How safe and effective is marstacimab as a treatment for people with hemophilia A or hemophilia B without inhibitors?

The full title of this abstract is: Safety and efficacy of the anti-tissue factor pathway inhibitor marstacimab in participants with severe hemophilia without inhibitors: results from the phase 3 BASIS trial and ongoing long-term extension study

SUMMARY DETAILS

Please note this summary only contains information from the scientific abstract

Date of summary: September 2024

Study number: NCT03938792 and NCT05145127

Study start date: March 2020 **Study end date:** April 2023

For more information on this study, go to:
https://clinicaltrials.gov/study/NCT03938792
https://clinicaltrials.gov/study/NCT05145127

KEY TAKEAWAY

What are the key takeaways from this study?

- Participants with hemophilia A or hemophilia B without inhibitors took part in this study.
- Researchers looked at what side effects the participants had when they took marstacimab for up to 23 months.
- They also looked at how well marstacimab works when taken for up to 16 months, compared with the factor replacement treatment the participants had before marstacimab.

After taking marstacimab for up to 23 months:

- None of the participants had blood clots due to taking marstacimab.
- None of the participants who had previously been treated on-demand had serious side effects.
- 7% of participants who were previously taking preventative treatment (prophylaxis) reported a serious side effect. The study doctors did not think any of these were due to marstacimab treatment.
- None of the participants stopped taking marstacimab because of serious side effects.
- There were no deaths due to taking marstacimab.

After taking marstacimab for 1 year (12 months):

- Participants had fewer bleeding events.
- Participants who took marstacimab for up to 16 months continued to have reduced bleeding events.
- The results show that:
  - the side effects of marstacimab were mostly mild and either went away on their own or were treatable, and
  - marstacimab could help prevent bleeding in participants with hemophilia A or hemophilia B.

PHONETICS

Find out how to say medical terms used in this summary

Hemophilia <HEE-moh-FIH-lee-uh>

Marstacimab <mar-STAY-see-mab >

Inhibitor <In-HIH-bih-ter>

Prophylaxis <PROH-fih-LAK-sis>

GLOSSARY

Hemophilia: A medical condition where the blood does not clot properly. Clotting is when liquid blood becomes gel-like, to help to control bleeding. People with hemophilia can bruise easily and will bleed for longer than those without hemophilia.

Clotting factor: Proteins that help the blood bind together into a clot to stop bleeding.

Antibody: Proteins made by the body to fight and destroy infections.

Inhibitor: Types of antibodies produced in the body. Sometimes the body thinks the clotting factor used to treat hemophilia is harmful and produces antibodies (called inhibitors) to destroy it. The inhibitors stop or slow down the clotting factors from working to form a blood clot.

On-demand: Treatment that is only taken when it is needed, such as to stop a bleed that is already happening.

Prophylaxis: Treatment or action that is taken regularly to help prevent a disease or condition. In hemophilia, routine prophylaxis treatment is taken to stop bleeds from happening in the first place.

Side effect: A side effect is something that happens after the treatment starts. This could be expected or unexpected. Side effects may or may not be related to the treatments received.

Serious side effect: A side effect is considered serious when it is life-threatening, needs hospital care or causes lasting problems.

Tissue Factor Pathway Inhibitor (TFPI): A protein that naturally slows down the process of blood clotting in the body. TFPI works separately from clotting factors.

