

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 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 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 TDC 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). However, studies have shown that even when the blood flow is back to normal the increased risk of stroke remains, so it is best continue with transfusions in the long term.

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.

What if I have more questions?

The haemoglobinopathy team is available to answer any questions or concerns you may have.

Please contact us:

Dr Baba Inusa (Consultant)

t: 020 7188 7774 (secretary)

Helen Appleby (Sickle Cell Nurse)

t: 020 7188 9432

Gloria Hall (Specialist Community Nurse)

t: 020 3049 5733

Further information

The following organisations provide further information, support and advice for patients and parents with sickle cell disease:

The sickle cell information centre

An information service covering all aspects of sickle cell disease.

w: www.scinfo.org

Sickle Cell Society

Offers advice and support on sickle cell and thalassaemia

t: 0800 001 5660 **w:** www.sicklecellsociety.org

Contact us

Guy's and St Thomas's sickle cell and thalassaemia centre

Provides information about Sickle Cell Disease and Thalassaemia. Counsellors can also offer support and information. The Centre can also direct you to local services. **t:** 020 7414 1363

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 10am to 5pm, Monday to Friday

e: letstalkmedicines@gstt.nhs.uk

Patient Advice and Liaison Service (PALS)

To make comments or raise concerns about the Trust's services, please contact PALS. Ask a member of staff to direct you to the PALS office or:

t: 020 7188 8801 at St Thomas' **t:** 020 7188 8803 at

Guy's **e:** pals@gstt.nhs.uk

Language Support Services

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

t: 020 7188 8815 **fax:** 020 7188 5953

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