Summary of Clinical Trial Results

A study looking at the use of pertuzumab, trastuzumab and docetaxel in Asian people with early-stage, HER2-positive breast cancer ('PEONY')

See the end of the summary for the full title of the study.

About this summary

This is a summary of the results of a clinical trial (called a 'study' in this document) – written for:

- people who took part in the study and
- members of the public.

This summary is based on the information known at the time of writing (August 2024).

The study started in March 2016 and ended in March 2022. This summary includes the results collected until the end of the study.

No single study can tell us everything about the risks and benefits of a medicine. It takes lots of people in many studies to find out everything we need to know. The results from this study may be different from other studies with the same medicine.

- This means that you should not make decisions based on this one summary – always speak to your doctor before making any decisions about your treatment.

Contents of the summary

Thank you to the people who took part in this study

The people who took part have helped researchers to answer important questions about early-stage, HER2-positive breast cancer and the study medicine.

1. General information about this study

Why was this study done?

Some people have the early stages of a type of breast cancer called 'HER2-positive breast cancer' (the breast cancer cells have a higher-than-normal amount of a protein called 'HER2' on their surface, that stimulates them to grow). These people are commonly treated by having surgery to remove the tumour and are then given treatment with cancer medicines to help kill any cancer cells not removed during surgery. These cancer medicines include 'pertuzumab' and 'trastuzumab,' which are medicines that block HER2 and stop cancer cells from growing, and chemotherapy. Previous studies showed that people given pertuzumab and trastuzumab, plus chemotherapy before surgery had fewer cancer cells left in the breast after surgery, compared with people given only trastuzumab plus chemotherapy. However, fewer than 1 in 4 people in these studies were from Asia. The PEONY study was performed to understand how these treatments work in Asian people with early-stage, HER2-positive breast cancer.

What are the study medicines?

Pertuzumab

- You say this as 'per-too-za-mab'.
- Pertuzumab is the medicine being studied in PEONY. It works by attaching to the HER2 protein on the surface of HER2-positive cancer cells. When pertuzumab attaches to HER2, it stops the HER2 protein from sending signals that make the cancer cells grow. It also makes cells in the immune system become active so that they can then attack cancer cells. This may mean that pertuzumab helps make the tumour smaller before people have surgery.

Trastuzumab

- You say this as 'trass-too-za-mab'.
- Trastuzumab works in the same way as pertuzumab but attaches to a different part of the HER2 protein.

Docetaxel

- You say this as 'doe-seh-tax-el'.
- Docetaxel is a chemotherapy medicine that works by attacking cancer cells and blocking their growth.

Pertuzumab with trastuzumab and docetaxel was compared to trastuzumab and docetaxel plus a 'placebo'.

- You say this as 'plah-see-bo'
- The placebo looked the same as pertuzumab but did not contain any real medicine. This means it had no medicine-related effect on the body.
- Researchers compared pertuzumab plus trastuzumab and docetaxel to a placebo plus trastuzumab and docetaxel so they could show which benefits or side effects are actually caused by pertuzumab.

What did researchers want to find out?

- Researchers did this study to compare pertuzumab (given with two existing medicines trastuzumab and docetaxel) versus a placebo (given with the same two existing medicines) to see how well pertuzumab worked in Asian people (see Section 4 “What were the results of the study?”).
- They also wanted to find out how safe the medicine was – by checking how many people had side effects and how serious they were, when taking each of the medicines during this study (see Section 5 “What were the side effects?”).

The main question that researchers wanted to answer was:

1. How many people had no signs of cancer in their breast or lymph nodes after surgery in this study?

Other questions that researchers wanted to answer included:

2. Did more people who were given pertuzumab live without their cancer growing before surgery or coming back after surgery, compared with placebo?
3. In people who had surgery to remove their tumour, did more people who were given pertuzumab live without their cancer coming back, compared with placebo?
4. How long did people live in this study?

What kind of study was this?