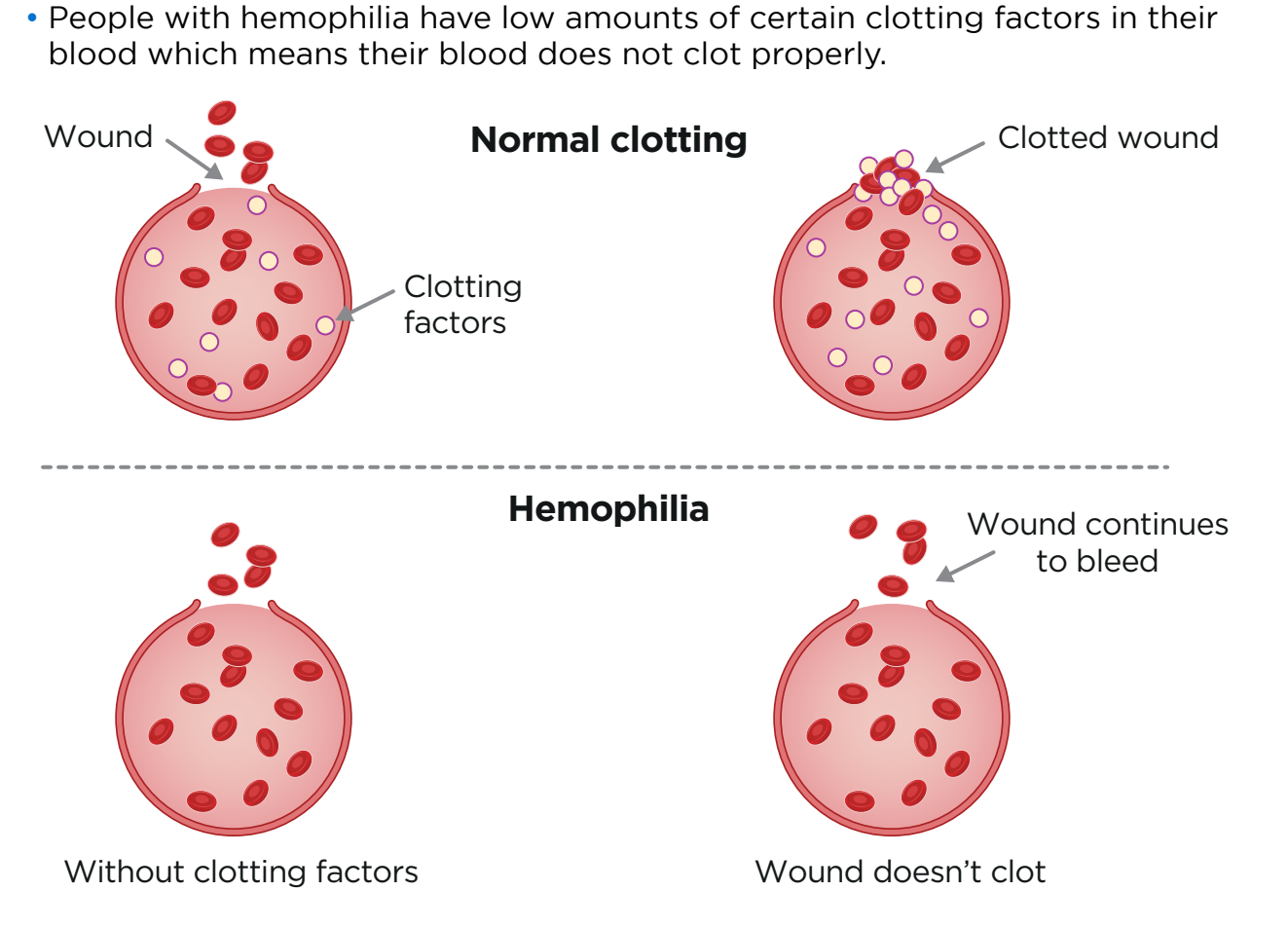
INTRODUCTION

What is hemophilia?

- **Hemophilia** is a medical condition that affects the blood's ability to clot properly to stop bleeding.
  - People with hemophilia can bruise easily and bleed for longer if they cut themselves than people without hemophilia.
  - Bleeding can happen inside the body as well.
    - Bleeding in the joints and muscles is the most common type of bleeding with hemophilia. This bleeding causes swelling and pain, making it difficult to move the joints. If bleeding is not controlled, joints can become damaged over time. Overall, this can lower the quality of life for a person with hemophilia.
- Hemophilia is passed on from biological parents to children through their genes. This means it is an "inherited" condition.
- Hemophilia mainly affects boys and men but there are some cases of women and girls severely affected by hemophilia.
- Traditionally, people with hemophilia have been treated by being given man-made replacement clotting factor to prevent and treat prolonged bleeding.

What are clotting factors?

- **Clotting factors** are proteins that help the blood bind together to form a clot and stop any bleeding. There is a balance between different types of clotting factors. Some clotting factors help the blood to clot. Some clotting factors help the blood to flow freely in vessels. Vessels are tubes in the body that transport blood.
- The balance of these clotting factors helps the blood to clot when it is needed.
  - When the amount of the clotting factors that help the blood to clot is low, the balance of blood clotting and flowing freely changes so blood does not clot properly.
- People with hemophilia have low amounts of certain clotting factors in their blood which means their blood does not clot properly.



- The two most common forms of hemophilia are hemophilia A and hemophilia B.
  - People with hemophilia A have low levels of clotting factor 8.
  - People with hemophilia B have low levels of clotting factor 9.
- Hemophilia can be mild, moderate, or severe, depending on how much of the clotting factor is in a person's blood compared to average levels in a person who doesn't have hemophilia.

Normal levels of factor 8 and factor 9 in the blood are between 50% and 150%.

People with **mild hemophilia** have more than 5% but less than 40% of clotting factor in their blood.

