Thrombosis UK
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CEREBRAL VENOUS SINUS THROMBOSIS

WHAT IS CEREBRAL VENOUS SINUS THROMBOSIS?

Cerebral venous sinus thrombosis results from a blood clot forming inside a vein in the brain. It most commonly occurs between the cerebral veins and the larger brain sinuses. These blood clots can prevent blood from draining freely out of the brain. As a result, blood may be released into the brain tissues, forming a haemorrhage.

These clots can affect people of any age or sex, although they most commonly occur in young adults and women and affect about 5 people in 1 million each year. They can occur even in newborns and babies in the womb. In more serious cases, they can cause symptoms of stroke and damage the brain and central nervous system; this is a critical condition which requires immediate medical attention.

WHAT IS THE DIFFERENCE BETWEEN CEREBRAL VENOUS SINUS THROMBOSIS AND CAVERNOUS SINUS THROMBOSIS?

Cerebral venous sinus thrombosis (CVST) is a blood clot which forms in the brain's venous sinuses, blocking blood drainage. CVST can cause blood to be released into the brain which leads to haemorrhagic stroke.

Cavernous sinus thrombosis (CVT) is a blood clot in the cavernous sinuses, which are hollow spaces located under the brain behind each eye socket from where the jugular vein carries blood away from the brain. CVT restricts the blood flow from the brain, which can damage the brain, eyes, and the nerves running between them.

It is of note that the symptoms for these two clots are very similar and a diagnosis from a medical professional is key to determining which you may be suffering from. Both require urgent medical attention.

WHAT SYMPTOMS ARE ASSOCIATED WITH CVST?

CVST can cause a range of symptoms including:

Persistent headache with vomiting

Impaired vision

Fainting or loss of consciousness

Motor or sensory function loss, and aphasia (problems speaking)

Many patients also have stroke-like symptoms: inability to move one or more limbs and weakness on one side of the face.

In severe cases, these clots can cause seizures and coma. Symptoms can either develop over time or can come on quickly.

The important thing is if symptoms persist, to seek urgent medical review.

WHAT ARE THE RISK FACTORS FOR DEVELOPING CVST?

Adults and children/infants have different risk factors for developing CVST.
The most common of these are listed below:

Risk factors for adults include:

- Problems with blood clotting which can be acquired or inherited; for example, antiphospholipid syndrome, Protein C or S deficiency, Antithrombin deficiency, and the Prothrombin or Factor V Leiden gene mutations
- Pregnancy and the post-partum period
- Cancer
- Collagen vascular diseases like SLE (Lupus), Wegener's granulomatosis, and Behçet's disease/ syndrome
- Obesity
- Low blood pressure in the brain (intracranial hypotension)
- Inflammatory bowel disease such as Crohn's disease or ulcerative colitis

Risk factors for children and infants include:

- Problems with the way their blood forms clots
- Sickle cell anaemia
- Chronic haemolytic anaemia
- Beta-thalassemia major
- Heart disease - congenital or acquired
- Severe iron deficiency
- Head injury
- For newborns, a mother who has had certain infections or a history of infertility

HOW IS CVST DIAGNOSED?

CVST can be difficult to diagnose partly due to its relative rarity, its multiple and various clinical manifestations, and the fact that it often mimics other acute neurological conditions. Diagnosis consists of clinical examination and neurological imaging using CT or MRI scans, both using various types of radiocontrast to perform a venogram to visualise the veins around the brain.

How is CVST treated?

The mainstay of treatment is prompt anticoagulation. However, patients who deteriorate despite anticoagulation can be considered for endovascular procedures (endovascular thrombolysis or thrombectomy) or neurosurgery (decompressive craniotomy).

Anticoagulation therapy is normally given for 3-6 months in patients with provoked CVST or 6–12 months in people with unprovoked CVST. If a patient has recurrent episodes or a condition that predisposes them to recurrent CVST, they may require lifelong anticoagulation treatment.

What is the likely prognosis?

Fortunately, effective treatments are available for CVST and with early diagnosis patient outcomes are usually good.

I heard that covid vaccination could cause CVST, is that true?

A very small number of people had a severe allergic type of reaction to some forms of covid vaccination causing CVST. This does not occur with the covid vaccines currently used.

FAQS

What support if any is there in place to help me live with my diagnosis.

Having a serious blood clot can be very frightening. It is important that you look after yourself and take time to recover. If you are struggling to get over these symptoms you can seek help via the specialist team looking after you.

What is my prognosis?

Fortunately, treatments are available for CVST and with early diagnosis patient outcomes are usually good.

Is there anything in the future that I should look out for that may give me early warning to this happening again?

If you develop symptoms including persistent headache with vomiting, impaired vision, fainting or loss of consciousness, motor or sensory function loss, and aphasia (problems speaking) please seek advice from NHS 111 or visit your GP/local A&E department for your symptoms to be investigated.

Are there things that I should avoid doing or that I should do more of to assist my recovery?

It takes time to recover from serious clots and you must look after yourself well to aid recovery. This includes getting 8 hours sleep, eating several helpings of fresh vegetables every day, and drinking water regularly. Obesity is a risk factor for clots, so keeping active and maintaining a healthy weight is a good idea.

Can I drive?

It is sensible to avoid driving if you do not feel fully alert. You may need to defer driving until your healthcare professional approves if it was a severe episode or you suffered seizures as a result of your CVST.

Is there anything besides the medication that I should do to prevent this happening in the future?

Living healthily including a diet rich in vegetables, drinking plenty of water, getting 8 hours sleep, maintaining good general fitness, and avoiding obesity can help prevent clots.

Do I need any tests to see what caused this? Will my family need any tests?

As with all clots, your thrombosis will be classified as either provoked (a reason for it happening can be found) or unprovoked (no reason can be found).

In the case of a provoked thrombosis, no further tests will be needed for you or family members as the reason for your developing the CVST is known. In the case of unprovoked clots, you may have some further 'sticky blood' blood tests to help decide on longer term treatment.

When should I go back if I keep getting headaches?

Always check in with your GP or Neurology Clinic if you are at all worried about continuing headaches. If your headache is acute, or you suffer any stroke-like symptoms such as one-sided weakness, difficulty with speech or movement etc go to your local A&E department without delay or call 999 if you cannot get there yourself. It is always better to be safe than sorry.

Links to support groups

Thrombosis UK (www.thrombosisuk.org)

The Stroke Association (www.stroke.org.uk)

Tel: 0300 772 9603 Email: admin@thrombosisuk.org

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