This study was a ‘Phase 3’ study. This means that pertuzumab had already been tested in a different group of people with HER2-positive breast cancer before this study.

In this study, Asian people with early-stage, HER2-positive breast cancer took either pertuzumab or placebo along with two existing cancer medicines (trastuzumab and docetaxel) – this was to find out if pertuzumab helped to increase the number of people with no signs of cancer in their breast or lymph nodes after they had surgery, and to understand the side effects of pertuzumab.

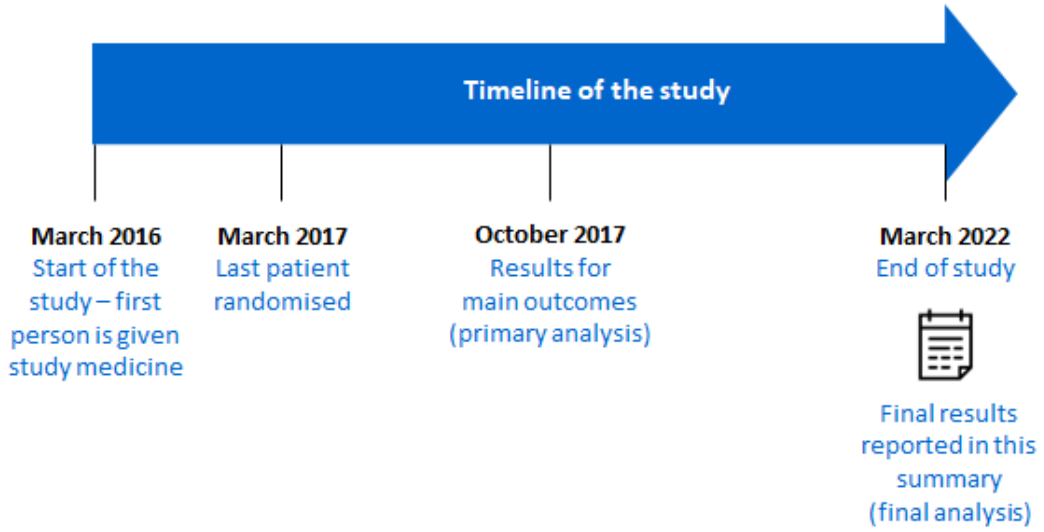
The study was ‘randomised’. This means that it was decided by chance which of the medicines people in the study would have. Randomly choosing which medicine people take makes it more likely that the types of people in both groups (with regard, for example, to age or race) will be similar and comparable. Apart from the exact medicines being tested in each group, all other aspects of care were the same between the groups.

The randomisation was double-blind, which means that neither the people taking part in the study nor the study doctors knew which of the study medicines people were taking.

When and where did the study take place?

The study started in March 2016 and ended in March 2022. The main results of the study (primary analysis), which were collected up October 2017, have been summarised previously and are available here: https://forpatients.roche.com/en/trials/cancer/bc/study-in-participants-with-early-stage-or-locally-advan-28195.html

This summary includes the results up until the end of the study in March 2022.



The study has ended and the symbol on the timeline (📋) shows when the information shown in this summary was collected – March 2022, 5 years after the last person started their study treatment.

The study took place at 23 study centres – across four countries and territories in Asia. The countries and territories were: China, Republic of Korea, Taiwan and Thailand.

2. Who took part in this study?

In this study, 329 people with HER2-positive breast cancer took part. Everyone who took part was female and between 24 and 72 years of age.

