Clinical Study Results

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A member of the AstraZeneca Group

Research Sponsor: Pearl Therapeutics, Inc., a member of the AstraZeneca Group

Treatment Studied: Albuterol sulfate pressurized inhalation suspension, also called AS MDI

Study Title: This study was done to learn how different doses of albuterol sulfate given in an inhaler worked, compared with in a different inhaler and how safe it was in people with asthma

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Thank you!

Thank you for taking part in the clinical study of the treatment AS MDI, also called albuterol sulfate pressurized inhalation suspension. You and all the participants helped researchers learn more about AS MDI to help people with asthma.

Pearl Therapeutics, Inc. sponsored this study and thinks it is important to share the results of the study with you and the public. An independent, non-profit organization called CISCRP helped prepare this summary of the study results for you. We hope it helps you understand and feel proud of your important role in medical research.

If you participated in the study and have questions about the results, please speak with the doctor or staff at your study site.

What is happening with the study now?

You and the other participants were in the study for up to about 6 weeks. The study started in December 2017 and ended in March 2018. The study took place in the USA. It included 46 participants.

The sponsor reviewed the data collected when the study ended and created a report of the results. This is a summary of that report.

Why was the research needed?

Researchers are looking for a better way to treat people with asthma. Before a treatment can be approved for people to take, researchers do clinical studies to find out how it works and how safe it is. In this study, the researchers wanted to find out if AS MDI works in a small number of participants with mild to moderate asthma. They also wanted to find out if the participants had any medical problems during the study.

Asthma is a condition that causes the airways to narrow. This makes it difficult to breathe. People with asthma can have wheezing, coughing, shortness of breath, and chest tightness. There is currently no cure for asthma, but there are treatments that can help with the symptoms.

Albuterol sulfate, also known as albuterol, is a standard treatment for asthma. It works by relaxing muscles in the breathing tubes to allow more air into the lungs. This makes it easier to breathe. Albuterol is given to asthma patients in an inhaler that delivers a specific amount of medication to the lungs. The inhaler is known as a metered dose inhaler. One of the current asthma treatments is called Proventil HFA, also known as Proventil. This treatment also contains albuterol. In this study, AS MDI contains a different formulation of albuterol compared to the current treatment.

In this study, the researchers wanted to find out how different doses of AS MDI work in people with asthma.

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

- How much air could the participants breathe out after taking AS MDI?
- What medical problems did participants have during the study?

To answer the questions in this study, researchers asked for the help of men and women who had asthma for at least 6 months and did not have any other lung condition or infection. The participants in this study were 20 to 45 years old.

What kind of study was this?

This was an “open-label” study. This means the researchers and the participant knew what the participant was taking.

The participants in this study took both AS MDI and Proventil. The researchers wanted to learn how AS MDI affected participants’ lungs compared with Proventil.

The doses of the treatments the participants received was measured in micrograms, also called µg. All the participants received:

- AS MDI in doses of 90 µg, then 180 µg, then 360 µg, then 720 µg, and finally 1440 µg.
- Proventil in doses of 90 µg, then 180 µg, then 360 µg, then 720 µg, and finally 1440 µg.

Each puff of both inhalers was a 90 µg dose. So, taking more puffs gave higher doses.

A computer program was used to randomly choose the order that participants received each treatment. This helps make sure the groups are chosen fairly. Researchers do this so that comparing the results of each treatment is as accurate as possible.

What happened during the study?