People with **moderate hemophilia** have 1% to 5% of clotting factor in their blood.

People with **severe hemophilia** have less than 1% of clotting factor in their blood.

What treatments are available for people with hemophilia?

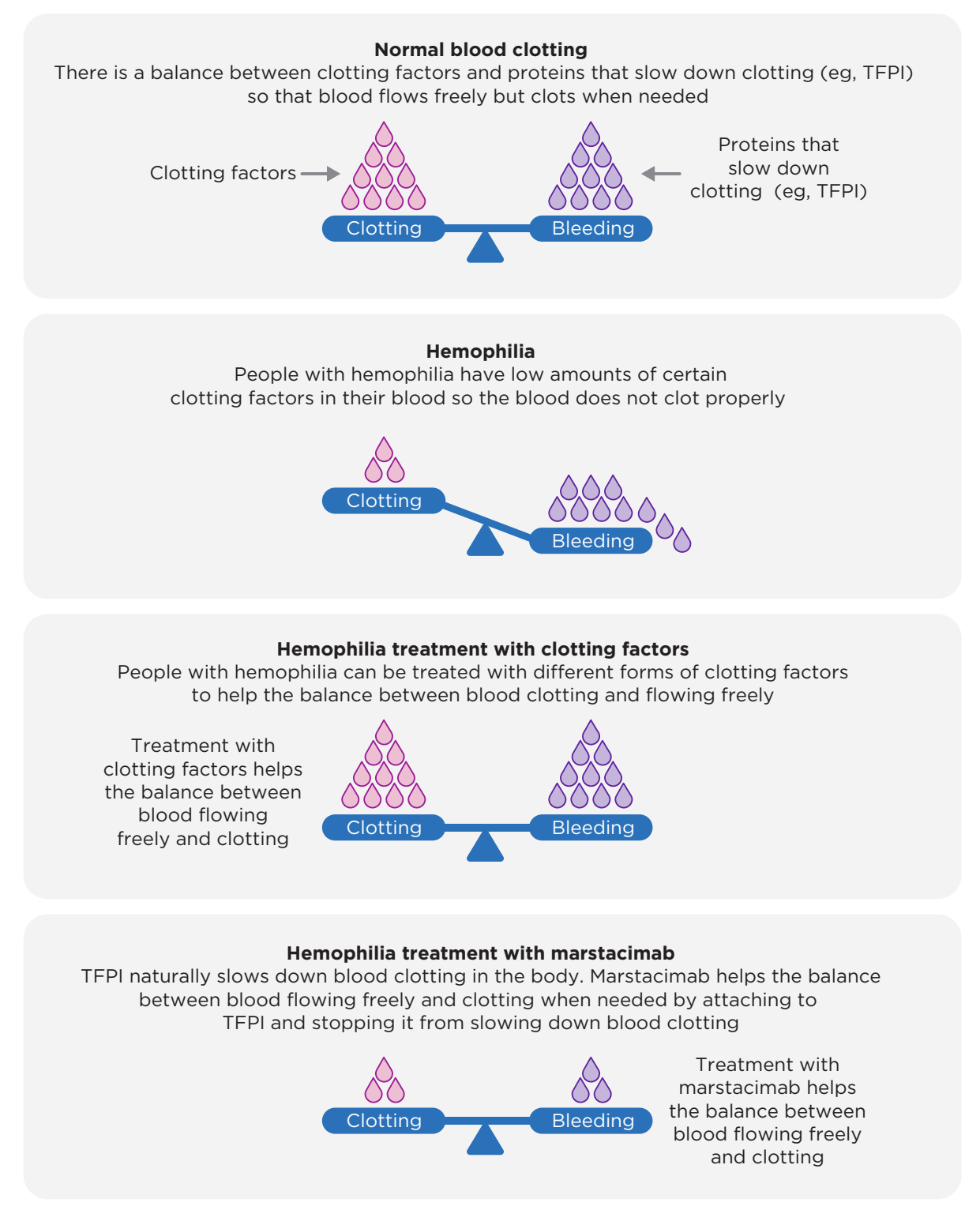
- People with hemophilia can be treated by taking different forms of replacement clotting factors to help their blood clot. This helps to rebalance the amount of blood clotting factors and so blood can clot properly.
- People with hemophilia can be treated with **on-demand** or preventative (**prophylaxis**) therapy.
  - On-demand treatment is only taken when it is needed to stop severe cases of bleeding that are already happening.
  - Prophylaxis is preventative treatment that is taken regularly to help stop bleeds from happening in the first place.

What are inhibitors?