People who could take part in this study:

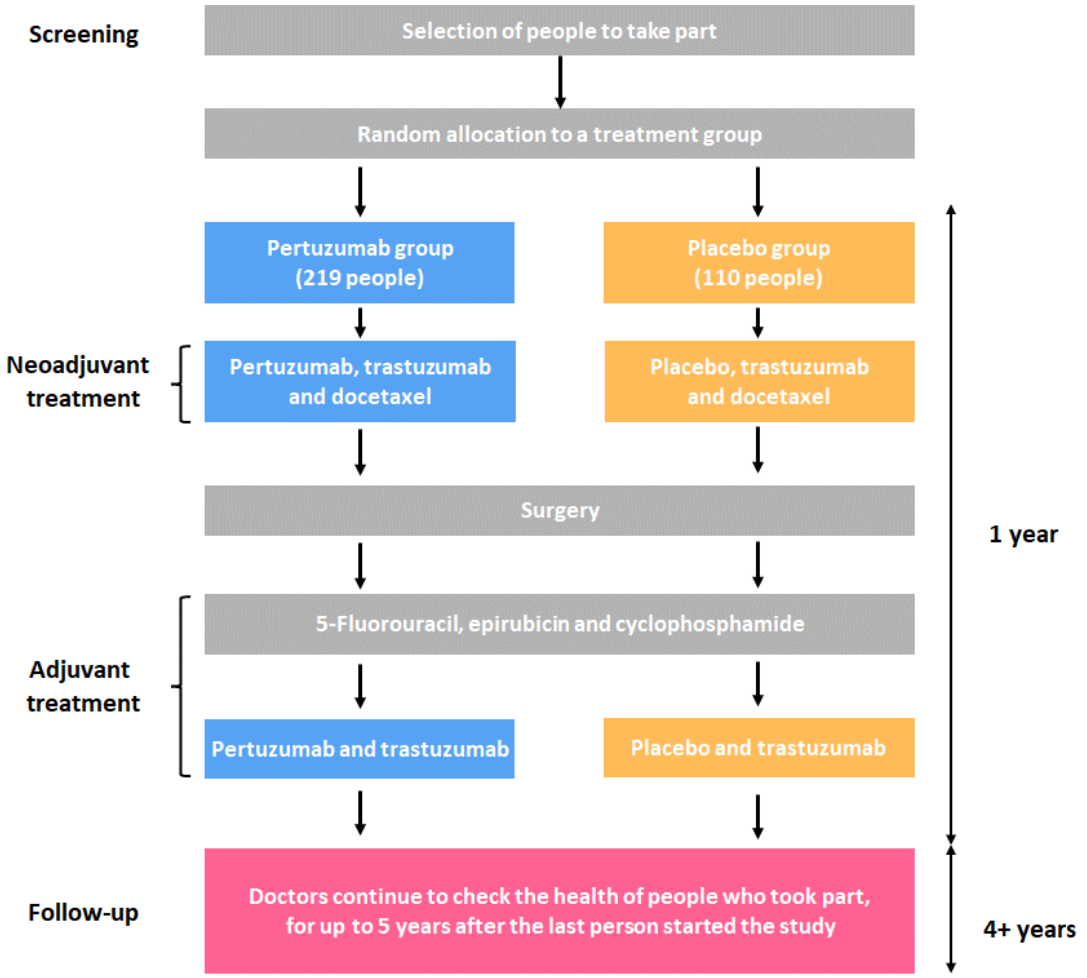
- Had early-stage breast cancer or breast cancer that had only spread to nearby cells in the breast and/or lymph nodes
- More than 10% of the breast cancer cells had the HER2 protein on the outside of the cell or were shown to have a higher number of HER2 genes compared with normal breast cells
- HER2-positive breast cancer confirmed by a specific test
- Were able to perform activities as well, or almost as well, as they could before they had the illness

People could NOT take part in this study if they had:

- Breast cancer that had spread to other parts of the body ('metastatic' cancer)
- A rare and aggressive disease in which cancer cells block lymph vessels in the skin of the breast ('inflammatory' breast cancer)
- Already taken anticancer medicines or radiotherapy for any cancer

