Clinical Trial Results

AstraZeneca

Research Sponsor: AstraZeneca AB

Drugs Studied: Formoterol

National Clinical Trial #: NCT02796651

Protocol #: D6571C00002

Study Date: June 2016 to December 2016

Short Study Title: A study to learn if formoterol taken at different doses in a certain type of inhaler is effective at treating COPD, and if formoterol taken in this inhaler is safe to use.

Thank you!

As a clinical study participant, you belong to a large community of participants around the world. You help researchers answer important health questions and discover new medical treatments.

Thank you for taking part in the clinical study for a drug called formoterol. This drug has been approved to treat chronic obstructive pulmonary disease, also known as COPD, and asthma. You and all of the other participants helped researchers learn if formoterol taken in a certain dose and type of inhaler helps people with COPD, and if the drug is safe to use.

AstraZeneca AB, the sponsor of this study, thanks you for your help and thinks it is important for you to know the results of your study. An independent non-profit organization called CISCRP prepared this summary of the study results for you with the help of a medical writing organization. We hope it helps you understand and feel proud of your important role in medical research. If you have questions about the results, please speak with the study doctors or staff at your study site.

CISCRP
THE CENTER FOR INFORMATION & STUDY ON CLINICAL RESEARCH PARTICIPATION

What's happened since my study ended?

Your study started in June 2016 and ended in December 2016. The study included 132 participants at 21 study sites in the United States. When the study ended, the sponsor reviewed the data and created a report of the results. This is a summary of that report.

Why was the research needed?

Before a new drug can be approved, research must be done to show that it is safe and effective. The study drug, formoterol, has been approved to treat chronic obstructive pulmonary disease, also known as COPD, and asthma. These illnesses can cause inflammation, or swelling, in the lungs. This swelling can sometimes make breathing difficult. Formoterol is used to reduce swelling in the lungs, making it easier to breathe.

In this study, researchers compared different doses of formoterol given in an inhaler to different doses of formoterol given in a different type of device, and to a placebo. A placebo looks like the study drug but contains no real medicine. Researchers use a placebo so that they can compare the results of participants who take study drugs to the results of participants who take no medicine at all.

Although the inhaler is approved for use in Europe and the US, formoterol in this type of inhaler isn't approved yet for use. The other device, called a nebulizer, is already approved for use in the United States. The researchers wanted to learn how formoterol affects lung function. They looked at different doses of formoterol given through an inhaler and a nebulizer. The researchers also wanted to learn if the different doses were safe to use.

Researchers wanted to know:

- How did formoterol in the inhaler affect lung function compared to formoterol in the nebulizer and to a placebo?
- What medical problems did participants have during the study?

What kind of study was this?

Your study was a "crossover" study. In a crossover study, participants get similar or the same treatments and tests, but the treatments are given in a random order.

Inhaler doses were taken as "double-blind" treatments. This means that none of the participants, researchers, or study staff knew when participants took formoterol in the inhaler. Some studies are done this way because knowing what treatment each participant is taking can affect the results of the study. This way, the results are looked at fairly.

Nebulizer doses were taken as "open-label" treatments. This means that participants, researchers, and study staff knew when participants took formoterol in the nebulizer.

Your study included 132 men and women with COPD who were between the ages of 46 and 82 years.

What happened during the study?

You and other participants were in the study for up to 14 weeks.

To see if you could join the study, study doctors did a physical examination by checking your height, weight, and blood pressure. Study doctors took blood samples and checked your heart health using an electrocardiogram, or ECG. Study doctors also checked your lung function and asked about your medical history, how you were feeling, and what medicines you were taking.

If you are female, you had a blood test to make sure you were not pregnant.

During the study, you visited the study site up to 7 times. You took 1 of 6 treatments during 5 of the study visits. This meant that you took 5 total treatments during the study. At each treatment visit, you stayed at the study site for 1 or 2 days.

