Summary of Results for Laypersons

Astellas is grateful to the children who took part in this clinical study. Thank you.

What was the Study Called?

A Randomized, Phase 2 Study of Single-agent Erlotinib versus Oral Etoposide in Patients with Recurrent or Refractory Pediatric Ependymoma. This is also known as the PETEY study.

Why was this Study Needed?

An ependymoma is a type of brain tumor that begins in ependymal cells. Those are the cells that line the ventricles and passageways in the brain and the spinal cord. They make the fluid that nourishes the brain (cerebrospinal fluid). Ependymomas in children are treated with the experimental medicine etoposide or other anticancer treatments. Ependymomas in some children may come back after the anticancer treatments. Or they may become resistant to the anticancer treatments. This means that those treatments can no longer stop the cancer growth or keep the cancer stable. Therefore, there was a need to study new treatments for ependymomas in children that are resistant to the available treatments. Erlotinib (also known as OSI-774 and Tarceva®) is an experimental oral medicine (taken by mouth) for such ependymomas.

This study was conducted in children with ependymomas. The children took erlotinib or etoposide. The main question this study was meant to answer was did the study medicine decrease the size of the ependymoma. The study compared the effects of erlotinib and etoposide. It was also important to find out what unwanted effects the children had from the study medicines.

The study started in September 2010. The sponsor of this study (Astellas) did a review of the study results in August 2012. The review showed that the children did not benefit from the erlotinib treatment. Astellas stopped this study in November 2012. When the study was stopped, 25 children had taken study medicine. Astellas reviewed all the study information and created a report of the results. This is a summary of that report.

What Kind of Study was This and Who Took Part in it?

This was an “open-label” study. This means that the parents of each child and the study doctors knew which study medicine that child took (erlotinib or etoposide).

This study included children and adolescents aged between 1 and 21 years. They had an ependymoma or a subependymoma (a variation of an ependymoma). Their brain tumor had come back after anticancer treatment. Or it had become resistant to the anticancer treatment. The ability to do daily activities varied among the children. For children 10 years or younger, it could range from being fully active to getting dressed but lying around much of the day. For children older than 10 years, it could range from being fully active to needing support and frequent medical care.

During the study, the study doctor did a check-up of the children at several study visits. At the first visit, children were checked to see if they could be in the study. Children who could be in the study were picked for a treatment (erlotinib or etoposide) by chance alone.

- Erlotinib: Children took erlotinib tablets (85 mg for every square meter of body surface) once a day.
- Etoposide: Each 4 weeks, children took etoposide (50 mg for every square meter of body surface) once a day for the first 3 weeks and no study medicine for the next week (3 weeks on / 1 week off). The children took etoposide capsules by mouth. If they could not swallow the capsules, they took the injectable form of etoposide by mouth.

The children could take study medicine until their cancer got worse, they died, they had unwanted effects they could not tolerate or they or their parents asked to stop treatment or the study doctor decided to stop treatment.

This study took place at 13 clinics in several countries. 25 children were in the study and took at least 1 dose of study medicine.

	Number of Children
Age Group	
Aged between 1 and 6 years	7
Aged between 7 and 11 years	5
Aged between 12 and 16 years	8
Aged between 17 and 21 years	5
Sex	
Boys	19
Girls	6
Clinic Location	
European Union Countries (*at the time of the study*)	4
The UK	4
Outside European Union	21
Canada	8
The US	13

What Were the Study Results?

The main question this study in children with ependymoma was meant to answer was did the study medicine decrease the size of the brain tumor. The study compared erlotinib and etoposide.

When this study was stopped, there were not enough children in the study to answer the study's main question. This is a summary of study results for the children in the study.

The median (middle value in a sorted list of numbers) number of days that children took either study medicine was similar: 52 days in the erlotinib group and 57.5 days in the etoposide group.

The size of the ependymoma was not decreased in any of the 13 children who took erlotinib. The tumor size was decreased in 2 of the 12 children (16.7%) who took etoposide.

What Adverse Reactions did Patients Have?

A lot of research is needed to know whether a medicine causes a medical problem. So when new medicines are being studied researchers keep track of all medical problems that patients have while they are in the study. These medical problems are called "adverse events" and are recorded whether or not they might be caused by the treatment taken.

An "adverse reaction" is any medical problem or "adverse event" that is judged by the study doctor to be possibly caused by a medicine or treatment used in the study.

The table below shows the most common adverse reactions experienced by children who took at least 1 dose of study medicine in this study.

Adverse Reaction	Erlotinib (out of 13 children)	Etoposide (out of 12 children)
Any adverse reaction	11 (84.6%)	10 (83.3%)
Rash	4 (30.8%)	0
Skin eruptions resembling acne	3 (23.1%)	0
Decreased appetite	2 (15.4%)	2 (16.7%)
Diarrhea	2 (15.4%)	3 (25.0%)
Itchy skin	2 (15.4%)	0
Vomiting	2 (15.4%)	6 (50.0%)
Belly pain	1 (7.7%)	4 (33.3%)
Decreased weight	1 (7.7%)	1 (8.3%)
Fatigue or tiredness	1 (7.7%)	7 (58.3%)
Headache or head pain	1 (7.7%)	1 (8.3%)
Nausea or the urge to vomit	1 (7.7%)	2 (16.7%)
Painful swelling and sores inside the mouth	1 (7.7%)	1 (8.3%)
Hair loss	0	4 (33.3%)

An adverse reaction is considered "serious" when it is life-threatening, causes lasting problems or needs hospital care.

One child (4.0%, or 1 out of 25 children) experienced a serious adverse reaction in this study. The child took etoposide.

One child who took erlotinib died during the study. The death was not because of the study medicine.

After the children stopped taking study medicine, the study doctor followed up with them for up to 12 months. The study doctor recorded any adverse events they had during that time. During that time, 8 children died: 2 children who had taken erlotinib and 6 children who had taken etoposide. The cause of death of 1 child who had taken erlotinib was unknown. The other 7 children died because their cancer got worse.

Where Can I Learn More About This Study?

This document is a short summary of the main results from this study and reflects the information available as of October 2014. You can find this summary and more information about this study online at http://www.astellasclinicalstudyresults.com.

Please remember that researchers look at the results of many studies to find out how well medicines work and which adverse reactions they might cause. This summary only shows the results of this 1 study. Your child's doctor may help you understand more about the results of this study.

Sponsor contact details:

Astellas Pharma Global Development
1 Astellas Way
Northbrook, IL 60062
USA