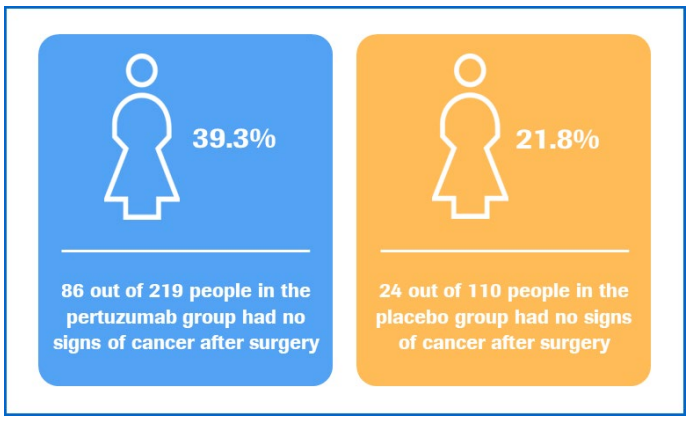
3. What happened during the study?

During the study, people were selected by chance to join one of two treatment groups (pertuzumab group or placebo group) before surgery. Each group followed a different treatment option as shown in the diagram below.



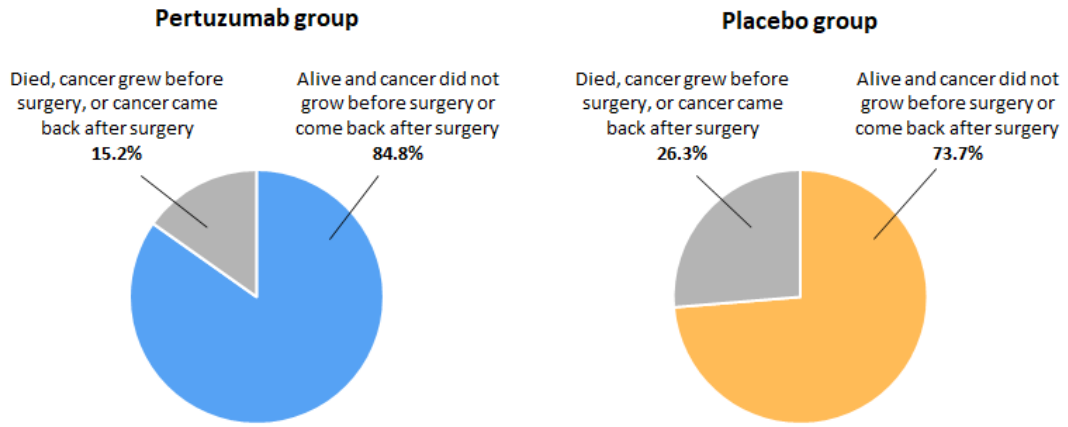
4. What were the results of the study?

Question 1: How many people had no signs of cancer in their breast or lymph nodes after surgery in this study?



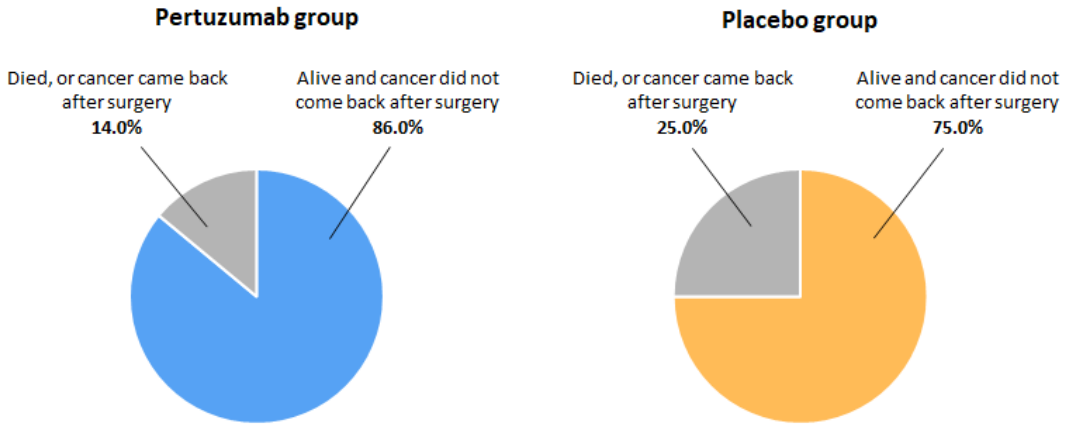
Question 2: Did more people who were given pertuzumab live without their cancer growing before surgery or coming back after surgery, compared with placebo?