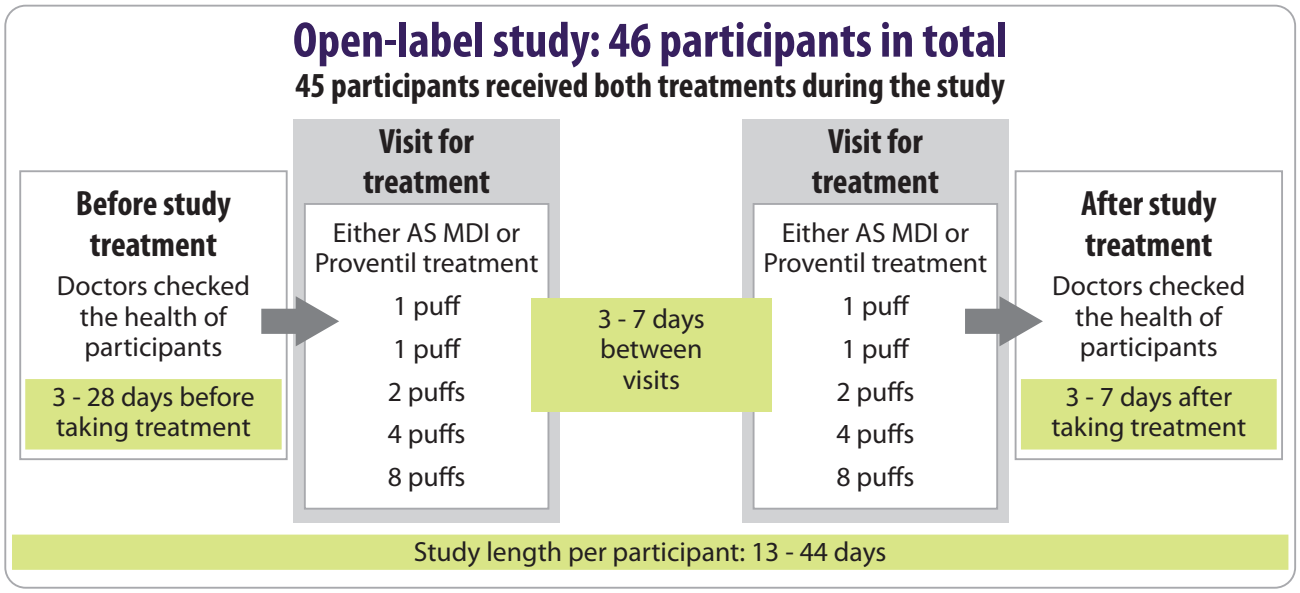
Before study treatment, the doctors checked your overall health to make sure you could join the study. They asked about your medical history, how you were feeling, and what medications you were taking. They took blood and urine samples from you. If the doctors found that you were able to join the study, they asked you to stop any treatments you were taking for asthma. This helped the doctors make sure any effects they saw during treatment were due to the treatments in this study.

During study treatment, you and the other participants visited your study site 2 times. At one of the visits you took AS MDI. At the other visit, you took Proventil. You waited 3 to 7 days between taking treatments.

At each visit, the doctors or study staff measured the amount of air that you could breathe out before and after you took the treatment. They also measured your blood pressure, heart rhythm, blood glucose, and potassium levels. They asked how you were feeling.

After study treatment, the doctors called you to see how you were feeling.

The figure below shows how the study was done.



Overall, out of the 46 participants, 45 (97.8%) completed the study and took both treatments. One patient out of 46 took Proventil and did not take AS MDI treatment.

What were the results of the study?

This is a summary of the main results from this study overall. The results each participant had might be different and are not in this summary. A full list of the questions researchers wanted to answer can be found on the websites listed at the end of the summary. If a full report of the study results is available, it can also be found on these websites.

Researchers look at the results of many studies to decide which treatments work best and are safest. Other studies may provide new information or different results. Always talk to a doctor before making any treatment changes.

How did AS MDI affect participants' lungs?

The researchers compared how much air participants could breathe out before and after taking AS MDI or Proventil.

Overall, the researchers found that the amount of air that participants could breathe out was similar when participants took AS MDI compared with Proventil. The differences seen between the two treatments were too small for the researchers to know if AS MDI affected participants' lungs differently to Proventil.

Researchers measured the amount of air participants exhaled at the beginning of the study and compared that to the amount of air exhaled after taking either AS MDI or Proventil. The volume of air breathed out was measured in milliliters, or mL for short.

30 minutes after taking each AS MDI dose, participants taking:

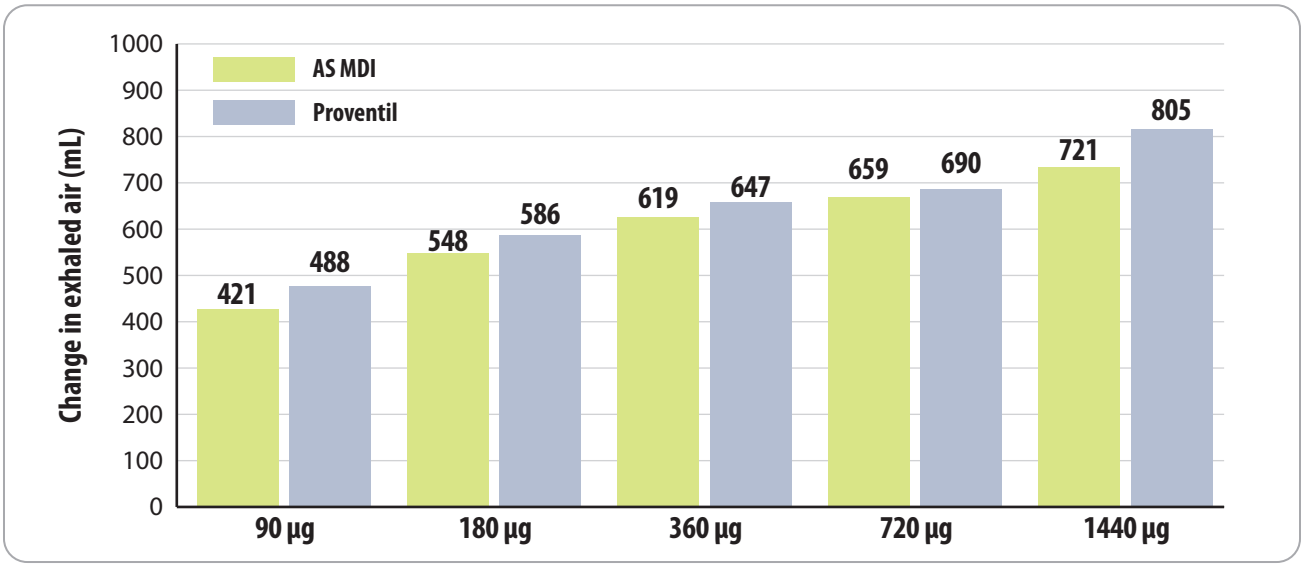
- 90 µg of AS MDI exhaled 421 mL more air.
- 180 µg of AS MDI exhaled 548 mL more air.
- 360 µg of AS MDI exhaled 619 mL more air.
- 720 µg of AS MDI exhaled 659 mL more air.
- 1440 µg of AS MDI exhaled 721 mL more air.

