Summary of Results for Laypersons

What was the Study Called?

Phase 2b, Double-blind, Randomized, Multicenter, Parallel-group, Placebo-controlled, Dose-finding Study to Evaluate the Efficacy, Safety and Tolerability of a 12-Week Treatment with ASP1941 in Combination with Metformin in Patients with Type 2 Diabetes Mellitus who Have Inadequate Glycemic Control on Metformin Alone. This is also known as the BALANCE study.

Why was this Study Needed?

Type 2 diabetes is a disease which is characterized by too much glucose or sugar in the blood. Medicines to help type 2 diabetes patients regulate their blood sugar are already available, but some of them may cause unwanted effects and some do not work in all patients. Ipragliflozin (also known as ASP1941 and Suglat®) is a medicine that is being developed to help control blood sugar in patients with type 2 diabetes. Metformin is an approved medicine to treat patients with type 2 diabetes.

The main question this study helped answer was if ipragliflozin provided additional benefit over metformin alone in controlling blood sugar in patients with type 2 diabetes.

This study took place at 46 clinics in 6 countries (the United Kingdom, Italy, Hungary, Poland, Romania and the United States) between April 2010 and April 2011. When the study ended, the sponsor (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 a "blinded" study. In this study, the patients and the researchers did not know who took which of the treatments (ipragliflozin or placebo).

A "placebo" is a dummy treatment such as a tablet or capsule that looks like a medicine, but does not have any medicine in it. Using a placebo helps make study results fair and unbiased, because researchers and patients cannot tell who is taking a placebo, and who is taking the real medicine. Patients were picked for each treatment group by chance alone.

Both men and women took part in the study. They were all over 18 years old and diagnosed with type 2 diabetes. All patients were taking metformin at a stable dose of at least 1500 mg once daily for at least 6 weeks before study entry. Patients enrolled in this study were not able to control their blood sugar by taking metformin alone. During the study, patients continued to receive their daily dose of metformin in addition to ipragliflozin or placebo.

The treatment period for this study was 12 weeks. Before the treatment period, patients entered a 2-week placebo "run-in" period. During this period patients took placebo once daily with metformin and had baseline laboratory tests performed. After the run-in period, patients entered the 12-week treatment period of the study and took one of the following treatments:

- Ipragliflozin 12.5 mg once daily for up to 12 weeks
- Ipragliflozin 50 mg once daily for up to 12 weeks
- Ipragliflozin 150 mg once daily for up to 12 weeks
- Ipragliflozin 300 mg once daily for up to 12 weeks
- Placebo once daily for up to 12 weeks

All patients were followed for 4 weeks after the 12-week treatment period ended. During the follow-up period, patients took only their prescribed dose of metformin.

A total of 343 patients were enrolled in the study. A total of 342 patients received at least 1 dose of study medicine during the 12-week treatment period. The 342 patients are listed below by treatment group.

- 69 patients took ipragliflozin 12.5 mg once daily
- 68 patients took ipragliflozin 50 mg once daily
- 67 patients took ipragliflozin 150 mg once daily
- 72 patients took ipragliflozin 300 mg once daily
- 66 patients took placebo once daily

Additional information on the 342 patients who received at least 1 dose of study medicine are listed in the table below.

	Number of Patients
Age Group	
Aged between 18 and 64 years	274
Aged 65 years and older	68
Men	175
Women	167
EU Countries	265
Outside EU	77

What Were the Study Results?

Results from the study showed that ipragliflozin in combination with metformin was better than metformin alone in controlling blood sugar levels in patients with type 2 diabetes. Ipragliflozin was safe and well tolerated at all doses given 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 the 342 patients while taking part in this study.

Adverse Reaction	Number of Placebo Patients (out of 66)	Number of Ipragliflozin Patients			
		12.5 mg (out of 69)	50 mg (out of 68)	150 mg (out of 67)	300 mg (out of 72)
Constipation	0	2	0	4	0
Diarrhea	2	1	0	0	1
Excess passing of gas	0	1	0	2	1
Urinary tract infection	1	1	2	3	3
A frequent urge to urinate	0	2	3	2	0
Thirst	0	0	3	0	2
Hunger	0	0	0	2	0
Decreased blood sugar level	0	0	1	2	2
Feeling hot for a brief moment	0	0	0	2	0

An adverse reaction is considered “serious” when it is life threatening, causes lasting problems, or needs hospital care. During the study, one patient in the ipragliflozin 50 mg group had a serious adverse reaction of severe renal impairment. No patients died during the study.

Where Can I Learn More About This Study?

Astellas may perform additional studies to better understand ipragliflozin.

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 ipragliflozin, please discuss these with your doctor.

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