5 years after they were randomised to one of the study groups, 84.8% of people (around 85 out of every 100 people) in the pertuzumab group were alive and did not have their cancer grow before surgery or come back after surgery. In the placebo group, the number was 73.7% (around 74 out of every 100 people), as shown in the figure below.



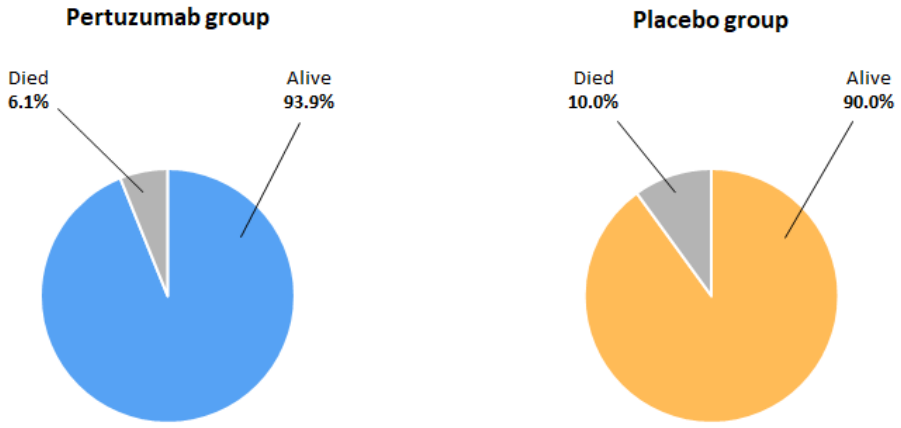
Question 3: In people who had surgery to remove their tumour, did more people who were given pertuzumab live without their cancer coming back, compared with placebo?

5 years after they were randomised to one of the study groups, 86.0% of people (86 out of every 100 people) in the pertuzumab group were alive and did not have their cancer come back after surgery, compared with around 75.0% (75 out of every 100 people) in the placebo group, as shown in the figure below.



Question 4: How long did people live in this study?

5 years after they were randomised to one of the study groups, 93.9% (around 94 out of every 100 people) in the pertuzumab group were alive, compared with 90.0% (90 out of every 100 people) in the placebo group, as shown in the figure below.



The results shown in Questions 2–4 are 'secondary outcomes' – this means that although no formal statistical tests were used to assess these results, researchers analysed them because they can give important and useful information about how well the study medicines work over a longer period of time. The main result of the study was analysed using statistical tests and is summarised in Question 1.

This section only shows the key results from the study. You can find information about all other results on the websites at the end of this summary (see Section 8).

5. What were the side effects?

Side effects (also known as 'adverse events') are unwanted medical problems (such as a headache) that happen during the study.

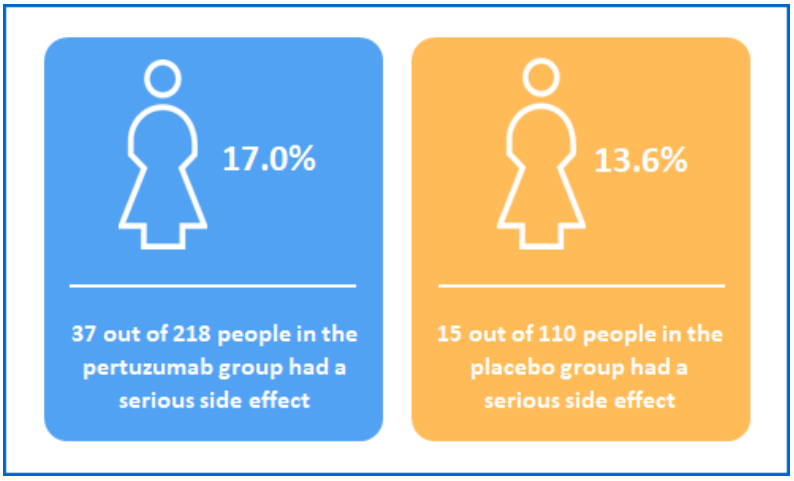
- Not all of the people in this study had all of the side effects.

