0)

How many participants had any adverse reactions?

Overall, 42.0% of participants had adverse reactions that were either serious or not serious. This was 107 out of all 255 participants. Overall, 4.7% of the participants taking levetiracetam left the study due to adverse reactions. This was 12 out of all 255 participants.

The table below shows how many participants in each age group had adverse reactions.

Number of participants with adverse reactions during the study

	Levetiracetam 1 month to less than 4 years old (out of 152 participants)	Levetiracetam 4 to 16 years old (out of 103 participants)
How many participants had adverse reactions?	39.5% (60)	45.6% (47)
How many participants left the study due to adverse reactions?	5.2% (8)	3.9% (4)

What adverse reactions did the participants have?

The most common adverse reaction in both age groups was irritability.

The table below shows the adverse reactions that happened in 5% or more participants in either of the age groups. This means they happened in at least 1 out of every 20 participants in either group. There were other adverse reactions, but these happened in fewer participants.

Adverse reactions in 5% or more of participants in either age group during the study

	Levetiracetam 1 month to less than 4 years old (out of 152 participants)	Levetiracetam 4 to 16 years old (out of 103 participants)
Irritability	7.9% (12)	7.8% (8)
Seizure	7.2% (11)	3.9% (4)
Sleepiness	6.6% (10)	2.9% (3)
Angry behavior	3.3% (5)	6.8% (7)
Headache	0.0% (0)	8.7% (9)

How has this study helped patients and researchers?

The results of this study have helped researchers learn more about using levetiracetam in children 1 month of age and older with epilepsy. The results of this study might be used in other studies to compare this drug with other treatments for people who have a similar condition.

The results of this study are based only on the participants included in the study.

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.

This summary is provided for informational purposes only. If you need medical advice about your or your child's health or situation, please contact your study doctor.

When this study ended, no further clinical studies with levetiracetam in this age group were ongoing.

Where can I learn more about this study?

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

- https://clinicaltrials.gov/ct2/show/NCT00152516?lead=ucb&id=n01148&rank=1
- https://www.clinicaltrialsregister.eu/ctr-search/search?query=n01148

If you have questions about this study, you can contact UCB by email at datasharing@ucb.com.

Study Information

Protocol Number: N01148

Study Sponsor: UCB Pharma Inc. and UCB SA Pharma Sector sponsored this study. These are now called UCB Biopharma SPRL and are referred to as UCB in this summary.

Treatment Studied: Levetiracetam

Short Study Title: A study to see if levetiracetam worked and to learn about its safety in children and teenagers 1 month and older with epilepsy.

Full Study Title: A multicenter, open-label, long-term, follow-up study of the safety and efficacy of levetiracetam in children with partial onset seizures

National Clinical Study Number: NCT00152516

EudraCT Number: 2004-000200-40

Glossary

Angry behavior:	Also called “aggression.”
Inhaling fluids or solids into the airway:	Also called “aspiration.”
Lower than normal amount of blood cells called neutrophils:	Also called “neutropenia.”
Seizure:	Also called “convulsion.”
Sleepiness:	Also called “somnolence.”

This summary was last updated on 29 May 2019.

Final clinical study report dated 02 February 2009.