Fast Facts

Hemoglobin Barts and Alpha Thalassemia

Hemoglobin is a protein responsible for carrying oxygen and giving blood its red color. Worldwide, there are hundreds of different hemoglobin types. Each hemoglobin molecule contains two pairs of globin chains, one is called alpha and the other is called beta.

Alpha Thalassemia is caused by a decrease in the number of alpha globin chains being produced. There are at least four forms of alpha thalassemia. If your baby has been identified with Hemoglobin Barts at birth, this means he/she is probably a health carrier. More serious forms of Alpha Thalassemia will be tracked through the Newborn Screening Follow-up Program at the Virginia Department of Health.

The Silent Carrier: One gene deletion

In the silent carrier, only three out of the four genes that regulate the production of alpha globin chains are passed from the parent to the child. A very small amount of "Barts" hemoglobin is identified at birth, however it soon disappears. **The child has no anemia and will require no medical treatment.**

Alpha Thalassemia Trait: Two gene deletion

Only two genes are inherited for the production of alpha globin chains. A small amount of Barts hemoglobin is identified at birth, however it soon disappears. A mild anemia may be present.
Parents who have been told that their newborn had Barts hemoglobin at birth should tell their health care provider. This information could prevent unnecessary testing or treatment with iron. **No medical treatment for alpha thalassemia is necessary, even for the child with a two-gene deletion.**

Hemoglobin H Disease: Three gene deletion

Only one gene for the production of alpha chain production has been inherited. A large amount of Barts hemoglobin (>20) is usually identified at birth. Referral to a doctor who specialized in disorders of the blood (hematologist) is recommended. Complications might include; severe, lifelong anemia, jaundice, enlarged spleen and gallstones. This complication is most common in people of Southeast Asian ancestry.

Fetal Hydrops Syndrome: Four gene deletion

No genes for the production of alpha chains have been inherited. The fetus is stillborn or dies within the first few hours of birth. This condition is seen almost exclusively in people from Southeast Asia.

Newborn Screening

Alpha thalassemia can be detected in the newborn through the presence of hemoglobin Barts at birth. Diagnosis through DNA analysis in the adult is both technically difficult and expensive. If your newborn has been identified with hemoglobin Barts, this means that you and your partner may be healthy carriers. If you are planning to have more children, you may wish to speak to a genetic counselor about alpha thalassemia.