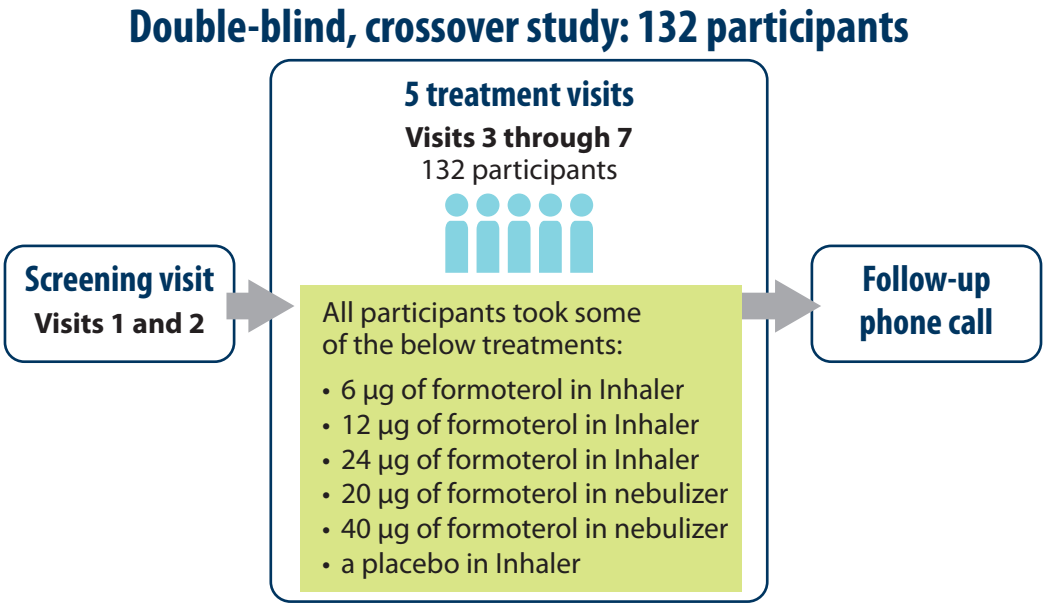
You and all of the other participants were randomly assigned to take some of the 6 treatments. No participants took all of the treatments.

In this study:

- 107 participants took 6 micrograms, or µg, of formoterol in the inhaler
- 121 participants took 12 µg of formoterol in the inhaler
- 105 participants took 24 µg of formoterol in the inhaler
- 118 participants took 20 µg of formoterol in the nebulizer
- 108 participants took 40 µg of formoterol in the nebulizer
- 38 participants took a placebo in the inhaler

You and all of the other participants took 1 of the 6 treatments every day during each treatment visit. Most treatment visits lasted 7 days. If participants took the 40 µg formoterol treatment in the nebulizer during a treatment visit, then they only stayed at the study site for 1 day.

The figure below shows how the study was done.



There was a "washout period" of 7 to 9 days between treatments. During a washout period, participants are not allowed to take certain drugs. This means that when participants take the next study treatment, all drugs have been processed and "washed out" of their bodies.

During the study, study doctors did a physical examination by checking your height, weight, and blood pressure. Study doctors also checked your heart health by using an ECG, and tested your blood to make sure that you were still healthy. Study doctors asked how you were feeling, and also checked your lung function.

At the end of the study, the study staff called you 14 to 17 days after your last treatment to ask about your health and how you were feeling.

What were the study results?

Below is a summary of the results of some of the questions that researchers asked during this study. It is important to know that researchers look at the results of many studies to decide which medicines work best and are safest for patients. Further clinical studies with formoterol are not planned.

How did formoterol in the inhaler affect lung function compared to formoterol in the nebulizer and to a placebo?

Researchers wanted to compare the effects of formoterol given in an inhaler to formoterol given in a nebulizer and to a placebo. To do this, they measured how many liters of air participants could exhale at different times during the study.

Researchers studied:

- The change in how much air participants could exhale within 12 hours after treatment on Day 7 of a treatment visit
- The change in how much air participants could exhale within 6 hours after treatment on Day 1 and Day 7 of a treatment visit
- The change in how much air participants could exhale before treatment on Day 7 of a treatment visit

Overall, researchers found that:

- Participants had a similar increase in the amount of exhaled air when they took 12 µg of formoterol in the inhaler compared to 20 µg of formoterol in the nebulizer.
- Participants had a higher increase in the amount of exhaled air when they took 24 µg of formoterol in the inhaler compared to 12 µg of formoterol in the inhaler.
- Participants had a slightly higher increase in the amount of exhaled air when they took 12 µg of formoterol in the inhaler compared to 6 µg of formoterol in the inhaler.
- Participants had a higher increase in the amount of exhaled air when they took 24 µg of formoterol in the inhaler compared to 40 µg of formoterol in the nebulizer.

