Astra Zeneca vaccine induced clotting disorder
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In this podcast, Jules Willcocks talks to Professor Marie Scully about the Astra Zeneca vaccine induced prothrombotic immune thrombocytopenia, our current understanding of cause, diagnostic criteria and treatment.

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About Professor Marie Scully

Professor Marie Scully is a consultant haematologist at University College London Hospitals and Professor of haemostasis and thrombosis at University College London. Her particular interests include platelet mediated disorders, specifically, ITP, TTP and AHUS and acquired bleeding and thrombotic conditions. Her primary publications include TTP, in particular treatment and clinical subtypes, in conjunction with an understanding of the pathogenesis of the underlying disease. She is the clinical lead for the national TTP service, UK TTP forum and patron for the TTP Network. She supervises postgraduate doctorates and is involved in undergraduate and postgraduate teaching and regularly reviews for haematology and related medical journals.

Astra Zeneca vaccine blood clotting

with Professor Marie Scully, Haematologist at University College London Hospitals and Professor of Haemostasis and Thrombosis at University College London, London, UK

Introduction

Vaccine induced prothrombotic immune thrombocytopenia (VIPIT) – also known as VATT, TTS and VITT is a rare blood clotting disorder observed in a small number of people after receiving the Astra Zeneca vaccine. It was first discovered in early 2021 during the COVID-19 pandemic. In this podcast, we talk to Professor Scully about this rare disorder and our current understanding of cause, diagnostic criteria and treatment.

1. What has it been like working as a clinician in the UK since the start of the COVID pandemic?

- Two big waves of COVID cases in March 2020 and December 2020
In March 2020, it was a difficult and traumatic time learning how to manage a new disease. The second wave was busier in terms of patient numbers but it was more organised. The disease process remains a dilemma in terms of ventilation, inflammation and thrombosis. Outside of the hospital, the UK has essentially been in lockdown for the past 18 months. Most people have been working from home and children have not been able to physically go to school.

2. What are the main coagulation issues in relation to COVID?

- The two big components of COVID are thrombosis and inflammation.
- The protocol in the UK was for all admitted COVID patients to have prophylactic intermediate dose low molecular weight heparin.
- Due to logistics and severity of illness, many patients were unable to get radiological studies (particularly in the first wave).
- However, many patients had high right atrial pressures likely due to COVID-related lung changes. These patients were empirically treated with treatment dose low molecular weight heparin to treat for potential pulmonary emboli.

3. Clotting disorders in healthy patients after receiving Astra Zeneca COVID vaccine

- Unusual clotting disorders were first noted in patients who had received Astra Zeneca vaccines in Europe.
- The first case in UCLH was a healthy female who developed a central venous thrombosis, portal vein thrombosis and thrombocytopenia post-vaccine. Her PF-4 antibody was positive.
- In UCLH, the link between the Astra Zeneca vaccine and thrombosis was made after discovering that three patients who were treated at UCLH with thrombocytopenia and neurological symptoms were all PF-4 antibody positive.

4. Vaccine - induced immune thrombotic thrombocytopenia (also known as vaccine induced prothrombotic immune thrombocytopenia - VIPIT)

- Unknown pathophysiology.
- In the UK, there has been about 200 identified cases.
- To date, it has only been observed after the first dose of the vaccine but not the second dose.
70% of affected patients are under 50 years old

The syndrome does not occur in the first 4 days after the vaccine. In fact, the median date of presentation post-vaccine: 12-14 days

Most patients present with extensive central venous sinus thrombosis (symptoms including headache, seizures, neurological deficits) and thrombocytopenia

5. What tests are useful for diagnosis of VIPIT?

- Full blood count: thrombocytopenia
- D-dimer: grossly elevated
- Imaging to identify thrombotic sites: central venous thrombosis, portal vein thrombosis, arterial occlusions, myocardial infarction in normal coronary arteries, carotid artery stenosis/occlusions
- In older patients, thrombosis tends to manifest as DVT/PE

6. Mortality rate associated with VIPIT

- In the UK, mortality rate is 20%
- Originally the European data had mortality rate of 50%
- The morbidity rate is currently unknown

7. What is the treatment for VIPIT?

- Avoid platelet transfusions
- Give non-heparin based anticoagulation
- Immunosuppression: high dose steroids, IVIG and early plasma-exchange

8. What is the cause of VIPIT?

- Currently unclear
- Unlikely to be due to spike protein
- Predominantly associated with Astra Zeneca and Johnson and Johnson. 2 patients have had a similar syndrome after receiving Pfizer vaccine
9. Take home messages

- VIPIT is a rare disorder
- Generally occurs between 5 – 28 days after receiving the vaccine
- Patients present very unwell with extensive clots and thrombocytopenia
- If concerned, it is recommended to involve the haematology team early

Resources


Related Podcasts

- An approach to the management of bleeding disorders
- Anticoagulation 1: Warfarin
- Anticoagulation 2: Heparin
- Thrombocytopenia
- Thrombosis and Thrombophilia

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