Serious and common side effects are listed in the following sections.

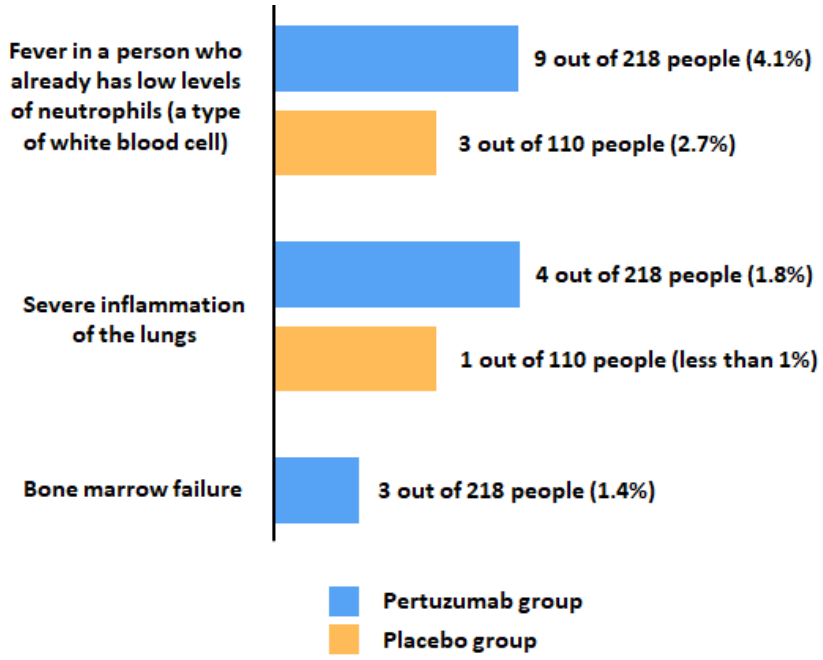
Serious side effects

A side effect is considered 'serious' if it is life-threatening, needs hospital care or causes lasting problems.

During the overall treatment period of the study, 17.0% (17 out of every 100 people) in the pertuzumab group had a serious side effect, compared with 13.6% (around 14 out of every 100 people) in the placebo group.



The most common serious side effects across both treatment groups are shown below.



Four people died during the study due to side effects:

- 2 out of 218 people (less than 1%) in the pertuzumab group (the doctors thought that it was not related to study treatment).
- 2 out of 110 people (1.8%) in the placebo group. Doctors thought that one of the deaths was not related to study treatment.