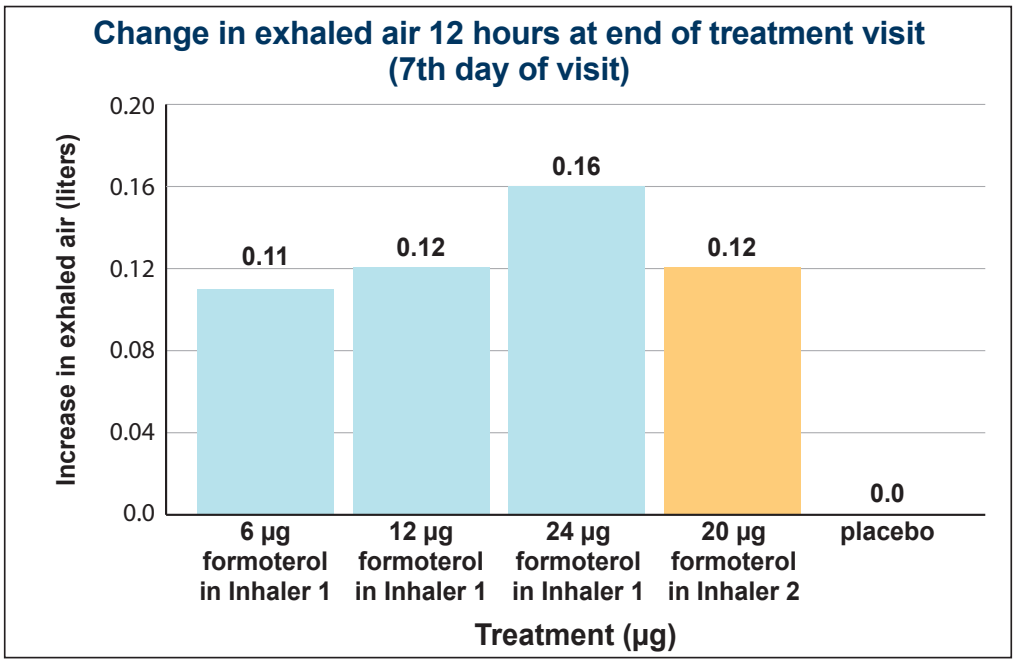
Change in how much air participants could exhale 12 hours after treatment on Day 7 of a treatment visit

Researchers measured how much air participants could exhale before treatment on Day 1 of each treatment visit, several times within 12 hours of getting treatment, and again 12 hours after treatment on Day 7. Researchers then compared those 2 amounts.

Compared with the amounts of air participants could exhale before treatment on Day 1:

- Participants who took 6 µg of formoterol in the inhaler exhaled 0.11 more liters of air
- Participants who took 12 µg of formoterol in the inhaler exhaled 0.12 more liters of air
- Participants who took 24 µg of formoterol in the inhaler exhaled 0.16 more liters of air
- Participants who took 20 µg of formoterol in the nebulizer exhaled 0.12 more liters of air
- Participants who took the placebo did not show any change in the amount of exhaled air

The figure below shows these changes in exhaled air.



Change in how much air participants could exhale 6 hours after treatment on Day 1 and Day 7 of a treatment visit

Researchers measured how much air participants could exhale before treatment on Day 1 of each treatment visit, several times within 6 hours of getting treatment, and again 6 hours after treatment on Day 1 and Day 7. Then, researchers compared those 2 amounts.

6 hours after treatment on Day 1

Compared with the amounts of air participants could exhale before treatment on Day 1, within 6 hours after treatment:

- Participants who took 6 µg of formoterol in the inhaler exhaled 0.11 more liters of air
- Participants who took 12 µg of formoterol in the inhaler exhaled 0.15 more liters of air
- Participants who took 24 µg of formoterol in the inhaler exhaled 0.21 more liters of air
- Participants who took 20 µg of formoterol in the nebulizer exhaled 0.20 more liters of air
- Participants who took 40 µg of formoterol in the nebulizer exhaled 0.25 more liters of air
- Participants who took the placebo exhaled 0.02 less liters of air

6 hours after treatment on Day 7

Compared with the amounts of air participants could exhale before treatment on Day 7, 6 hours after treatment:

- Participants who took 6 µg of formoterol in the inhaler exhaled 0.17 more liters of air
- Participants who took 12 µg of formoterol in the inhaler exhaled 0.18 more liters of air
- Participants who took 24 µg of formoterol in the inhaler exhaled 0.23 more liters of air
- Participants who took 20 µg of formoterol in the nebulizer exhaled 0.19 more liters of air
- Participants who took the placebo exhaled 0.01 more liters of air

Change in how much air participants could exhale before treatment on Day 7 of a treatment visit

Researchers measured how much air participants could exhale before treatment on Day 1 of each treatment visit. Researchers also measured this amount before treatment on Day 7 of each treatment visit. Researchers then compared those 2 amounts.

