Umbilical cord blood

A bio-insurance for all

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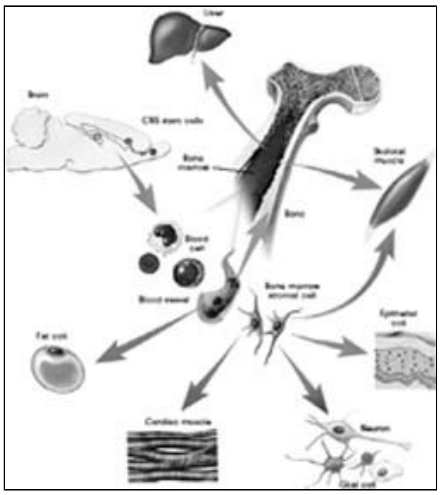

In recent years, the promise of medical biotechnology has extended into the realm of disease therapy as researchers and physicians seek to develop new drugs and approaches to treat diseases. One such example of an innovative approach to treat debilitating diseases is to use umbilical cord blood, because it is a rich source of millions of unspecialised and immature cells called cord stem cells, the building blocks of life.

The cord stem cells have the amazing capacity to develop into all the other mature cells or tissues of the body, be it the liver cell, heart cell, muscle cell, skin cell or the cells of the nervous system, and are transplanted to replace the diseased cells. These lifesaving cells can treat a wide range of diseases like diabetes, blood cancers, heart diseases, Parkinson's Alzheimer's, multiple sclerosis, genetic diseases, such as thalassaemia and stickle cell anemia, degenerative disorders of the eye etc.

To get the stem cells, blood is drained off and collected from an umbilical cord. An umbilical cord is a tube which connects the unborn baby to the placenta and passes on the nutrient rich blood from the mother to the baby to keep it alive in the mother's womb. The cord is generally discarded as a medical waste along with the placenta following the birth of a baby. However, with the discovery of the cord stem cells' ability to treat various debilitating disorders, it is now no longer considered as a medical waste.

Advantages

Cord stem cells are presently seen as a great substitute for bone marrow (BM) transplantation because they do not require a perfect match of certain tissue proteins (known as HLA typing) between the donor and the recipient as is the case with the BM. This also leads to less rejection than BM transplantation.

With the availability of cord stem cells, one is also free from the hassle of arranging a matching BM donor. The cord blood, therefore, can be used not only for the child from whom it has been taken and stored in the cord blood bank but also for the siblings, the parents, the related family members and even for the unrelated individuals for treatment in case the need arises at a later stage in their lives. Cord blood is thus a great bio-insurance for everyone.

Cord blood donation is a little different from the routine blood

donation but is highly safe, simple and painless without any harm to the mother and the baby. The baby's birth is the only opportunity to save his or her cord stem cells. The prospective parents, therefore, need to decide at least three months before the birth of a child whether to save its cord blood or not. The decision should be conveyed to the physician/gynecologist for necessary arrangements.

The parents having a family history of genetic disorders or life threatening diseases may opt for the cord blood storage. However, one can save the cord blood even if there are no such high risk factors in the family so that it could be used for someone else. The blood can be collected both after the normal and cesarean delivery and its collection no way disrupts the normal activities of the obstetrician during delivery.

The process of collection hardly takes 10 minutes. The umbilical cord is clamped after the birth of the baby and the needle is inserted into an umbilical vein and the cord blood is collected in special bags. The blood is then transported to the cord blood banks and its stem cells are separated for long term storage at extremely low temperature at minus 190 degrees C). The cells remain alive at such low temperature for years together and could be retrieved later on in case the need arises.

Cord blood banking is, however, in its infancy and only 50 to 60 commercial cord blood banks have come up worldwide. One such bank in India is "Life cell" with the head office at Chennai and its collection centers at many places (Contact Numbers: Delhi: 011-29243320 & 29230087; Panchkula: 0172-4644322). One is required to pay both the collection and the long term storage fees which run in thousands.