- **Antibodies** are proteins the body makes to fight infections. Some people with hemophilia develop a type of antibody called an **inhibitor**. Sometimes their body thinks the replacement clotting factor used to treat hemophilia is harmful and they produce antibodies to destroy it. These antibodies are called **inhibitors**. The *inhibitors* stop or slow down the replacement clotting factors from working to form a blood clot. People who develop inhibitors need different treatment options.

What is marstacimab?

- **Marstacimab** is a medicine being studied by researchers as a treatment for people with hemophilia A or B.
- Marstacimab is an antibody that works by attaching to a protein in the blood called **Tissue Factor Pathway Inhibitor** (**TFPI** for short).
- TFPI is a protein that naturally slows down the process of blood clotting in the body. TFPI works separately from clotting factors. Marstacimab attaches to TFPI to stop it from slowing down blood clotting. This helps allow clotting when needed.
- Because TFPI works separately from clotting factors, marstacimab may help blood to clot in people with hemophilia whether or not they have inhibitors to clotting factors.
- Marstacimab is given once a week as an injection under the skin.



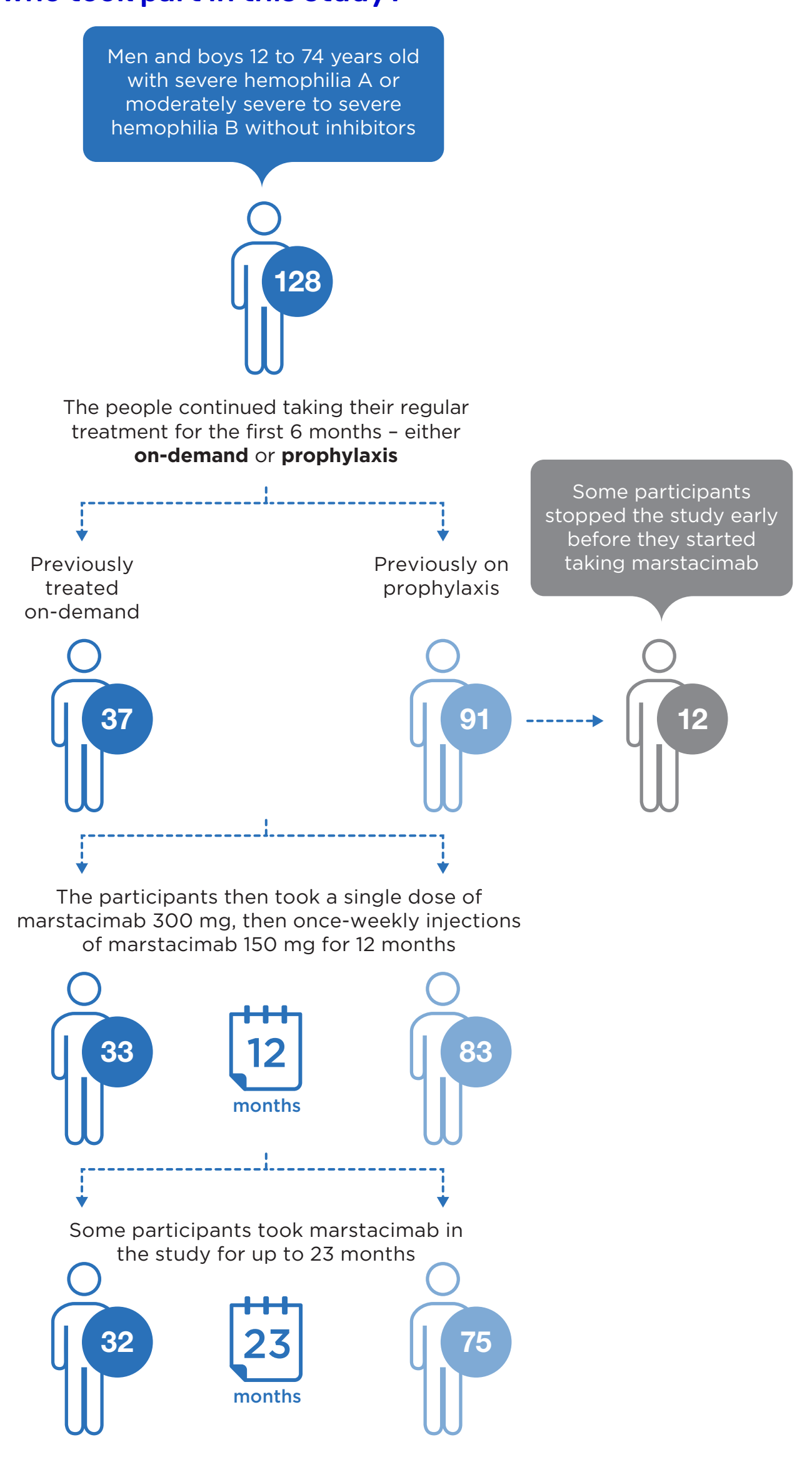
What does this summary describe?

