



COVID-19 vaccine-associated thrombosis and thrombocytopenia

British Association of Stroke Physicians information and advice 8th April 2021

- A rare syndrome of thrombosis (mainly cerebral venous sinus thrombosis (CVST)) and thrombocytopenia has been reported after coronavirus vaccination
- Up to and including 31 March 2021, the MHRA had received 44 UK reports of CVST alongside low levels of platelets out of 20.2 million first doses of the AstraZeneca vaccine given
- This situation is evolving rapidly, and more cases are being reported
- A causal link to the vaccine has not been confirmed but emerging unusual features including low platelets, anti-Platelet Factor 4 (anti-PF4) antibodies (usually seen in heparin-induced thrombocytopenia, HIT) and severe clinical course raise this as a strong possibility
- The typical timing from vaccination is 5-28 days.
- There are no detailed data on risk factors; age or gender are not currently considered useful predictors

How should I report a suspected case?

The British Association of Stroke Physicians (BASP) and the Association of British Neurologists (ABN) recommend a simple three-step process for reporting cerebral venous sinus thrombosis following COVID-19 vaccination:

- All cases of thrombosis following COVID-19 vaccination, regardless of thrombosis site, must be reported to the MHRA through the Yellow Card system which can be accessed [here](#)
- All thrombotic events with thrombocytopenia must be reported to Public Health England (PHE) on a short form available [here](#)
- All cases of cerebral venous sinus thrombosis following COVID-19 vaccination to date, regardless of platelet count, should be reported (for both new cases notified prospectively and all previous cases already notified retrospectively) using the case report form which can be downloaded [here](#); those submitting cases will become part of the CVST After Immunisation Against COVID-19 (CAIAC) collaborative group

When should I suspect this syndrome?

The Association of British Neurologists (ABN) advise that this syndrome should be considered in patients within 28 days of vaccination if they have at least one of the following symptoms (link [here](#)):



- New onset headache that is very severe and either of sudden onset ('thunderclap'), rapidly progressive over hours or persistent
- Features of raised intracranial pressure including: visual obscuration on coughing, sneezing, or bending; pulsatile tinnitus; or papilloedema
- Focal neurological symptoms or signs
- Altered conscious level or confusion
- Seizure

Which further tests are needed?

- Brain imaging including CT- or MR-venography should be performed in suspected cases to confirm the diagnosis (a useful open access review [here](#))
- Brain CT and MRI are needed to determine the degree of brain parenchymal ischaemia, haemorrhage or signs of swelling or mass effect
- A low platelet count or high D-dimer supports the diagnosis of Vaccine-associated thrombosis and thrombocytopenia

How should this syndrome be treated?

- Although there are no definitive robust data on treatment, by analogy with other similar conditions (in particular heparin-induced thrombocytopenia) the Expert Haematology Panel (EHP) has produced specific guidance, available [here](#)
- News from the British Society for Haematology is updated regularly [here](#)
- Stroke physicians and neurologists should liaise urgently with haematology colleagues to obtain specific advice on local treatment protocols
- In particular, note that **intravenous immunoglobulin is recommended, but heparin, the usual treatment for CVST, is not and an alternative anticoagulant should be given**
- Given the high mortality, early liaison with neurosurgeons is recommended where there is mass effect or midline shift

How should I advise stroke survivors awaiting vaccination?

- Stroke survivors are at high risk of severe COVID-19, so current advice is that they should not be advised to defer vaccination. Please check regularly for updated guidance from the MHRA and European Medicines Agency

This document will be reviewed and updated as required.