

# Intensive Care guidance for the management of vaccine-associated thrombocytopenia and thrombosis (VATT)

Version 1

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## Background

- Rare syndrome after first dose of the COVID-19 vaccine, most commonly with the AstraZeneca vaccine
- Characterised by thrombocytopenia, elevated D-dimer and progressive thrombosis, with a high incidence of cerebral venous sinus thrombosis
- Appears to be similar to heparin-induced thrombocytopenia (HIT)
- No additional risk factors identified yet
- 25-30% mortality in UK cases, 50% mortality in European case series

## Clinical features

- Ages 18-77
- Male and female equally affected
- Flu-like symptoms after the vaccine do not appear to be relevant
- Presents 5-28 days after vaccine (median 12 days)
- Severe headache - consider all cases of severe headache >4 days after COVID-19 vaccine
- May also present with seizures, speech disturbance, weakness, altered consciousness or confusion

## Laboratory investigations

- Full blood count to identify thrombocytopenia ( $< 150 \times 10^9/L$ )
- Coagulation screen including PT, APTT, Fibrinogen and D-dimer to identify low fibrinogen ( $< 1.5$  g/L) and high D-dimer ( $> 4000$  mcg/L), D-dimer 2000-4000 mcg/L may identify a probable case
- Blood film to confirm true thrombocytopenia
- PF4 antibody assay (ELISA HIT assay)
- Repeat above laboratory investigations frequently

## Imaging

- CT cerebral venography: cerebral venous sinus thrombosis occurs in 50% of cases
- Consider CT imaging of thorax, abdomen, pelvis and limbs: other arterial or venous thrombosis are also possible, including pulmonary embolism, portal vein thrombosis, and peripheral arterial thrombosis

## Management

- Early diagnosis and treatment is crucial
- Refer to the guidance produced by the Expert Haematology Panel hosted by the British Society for Haematology (BSH): <https://b-s-h.org.uk/about-us/news/covid-19-updates/>
- Urgent Haematology advice for all suspected cases to guide laboratory testing and management
- Immediate administration of intravenous immunoglobulin 1g/kg, steroids may be required if immunoglobulin administration is delayed
- Platelet transfusion is contraindicated unless undergoing invasive procedure with high risk of bleeding (eg neurosurgical procedures including invasive intracranial pressure monitoring and extra-ventricular drain insertion) - in which case platelet transfusion is recommended aiming for  $>100 \times 10^9/L$
- Fibrinogen replacement aiming for  $>1.5g/L$  by cryoprecipitate transfusion or fibrinogen concentrate administration
- Consider starting anticoagulation when fibrinogen  $>1.5 g/L$  and platelets  $>30 \times 10^9/L$  - avoid all forms of heparin, obtain Haematology advice about dosing and monitoring of non-heparin-based anticoagulant agents (particular caution required before and after invasive procedures)
- Plasma exchange should be considered if no clinical improvement
- Early referral to Stroke Medicine, Neurology and Neurosurgery if cerebral venous sinus thrombosis identified, consider early transfer to specialist neurosciences centre for endovascular treatment (mechanical thrombectomy, intra-sinus thrombolysis), cerebral venous thrombectomy or surgical decompressive craniectomy
- NHS Blood & Transplant have issued guidance on the organ donation from patients with VATT - current NHSBT guidance recommends caution due to the potential of triggering a similar phenomenon in the recipient. Referral of potential donors to NHSBT should occur as per usual practice and donation potential will be carefully evaluated on a case by case basis. More information here: <https://www.odt.nhs.uk/covid-19-advice-for-clinicians/>

## Reporting

- **All suspected cases of VATT** should be referred to the Expert Haematology Panel daily MDT meeting by email: [uclh.vatt@nhs.uk](mailto:uclh.vatt@nhs.uk)
- **All cases of thrombosis with thrombocytopenia** after COVID-19 vaccination must be reported to Public Health England via this link: [https://cutt.ly/haem\\_AE](https://cutt.ly/haem_AE)
- Additionally **all cases of thrombosis or thrombocytopenia** after COVID-19 vaccination must be reported to the MHRA via the Yellow Card system: <https://coronavirus-yellowcard.mhra.gov.uk/>

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The guidance has been endorsed by the Intensive Care Society and the Neuro Anaesthesia & Critical Care Society (NACCS). The guidance will be regularly updated as new information emerges.