

Transcranial Doppler scanning

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What is transcranial Doppler (TCD) scanning?

TCD is a test that uses ultrasound to measure how fast the blood flows through the blood vessels within the brain. The machine detects the noise of the blood rushing through the vessels and uses this to measure the speed at which it is travelling. It is an extremely safe, easy procedure and is the only way to detect an increased risk of stroke in children with sickle cell disease. Dr Soundrie Padayachee is the specialist leading this service.

Why does my child need a TCD scan?

In sickle cell disease, blood vessels can be damaged by the sickled cells sticking to the walls. This causes the blood vessels to narrow and potentially close up. If this happens in the brain, the blood gets cut off, starving the brain of oxygen and causing a stroke.

What is a stroke?

A stroke is when the oxygen flow to part of the brain is reduced. This causes weakness in an arm or leg, difficulty talking or understanding what is said and/or memory problems. These problems may either be short-lived or permanent. Strokes can happen more than once.

What happens during the TCD scan?

The test is done by the specialist radiologist in either the X-ray department or in the sickle clinic. No preparation is required beforehand.

The scan takes about 15 minutes and your child will be asked to lie on a couch and keep still. He/she will be awake and you may stay with them throughout the scan.

The scanner will run over the side of your child's neck and forehead and is painless. Afterwards you will be able to go straight home, although if the test is done in the sickle clinic, Dr Inusa/Dr Pelidis will be there to discuss the results with you.

What do the results mean?

The results can be normal, conditional or abnormal.

- A **normal** result means that nothing needs to be done now, but the test will be repeated each year.
- A **conditional** result will mean that the scan should be repeated within three months.
- An **abnormal** result means that there is an increased risk of having a stroke in the future. If the result is abnormal, the scan will be repeated within a month and other tests may be arranged, such as an MRI (magnetic resonance imaging) scan or a special X-ray. Neither of these will be painful for your child. All the results will be sent to Dr Inusa/Dr Pelidis for discussion with you. The treatment decision, however, will be based on the results of the TCD and not the MRI.

What happens next?

Research has shown that giving a child regular blood transfusions (about every four weeks) can substantially reduce the risk of a future stroke. If your child's TCD results are abnormal and you consent to treatment, they should start regular blood transfusions as soon as possible.

How long will the transfusions continue for?

The increased risk of stroke is highest between the ages of two and 16 (peaking at seven years of age). Studies have shown that once patients have received transfusions for at least 12 months and there is no significant narrowed blood vessels in the brain and the TCD has remained stable it may be safe to transition to a medication called hydroxycarbamide. The doctor will discuss the option of discontinuing transfusions with you and your child when the time is appropriate.

What if I think my child has had a stroke?

We know that one in 10 children with sickle cell anaemia (HbSS or HbS β 0) will have developed stroke by the age of 14 if nothing is done about it. It is important to report any symptoms of a stroke such as:

- weakness in an arm or leg
- difficulty speaking and/or understanding
- memory problems.

You should see a doctor immediately, even if you are on holiday, so that tests can be carried out to find out whether your child has had or is having a stroke. If a stroke is confirmed, you will be offered regular transfusions to help prevent further strokes in the future.

Meet our team

Dr Baba Inusa (lead consultant for children with haemoglobin disorders)

t: 020 7188 7774 (secretary Mary Adeyoluwa)

e: mary.adeyoluwai@gstt.nhs.uk

Dr Maria Pelidis (consultant in paediatric haematology)

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t: 020 7188 9125

Kemi Ajamufua (specialist nurse - community)

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e: olukemi.ajamufua@gstt.nhs.uk

Where can I get further information?

Sickle Cell and Thalassaemia Conference

This annual international conference is held at Guy's and St Thomas', with world experts in haemoglobinopathies. For more information visit the websites below. If you are interested in attending, please email Dr Baba Inusa.

w: www.scorecharity.com

w: www.ststn.co.uk

e: baba.inusa@gstt.nhs.uk

Sickle Cell Society

Provides help and support for people affected by sickle cell disorders and their carers.

t: 0800 001 5660

w: www.sicklecellsociety.org

The Sickle Cell & Thalassaemia Centre

Provides information about sickle cell disease.

Thalassaemia counsellors can also offer support and information. The centre can also direct you to local services.

t: 020 7414 1363

Contact us

Out of hours, please contact the switchboard on **t:** 020 7188 7188 and ask for the paediatric registrar on call.

For more information leaflets on conditions, procedures, treatments and services offered at our hospitals, please visit **w:** www.evelinalondon.nhs.uk/leaflets

Evelina London Medicines Helpline

If you have any questions or concerns about your child's medicines, please speak to the staff caring for them or contact our helpline.

t: 020 7188 3003, Monday to Friday, 10am-5pm

e: letstalkmedicines@gstt.nhs.uk

Your comments and concerns

For advice, support or to raise a concern, contact our Patient Advice and Liaison Service (PALS). To make a complaint, contact the complaints department.

t: 020 7188 8801 (PALS) **e:** pals@gstt.nhs.uk

t: 020 7188 3514 (complaints) **e:** complaints2@gstt.nhs.uk

Language and accessible support services

If you need an interpreter or information about your care in a different language or format, please get in touch.

t: 020 7188 8815 **e:** languagesupport@gstt.nhs.uk

Leaflet number: 2487/VER4

Date published: December 2018

Review date: December 2021

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A list of sources is available on request