Sickle cell disease is a genetic disease, it is not contagious. It is transmissible to a child by its parents. Newborns show no sign of illness but from the third month complications may appear. Blood transfusions are required for hemoglobin levels below 7 g/dL.

Complications
- Chronic anemia
- Increased spleen volume.
- Child stunting.
- Yellow-coloured skin.
- Painful vaso-occlusive crises.
- Sensitivity to infections.

Possible therapy
- Prevent infections by daily antibiotics and vaccinations.
- Blood flow monitoring by ultrasound or brain MRI to avoid a risk of stroke.
- Blood transfusion that reduces the risk of stroke and restores an acceptable level of red blood cells.
- For very severe forms, the only curative treatment is bone marrow transplantation.

Sources:
- [http://www.drepavie.org/drepanocytose_definition.htm](http://www.drepavie.org/drepanocytose_definition.htm)

Did You Know?
Sickle Cell Disease

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**Take-home message**
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**In Olea Sphere®?**

Sickle cell anemia can be investigated by MRI if the risk of cerebral infarction is suspected (clinical signs, high blood flow in Transcranial Doppler in children). The anatomical MR sequences will show chronic lesions (silent infarcts, signs of small vessel lesions) or recent ones.

Olea Vision will enhance the visualization and analysis of the circle of Willis (thin-slab MIP reconstruction or 3D MIP) looking for probable stenosis.

Perfusion weighted imaging with contrast agent injection (Perfusion module) or without (ASL module) may be particularly useful for detecting perfusion anomalies.

The Relaxometry module (T2* mapping) can be used to evaluate the iron overload in the brain parenchyma which may occur as a result of the various transfusion exchanges.

The follow-up longitudinal module can be used to monitor the evolution of cerebral perfusion (during treatment) as well as the evolution of the iron overload.

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**Sources:**

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**Picture 1:** Fusion of cerebral blood flow map (rBF) over the circle of Willis reconstructed in 3D MIP for a better evaluation of small vessels.

**Picture 2:** Follow-up of the blood flow map (rBF) between two MR perfusion examinations of a 36-year-old sickle cell patient.