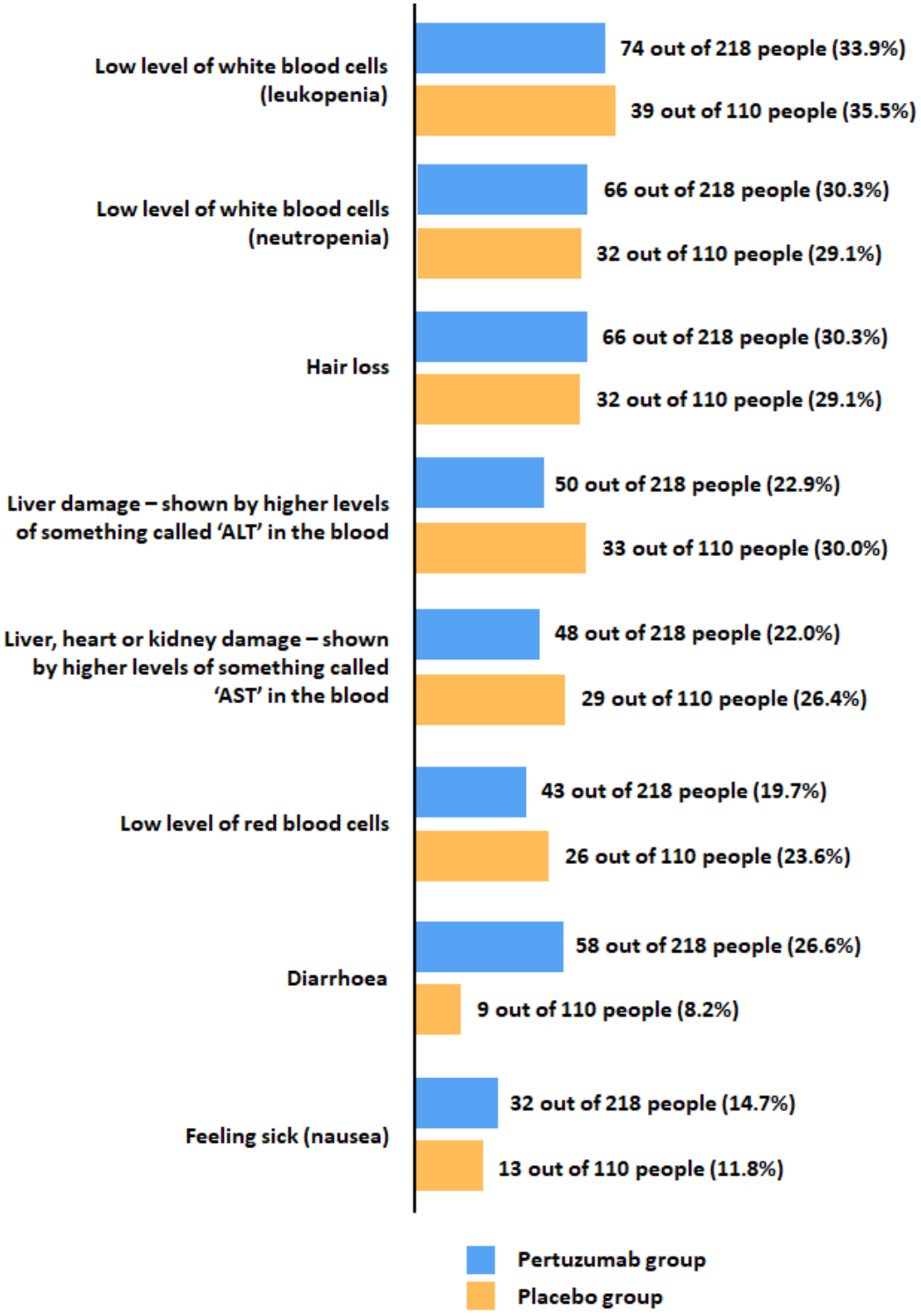
During the study, some people decided to stop taking their medicine because of side effects:

- In the pertuzumab group, 1 out of 218 people (less than 1%) stopped taking pertuzumab due to a side effect. The side effect was a 'skin reaction to a medicine' and occurred during the treatment period.
- In the placebo group, no one stopped taking their medicine due to side effects.

Most common side effects

During this study, between 84 and 86 out of every 100 people (84%–86%) had a side effect (related to their HER2-targeted treatment) that was not considered serious.

The eight most common side effects across both treatment groups are shown in the figure below.



ALT, alanine aminotransferase; AST, aspartate aminotransferase.

Other side effects

You can find information about other side effects (not shown in the sections above) on the websites listed at the end of this summary – see Section 8.

6. How has this study helped research?

The information presented here is from a single study of 329 people with early-stage, HER2-positive breast cancer. These results helped researchers learn more about early-stage, HER2-positive breast cancer and pertuzumab.