30 minutes after taking each Proventil dose, participants taking:

- 90 µg of Proventil exhaled 488 mL more air.
- 180 µg of Proventil exhaled 586 mL more air.
- 360 µg of Proventil exhaled 647 mL more air.
- 720 µg of Proventil exhaled 690 mL more air.
- 1440 µg of Proventil exhaled 805 mL more air.

The chart below shows these results.

Change in exhaled air 30 minutes after dose



What medical problems did participants have during the study?

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 study treatment. These medical problems are called “adverse reactions”. An adverse reaction is considered “serious” when it is life-threatening, causes lasting problems, or requires hospital care.

These adverse reactions may or may not be caused by the study treatment. A lot of research is needed to know whether a treatment causes an adverse reaction.

The websites listed at the end of this summary may have other information about adverse reactions or other medical problems that happened during this study.

How many participants had serious adverse reactions?

None of the participants had a serious adverse reaction.

How many participants had adverse reactions?

- There were 13.3% of participants taking AS MDI who had adverse reactions during the study. This was 6 out of 45 participants.
- There were 19.6% of participants taking Proventil who had adverse reactions during the study. This was 9 out of 46 participants.

None of the participants stopped taking treatments because of adverse reactions they had during the study.

What adverse reactions did the participants have?

The most common adverse reactions were feeling jittery and having tremors. The table below shows the most common adverse reactions that happened in 2 or more participants taking either AS MDI or Proventil. The researchers thought that these adverse reactions were related to the study treatment. There were other adverse reactions, but these happened in fewer participants.

Most common adverse reactions during the study

	AS MDI (out of 45 participants)	Proventil (out of 46 participants)
Feeling jittery	6.7% (3)	13% (6)
Tremors	4.4% (2)	4.3% (2)

How has this study helped patients and researchers?

This study helped researchers learn how AS MDI affects the breathing of people with asthma, and how safe it is for them to take. The researchers found that the amount of air that participants could breathe out was similar when participants took AS MDI compared with Proventil.

Researchers look at the results of many studies to decide which treatments work best and are safest. This summary shows only the main results from this one study. Other studies may provide new information or different results.

Further clinical studies with AS MDI are planned.

Where can I learn more about the study?

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

- www.clinicaltrials.gov. Once you are on the website, type **"NCT03371459"** into the search box and click **"Search"**.
- www.AstraZenecaClinicalTrials.com. Once you are on the website, type **"D6930C00002"** into the search box and click **"Find a Study"**.

Full study title: A randomized, cumulative dose, open-label, 2-period crossover, multi-center study to assess the safety, efficacy, PK, and extrapulmonary pharmacodynamics (PD) of cumulative doses of albuterol sulfate pressurized inhalation suspension (hereafter referred to as AS MDI) compared to cumulative doses of Proventil® Hydrofluoroalkane (HFA; Hereafter Referred to as Proventil) as an active control in subjects with mild to moderate asthma (ASPEN)

National Clinical Trial number: NCT03371459

AstraZeneca Protocol number: D6930C00002 (PT007002)

Pearl Therapeutics, Inc, a member of the AstraZeneca Group, sponsored this study and has its headquarters in Morristown, USA.

The phone number for the AstraZeneca Information Center is +1-877-240-9479.

Thank you!

Clinical study participants 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 participants.

CISCRP
THE CENTER FOR INFORMATION & STUDY ON CLINICAL RESEARCH PARTICIPATION

The Center for Information & Study on Clinical Research Participation (CISCRP) is a non-profit organization focused on educating and informing the public about clinical research participation. CISCRP is not involved in recruiting patients for clinical studies, nor is it involved in conducting clinical studies.

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