Summary of Results for Laypersons

What was the Study Called?

A Phase 3, Randomized, Double-blind, Multi-center Study to Compare the Efficacy and Safety of Micafungin Versus Amphotericin B Deoxycholate for the Treatment of Neonatal Candidiasis. This was also called the MAGIC-2 study.

Why was this Study Needed?

Micafungin (also known as FK463 and Mycamine®) is a prescription medicine used to treat patients when a fungal infection has spread throughout their body (called an "invasive" infection). Invasive fungal infections can be caused by a yeast called *Candida* (invasive candidiasis). Patients who have very few neutrophils (a type of white blood cell) are at risk for these types of infections. *Candida* species which is a type of fungal species is a leading cause of infection that can lead to death in the newborn in the hospital.

This study was done to find out if the study medicine called micafungin provided a clinical benefit compared to another medicine called amphotericin B deoxycholate (referred to as "CAB") when given to infants that had an infection with *Candida* species. Also, it was important to find out what unwanted effects micafungin might cause.

This multinational study for micafungin took place at 17 clinics in the following regions: Asia Pacific (Philippines), Europe (Bulgaria, Greece, Hungary, Romania and Ukraine), Latin America (Brazil and Colombia), Middle East (Israel and Turkey) and North America (Canada and United States). The study took place from February 2013 to December 2014. When the study ended the sponsor 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 a "double-blind" study. The parent or legal guardian, and doctor, did not know which study medicine was given to the infant (in this report, "infants" will be referred to as "patients"). Patients were randomly assigned (like flipping a coin) to one of two treatment groups: 1) micafungin 10 mg given once daily intravenously (in the vein) or 2) CAB 1 mg given once daily in the vein for 21 to 42 days depending on the extent of the infection. The ratio of infants receiving micafungin and CAB was 2:1 (this means that twice as many infants would receive micafungin compared to CAB). All patients were followed until 30 days after the last dose of study medicine. The purpose of this follow-up was to capture any new infection or a relapse/return of the original fungal infection, to obtain a final safety evaluation of the patient and to check to see if the patient's infection resolved if it did not resolve by the end of treatment.

Infants between 2 days and 4 months of age diagnosed with an infection of invasive candidiasis took part in the study.

A total of 30 patients were enrolled in the study and received at least 1 dose of study medicine. Additional information on the 30 patients are listed in the table below.

	Number of Patients
Age Group	
Aged 4 weeks or younger	25
Aged more than 4 weeks to 4 months	5
Boys	14
Girls	16
EU Countries	12
Outside EU	18

What Were the Study Results?

The original plan was to enroll 225 patients in this study; however, the study was stopped early because it was difficult to find enough patients to enroll in the study. Only 30 patients were enrolled and received study medicine. Therefore, the results from the study were not sufficient to conclude if micafungin provided a clinical benefit to patients.

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 patients taking part in this study.

Adverse Reaction	Micafungin (out of 20 patients)	CAB (out of 10 patients)
Lack of enough red blood cells (anemia)	5	1
Dangerously low levels of a type of white blood cell (neutrophils)	3	0
An increase in the number of eosinophils (a type of white blood cell in the blood) in response to an allergic reaction or a parasitic infection	0	1
Decreased number of platelets (platelets are blood cells that help blood clot)	1	0
Liver function test abnormal	2	0
Increased blood level of a liver enzyme (alanine aminotransferase)	1	0
Increased blood level of a liver enzyme (aspartate aminotransferase)	1	0
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Adverse Reaction	Micafungin (out of 20 patients)	CAB (out of 10 patients)
Abnormal blood level of a liver pigment (bilirubin) often a sign of liver problems	1	0
Increased blood level of a liver pigment (bilirubin) often a sign of liver problems	1	0
Blood urea increased (urea is a waste product removed by the kidneys)	1	0
Abnormal liver enzymes	1	0
Increased liver enzymes	0	1
Low body temperature	1	0
Reaction that can occur during or following infusion of the drug. The reaction may include fever, chills, rash, low blood pressure, and difficulty breathing	0	1
A rash that occurred at the site of infusion or injection of the medicine	1	0
Fever	0	1
Severe illness in which the bloodstream is overwhelmed by bacteria	1	0
Pneumonia (a lung infection that gives you a cough and a fever and generally makes it difficult to breathe)	1	0
A serious medical condition that occurs when sepsis (a body-wide inflammatory response to infection) leads to dangerously low blood pressure	1	0
The production of abnormally small amounts of urine	0	1
Kidney failure	1	0
Adverse drug reaction of the skin	0	2
Infection in a vein causing swelling and irritation	1	0
Infection in a vein in the extremities (arms and/or legs)	0	1
High or low blood test results which test for liver function	1	0
Milky discharge from nipple that is not normal	0	1

An adverse reaction is considered “serious” when it is life-threatening, causes lasting problems or needs hospital care. A total of 7 patients experienced at least 1 serious adverse reaction: 6 patients who received micafungin and 1 patient who received CAB.

During this study, 4 subjects died: 1 subject who received CAB and 3 subjects who received micafungin. None of these deaths were judged by the investigator to be related to the study medicines.

Where Can I Learn More About This Study?

Astellas may perform additional studies to better understand micafungin.

This summary of the clinical study results is available 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. If you have questions about micafungin, please discuss these with your doctor.

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