Saved by her sister: How a two-year-old girl from Georgia underwent a painful bone marrow transplant to cure her older sibling from sickle-cell anaemia

By TOM WYKE

A 13-year-old girl can now look forward to a healthy, normal life thanks to her younger sister, who underwent a bone marrow transplant at the age of just two to save her.
Teenager Vanessa Gissel was diagnosed as a baby with sickle cell anemia, a hereditary disorder that causes red blood cells to become misshapen - affecting their ability to carry oxygen around the body.
Her health declined sharply when she was seven and she was rushed to hospital with acute chest syndrome - which was caused by her disorder and left her unable to breathe properly.

Her life was in grave danger, but hospital doctors managed to save her. However, just five months later she was fighting for her life in hospital again.
Her desperate parents were told that the only hope of a cure for their daughter would be a bone marrow transplant. Otherwise she faced an uncertain future in and out of hospital.

Vanessa in hospital after her transplant. She lost her hair due to chemotherapy she had to have beforehand

So when Vanessa's mother, Dominique Gissel, became pregnant again several years later, doctors decided to keep the umbilical cord of the baby when it was born, in case it could help Vanessa.
The baby, called Sarah, was born without sickle cell anemia and was a perfect match to be a bone marrow transplant donor for her sister.
When she became old enough the Gissels decided to go ahead with the transplant. Blood from the stored umbilical cord, as well as bone marrow from Sarah herself, were given to Vanessa during complicated surgery in July 2013. Although the procedure caused some pain to Sarah, it was much worse for Vanessa, who spent 71 tough days at the Aflac Cancer & Blood Disorders Center of Children's Healthcare of Atlanta.

Directly before her surgery she had to have seven days of chemotherapy - to give the transplant the best chance of working - during which she lost her hair.

While she was recovering, Vanessa - who is a keen ballet dancer - was given a special evening by the Atlanta Ballet, who invited her backstage (pictured)

Explaining the surgical procedure that saved her life, Morey Kraus, the chief scientific officer for Viacord, a private cord blood banking company, told WGXA that umbilical cord blood is the blood that remains in the cord after birth.

It can be collected and used for its stem cells - which have the ability to grow into any other cell in the body - that can be then transferred to people who are ill in a bid to cure them.

'The stem cells at birth are probably about ten times more potent than the stem cells later in life,' said Kraus.

'There's an opportunity at the birth of your child to collect these valuable stem stems, and you really don't get the chance to collect them again.

'Even if a child doesn't use them earlier in life, they may want them when they're an adult to boost their blood and immune system or if they're challenged with a cancer that they need a transplant, they could use their own cells for.'

He said there were around 80 diseases cord blood is said to treat. However, many are genetic diseases, which means the patient's own cord blood cannot be used to treat them because the disease is in every cell, including the cord blood.

Therefore, a healthy family member's cord blood would probably be the patient's best chance.

Reference: http://www.dailymail.co.uk/news/article-3269124/Saved-sister-two-year-old-girl-Georgia-underwent-painful-bone-marrow-transplant-cure-older-sibling-sickle-cell-anaemia.html#ixzz3p6NpkiMh