

COVID-19 Vaccination and Mast Cell Disorders

January 29, 2021

COVID-19 is a serious disease that can cause hospitalisation, intensive care admission, and in some cases death. Even in people with mast cell disorders, where there is a small risk of side effects and reactions following the vaccines, there is clear potential benefit to vaccination.

This statement has been developed by medical advisors to The UK Mastocytosis Support Group based on the information available as of January 29, 2021 and will be updated as needed as we gather more information about the experience of COVID-19 vaccination in people with mast cell diseases.

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What vaccines are available in the UK?

There are three different vaccines against COVID-19 that have been approved for use in the UK. The Pfizer/BioNTech vaccine and Moderna vaccines use a molecule called messenger RNA (mRNA), which is not infectious and does not replicate or multiply in the body. It enters a cell and uses the cell machinery to produce a protein (the 'spike' protein) that mimics a piece of the virus, and the body recognises this as foreign and creates an immune response against it. The mRNA doesn't enter the nucleus or interact with DNA and is completely removed from the cell shortly after the injection.

The Oxford/AstraZeneca vaccine uses a "carrier" virus called adenovirus, which is modified so it can't grow in humans. The virus contains instructions for the spike protein, and after injection of the vaccine the body treats it like any other intruder and makes an immune response against the virus and its components (including the spike protein). Again, the adenovirus and its components are completely removed from the body soon after the injection.

There are several other vaccines in development, many of which use a variation on these techniques. This advice will be updated when new vaccines are approved in the UK.

Can I have the vaccine if I have a mast cell disorder?

In general, people with mast cell disorders and mastocytosis should not avoid the COVID-19 vaccines, with certain exceptions listed below. Even with these exceptions there is usually an alternative vaccine that you should be able to have.

What are the side effects of the vaccines?

It is normal after vaccination to have some pain, swelling, or redness at the injection site; fatigue, headaches, muscle and joint aches, and chills and occasionally a mild fever. These are side effects of the vaccination and not a reason to avoid future doses.

Serious side effects from vaccines are rare. Anaphylaxis is a rapid-onset reaction which can cause dizziness or faintness, breathing difficulties or wheeze, a fast heart rate, confusion/anxiety, or collapse or loss of consciousness. There will usually (but not always) be hives (urticaria) and/or swelling (angioedema).

In view of the small risk of anaphylaxis the MHRA and the British Society for Allergy and Clinical Immunology have issued guidance with regard to who can receive the COVID-19 vaccines as normal, and who should be referred to a specialist allergy service for advice. This has been incorporated into the Green Book chapter on COVID-19 vaccination (see link below).

The following groups of people can receive any of the available vaccines:

- People with no history of allergy or anaphylaxis
- People with allergic diseases such as hayfever, eczema, or asthma
- People with spontaneous urticaria and angioedema, without features of anaphylaxis
- People with a history of allergy or anaphylaxis to foods or venom
- People with a history of allergy or anaphylaxis to a single drug class (e.g. penicillins)
 - o *People with a history of anaphylaxis to biologic treatment see note below*
- People with a history of anaphylaxis to a single other vaccine
- People with symptoms of mast cell disorders, other than anaphylaxis. These people can receive any of the available vaccines. Some symptoms of the mast cell disorder may flare after the vaccination, although this is usually mild to moderate and resolve over a few days.

The following groups of people should be reviewed in a specialist allergy service for further advice:

People with anaphylaxis after the first dose of the COVID-19 vaccine:

People with previous urticaria/angioedema or anaphylaxis soon after receiving the first dose of a COVID-19 vaccine should be reviewed in a specialist allergy service for investigation before receiving a second dose.

People with an allergy to an excipient in a vaccine:

A list of ingredients (including excipients) for each vaccine can be found here under point 6.1 by clicking on the link for each vaccine, then "Information for Medical Professionals". In these cases, people should be reviewed in a specialist allergy service and should be able to have an alternative vaccine.

<https://www.nhs.uk/conditions/coronavirus-covid-19/coronavirus-vaccination/coronavirus-vaccine/>

People with a history of anaphylaxis of uncertain cause (spontaneous/idiopathic anaphylaxis):

The vast majority of patients with anaphylaxis of uncertain cause would be able to receive any of the available vaccines without problem. However, the MHRA has taken a precautionary approach and advised that this group of people not have the Pfizer/BioNTech or Moderna vaccines, and instead to have the Oxford/AstraZeneca vaccine unless there are reasons to avoid this as well.

People with a history of anaphylaxis to multiple classes of drugs or vaccines:

Like those with anaphylaxis of uncertain cause this group of people are very unlikely to react to any of the vaccines. However, the MHRA has given the same advice to avoid the Pfizer/BioNTech and Moderna vaccines and to have the Oxford/AstraZeneca vaccine unless there are reasons to avoid this as well.

People with a history of anaphylaxis to biologics:

Like the two categories above, this group of people are very unlikely to react to any of the vaccines. However, the MHRA has given the same advice to avoid the Pfizer/BioNTech and Moderna vaccines and to have the Oxford/AstraZeneca vaccine unless there are reasons to avoid this as well.

General Measures

People with mast cell disorders **should continue to take all of their usual anti-mediator treatments**, which might include H1 and H2 antihistamines, mast cell stabilisers, and/or montelukast. In addition they could **consider taking an extra H1-antihistamine** (for example cetirizine or loratadine) 30-60 minutes prior to the vaccination. If prescribed, **adrenaline autoinjectors should be in-date and with the person when receiving their vaccine** and any symptoms of anaphylaxis should be treated promptly.

People should **know how to use their adrenaline autoinjectors** and ensure they are in-date (not expired); training is available at the manufacturers' websites (see below for links).

Vaccination should take place in a setting where anaphylaxis can be managed appropriately. Most cases of anaphylaxis in the UK have occurred within 20 minutes of vaccination, but people at high risk should be observed for at least 30 minutes after the dose.

These recommendations are based on general principles and current information, but evidence is still emerging regarding vaccination and mast cell disorders and the situation may evolve over time. **If people have questions they should contact their usual doctor for individual advice.**

The UK Mastocytosis Support Group is using a **vaccine survey** to collect information about the experiences with these vaccines in people with mast cell diseases. You can complete the survey after your vaccination at: <https://www.smartsurvey.co.uk/s/UKMastoVaccines/>

References and Resources:

- Banerji A et al. mRNA vaccines to prevent COVID-19 disease and reported allergic reactions: current evidence and approach. J Allergy Clin Immunol <https://doi.org/10.1016/j.jaip.2020.12.047>
- Castells MC and Phillips EJ. Maintaining safety with SARS-CoV-2 vaccines. NEJM <https://www.nejm.org/doi/full/10.1056/NEJMra2035343>
- Rama, T, Moreira A, Castells M. mRNA COVID-19 vaccine is well tolerated in patients with cutaneous and systemic mastocytosis with mast cell activation symptoms and anaphylaxis JACI. 2021 Jan 19; <https://doi.org/10.1016/j.jaci.2021.01.004>
- Statement from BSACI, Allergy UK and Anaphylaxis Campaign https://www.allergyuk.org/assets/000/003/297/Allergy_vs_COVID_Vaccine_2020-01-14_original.pdf?1610721647
- The Mast Cell Disease Society COVID-19 Statement: <https://tmsforacure.org/covid19-statement/>
- EPIPEN devices – <https://www.epipen.co.uk/>
- JEXT devices – <https://jext.co.uk/>
- Green Book (UK Government information on vaccines and vaccination procedures) <https://www.gov.uk/government/publications/covid-19-the-green-book-chapter-14a>