The results from this study show that in early-stage, HER2-positive breast cancer giving people pertuzumab as well as trastuzumab and docetaxel before surgery can help improve the success of surgery, compared with giving people placebo plus trastuzumab and docetaxel.

Although this study did not use formal statistical tests to assess the long-term effectiveness of pertuzumab and trastuzumab, the results from 5 years after each person was randomised to a study group appear to suggest that giving pertuzumab and trastuzumab helps people to live longer without their cancer coming back, compared with placebo and trastuzumab.

The side effects seen in this study were similar to those that had been reported in previous studies of this medicine.

This study adds to the information already collected on the use of pertuzumab and trastuzumab plus chemotherapy before surgery in HER2-positive breast cancer. Importantly, it shows that Asian people with early-stage, HER2-positive breast cancer may benefit from this medicine.

7. Are there plans for other studies?

At the time of writing this summary, the PEONY study has ended. However, other studies investigating pertuzumab in people with early-stage, HER2-positive breast cancer are ongoing. These include:

- The 'APHINITY' study. This is a global study that included people from Asia with early-stage, HER2-positive breast cancer. The ClinicalTrials.gov identifier for the APHINITY study is: NCT01358877.
- The 'FDChina' study. This is a study of pertuzumab, trastuzumab and chemotherapy in people from China. The study is assessing an alternative, faster and less invasive method of treating people with pertuzumab together with trastuzumab ('fixed-dose formulation'). The fixed-dose formulation allows each dose of pertuzumab and trastuzumab to be given combined as a single injection under the skin. The ClinicalTrials.gov identifier is: NCT04024462.

8. Where can I find more information?

You can find more information about this study on the websites listed below:

- https://forpatients.roche.com/en/trials/cancer/bc/study-in-participants-with-early-stage-or-locally-advan-28195.html
- https://clinicaltrials.gov/study/NCT02586025

If you would like to find out more about the results of this study, the full titles of the relevant scientific papers are shown below.

Primary analysis: “Efficacy, safety, and tolerability of pertuzumab, trastuzumab, and docetaxel for patients with early or locally advanced ERBB2-positive breast cancer in Asia: The PEONY phase 3 Randomized Clinical Trial.” The authors of the scientific paper are: Zhimin Shao, Da Pang, Hongjian Yang, Wei Li, Shusen Wang and others. The paper was published online, in the journal ‘JAMA Oncology’, 1 March, 2020.

Final analysis: “Neoadjuvant–adjuvant pertuzumab in HER2-positive early breast cancer: final analysis of the randomized phase III PEONY trial.” The authors of the scientific paper are: Liang Huang, Da Pang, Hongjian Yang, Shusen Wang, Shude Cui and others.
The paper is published online, ahead of print, in the journal ‘Nature Communications’, 9 March, 2024.

Who can I contact if I have questions about this study?

If you have any further questions after reading this summary:

- Visit the ForPatients platform and fill out the contact form – https://forpatients.roche.com/en/trials/cancer/bc/study-in-participants-with-early-stage-or-locally-advan-28195.html
- Contact a representative at your local Roche office.

If you took part in this study and have any questions about the results:

- Speak to the study doctor or staff at the study hospital or clinic.

If you have questions about your own treatment:

- Speak to the doctor in charge of your treatment.

Who organised and paid for this study?

This study was organised and paid for by F. Hoffmann-La Roche Ltd who have their headquarters in Basel, Switzerland.

Full title of the study and other identifying information

The full title of this study is: “A Randomized, Multicenter, Double-Blind, Placebo-Controlled, Phase III Study to Evaluate Pertuzumab in Combination With Docetaxel and Trastuzumab as Neoadjuvant Therapy, and Pertuzumab in Combination With Trastuzumab as Adjuvant Therapy After Surgery and Chemotherapy in Patients With Early-Stage or Locally Advanced HER2-Positive Breast Cancer”.

The study is known as ‘PEONY’.

- The protocol number for this study is: YO28762.
- The ClinicalTrials.gov identifier for this study is: NCT02586025.