EuroStemCell

Last Updated: 30.11.2016

Cord blood stem cells: current uses and future challenges

What do we know?

Cord blood is contained in the umbilical cord and placenta of a newborn child. It can be easily collected and frozen for later use.

Cord blood contains blood (haematopoietic) stem cells, which can produce all the other cells found in blood, including cells of the immune system.

Transplants of haematopoietic stem cells (HSCs) from cord blood can be used to treat several different blood diseases, such as leukaemia.

Compared to HSCs from bone marrow donors, transplants of HSCs from cord blood appear to lead to fewer immune system incompatibilities, such as graft-versus-host disease.

Baby's umbilical cord

Photo: Wikimedia Commons

What are researchers investigating?

A limitation of cord blood is that it contains fewer HSCs than a bone marrow donation does, meaning adult patients often require two volumes of cord blood for treatments. Researchers are studying ways to expand the number of HSCs from cord blood in labs so that a single cord blood donation could supply enough cells for one or more HSC transplants.

Some controversial studies suggest that cord blood can help treat diseases other than blood diseases, but often these results cannot be reproduced. Researchers are actively investigating if cord blood might be used to treat various other diseases.

What are the challenges?

A large challenge facing many areas of medical research and treatments is correcting misinformation. Some companies advertise services to parents suggesting they should pay to freeze their child's cord blood in a blood bank in case it's needed later in life. Studies show it is highly unlikely that the cord blood will ever be used for their child.

However, clinicians strongly support donating cord blood to public blood banks. This greatly helps increase the supply of cord blood to people who need it.

For more information visit: **www.eurostemcell.org/cordblood**