Compared with the amounts of air participants could exhale before treatment on Day 1:

- Participants who took 6 µg of formoterol in the inhaler exhaled 0.08 more liters of air
- Participants who took 12 µg of formoterol in the inhaler exhaled 0.07 more liters of air
- Participants who took 24 µg of formoterol in the inhaler exhaled 0.10 more liters of air
- Participants who took 20 µg of formoterol in the nebulizer exhaled 0.06 more liters of air
- Participants who took the placebo exhaled 0.002 more liters of air

What medical problems did participants have during the study?

A lot of research is needed to know whether a drug causes a medical problem. Researchers keep track of all medical problems that participants had have during the study. These medical problems are called "adverse events". They may or may not be caused by the study drug.

How many participants had medical problems during the study?

A similar number of participants in each treatment group had medical problems. A total of 4.5% of participants, or 6 of 132 participants, stopped study treatment because of medical problems. The table below shows how many participants in the study had medical problems.

How many participants had medical problems?

		Inhaler			Nebulizer	
	Placebo in inhaler (Out of 38 participants)	6 µg Formoterol (Out of 134 participants)	12 µg Formoterol (Out of 133 participants)	24 µg Formoterol (Out of 105 participants)	20 µg Formoterol (Out of 118 participants)	40 µg Formoterol (Out of 109 participants)
How many participants had medical problems?	21.1% (8)	12.1% (13)	9.1% (11)	8.6% (9)	13.6% (16)	2.8% (3)
How many participants stopped study treatment because of medical problems?	7.9% (3)	0.9% (1)	0.0% (0)	1.0% (1)	0.0% (0)	0.9% (1)

How many participants had serious medical problems?

A medical problem is considered serious when it is life-threatening, causes lasting problems, or needs hospitalization. One participant in this study died from a heart attack. Study doctors did not think the heart attack was related to study treatment.

In this study, 3.8% of participants, or 5 of 132 participants, had serious medical problems:

- Worsening of COPD in 1 participant while taking the placebo
- Multiple injuries in 1 participant while taking 6 µg of formoterol in the inhaler
- Blocked artery in 1 participant while taking 12 µg of formoterol in the inhaler
- Heart attack in 1 participant while taking 12 µg of formoterol in the nebulizer
- Lung cancer in 1 participant while taking 40 µg of formoterol in the nebulizer

Study doctors did not think any of the serious medical problems were related to study treatment.

What were the most common non-serious medical problems in the study?

Headache was the most common medical problem in the study. The table below shows the most common medical problems that happened in 2 or more participants in any treatment group during the study.

Most common non-serious medical problems in this study

		Inhaler			Nebulizer	
Medical problem	Placebo in inhaler (Out of 38 participants)	6 µg Formoterol (Out of 107 participants)	12 µg Formoterol (Out of 121 participants)	24 µg Formoterol (Out of 105 participants)	20 µg Formoterol (Out of 118 participants)	40 µg Formoterol (Out of 109 participants)
Headache	0.0% (0)	0.0% (0)	2.5% (3)	1.0% (1)	1.7% (2)	0.0% (0)
Worsening of COPD	7.9% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Infection of the nose, throat, and airways	0.0% (0)	0.9% (1)	0.0% (0)	0.0% (0)	1.7% (2)	0.0% (0)
Urinary tract infection	0.0% (0)	1.9% (2)	0.8% (1)	0.0% (0)	0.8% (1)	0.0% (0)
Muscle spasms	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.7% (2)	0.0% (0)

Where can I learn more about the study?

If you have questions about the results, please speak with the study doctor or staff at your study site. You can find more information about your study online at www.clinicaltrials.gov/show/results/NCT02796651.

Official study title: A Randomized, Double-blind, Placebo-controlled, Incomplete Unbalanced, Crossover Study to Assess the Efficacy and Safety of Three Doses of Formoterol Fumarate in Pressair® Compared with Perforomist® Inhalation Solution (20 and 40 µg Open-label) in Moderate to Severe COPD Patients with Reversible Airway Disease.

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

The results presented here are for a single study. Other studies may provide new information or different results. You should not make changes to your therapy based on the results of a single study without first consulting your healthcare professional.

Thank you

It is said that the greatest gift is one which is given anonymously, giving when you do not know whether you will get direct personal benefit.

This is the gift that you have given by taking part in a clinical trial. It is a brave and selfless act, one that advances medical knowledge and benefits public health.

Thank you for the gift of your participation in clinical research.

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 participants for clinical trials, nor is it involved in conducting clinical studies.

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