- Researchers wanted to look at the effects of marstacimab in participants with severe hemophilia A and participants with moderately severe and severe hemophilia B without inhibitors in a study called BASIS.

Researchers wanted to find out...
- How effective is marstacimab at treating people with hemophilia.
- How safe is marstacimab at treating people with hemophilia.

STUDY DETAILS

Who took part in this study?



RESULTS

What were the results of this study?

How many participants had serious side effects, treatment-related side effects, or had to stop taking any marstacimab during the study?

	After receiving marstacimab for 12 months		After receiving marstacimab for 23 months	
	Previously treated on-demand	Previously on prophylaxis	Previously treated on-demand	Previously on prophylaxis
Number of participants in each group	33	83	32	75
Serious side effects (A side effect is considered serious if it is life-threatening, needs hospital care, or causes lasting problems)	0 (0%)	7 (8%)	0 (0%)	5 (7%)
Treatment-related serious side effects (A side effect that the study doctor thought was due to taking study treatment)	0 (0%)	1 (1%)	0 (0%)	0 (0%)
Participants who had to stop treatment due to a serious side effects	0 (0%)	1 (1%)	0 (0%)	0 (0%)
Participants who died	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Participants with blood clots causing medical problems	0 (0%)	0 (0%)	0 (0%)	0 (0%)

How many participants had side effects of special interest?

Some side effects were of special interest to researchers because of how marstacimab works.

	After receiving marstacimab for 12 months		After receiving marstacimab for 23 months	
	Previously treated on-demand	Previously on prophylaxis	Previously treated on-demand	Previously on prophylaxis
Number of participants in each group	33	83	32	75
Participants with any side effect of special interest	14 (42%)	46 (55%)	0 (0%)	15 (20%)
The most common were:				
Participants with pain and swelling of the skin around where the injection was given	2 (6%)	9 (11%)	0 (0%)	6 (8%)
Participants with bleeding from a damaged blood vessel	0 (0%)	13 (16%)	0 (0%)	4 (5%)
Participants with an immune response called hypersensitivity	2 (6%)	6 (7%)	0 (0%)	4 (5%)

How many participants developed antibodies to marstacimab?

23 (20%) In the first year, 20% of participants developed an immune response to treatment. The immune response did not affect how safe the treatment was or how well it worked

96% Of the participants with an immune response, most (96%) responses had completely resolved by the end of the first year

How did the number of bleeding events change?

After receiving marstacimab for 12 months:
The number of bleeding events decreased by:

92% In the participants who previously had on-demand treatment

35% In the participants who previously had prophylaxis

16 When the participants carried on taking marstacimab for up to 16 months, they continued to have lower bleeding rates

- Marstacimab is not yet approved to treat hemophilia A or hemophilia B.
- This summary reports the results of a single study. The results of this study may differ from those of other studies. Health professionals should make treatment decisions based on all available evidence, not on the results of a single study.

CONCLUSIONS

What were the main conclusions of this study?

- Researchers looked at the safety of marstacimab for up to 23 months.
  - After 23 months of marstacimab treatment
    - There were no deaths due to taking marstacimab.
    - None of the participants had blood clots due to taking marstacimab.
    - None of the participants who were previously treated on-demand had serious side effects.
    - 7% of participants who were previously taking preventative treatment (prophylaxis) reported a serious side effect. The study doctors did not think any of these were due to marstacimab treatment.
    - None of the participants stopped taking marstacimab because of serious side effects that were related to marstacimab treatment.
- Researchers looked at how well marstacimab works when taken for up to 16 months.
  - After 1 year (12 months) of marstacimab treatment, participants had fewer bleeding events.
  - Participants who continued to take marstacimab for up to 16 months still experienced reduced bleeding events.
- The results show that the side effects of marstacimab were mostly mild and either went away on their own or were treatable and not related to treatment.
- Marstacimab could help prevent bleeding in participants with hemophilia A or hemophilia B.

MORE INFORMATION

Who sponsored this study?

This study was sponsored by Pfizer Inc.

Pfizer Inc.
66 Hudson Blvd East
New York, NY 10001
Phone (United States): +1 212-733-2323

Pfizer would like to thank everyone who took part in this study.

Where can I find more information?

For more information on this study, please visit:
https://clinicaltrials.gov/study/NCT03938792

For more information on clinical trials in general, please visit:
https://www.clinicaltrials.gov/ct2/about-studies/learn

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