



Commercial Cord Blood Banking

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Why in News

Recently there has been growing concern regarding the aggressively promoted concept of cord blood banking.

Key Points

- Over the past decade, stem cell banking has been aggressively marketed even as its use is still in experimental stages.
- The stem cell banking companies get access to data of to-be parents and start approaching their prospective customers much before the delivery and offer competitive packages.
- Companies convince parents to bank the cells for several years promising future therapeutic use.
- Enormous fees are charged from parents to preserve cells merely by emotional marketing.
- However, according to **Indian Council of Medical Research (ICMR)**, there is **no scientific basis** for preservation of cord blood for future self use and this practice therefore raises ethical and social concerns.
- The ICMR does **not recommend commercial stem cell banking**.
- Private storage of the cord blood is advisable when there is an elder child in the family with a condition treatable with these cells and the mother is expecting the next baby.
- In other situations, parents should be educated about the limitations of banking at this point of time.

Cord Blood Banking

- Cord blood is the blood from the baby that is left in the umbilical cord and placenta after birth. Cord blood banking involves taking the **umbilical cord blood**, which is a rich source of stem cells, and preserving it for future use.

- It contains special cells called hematopoietic stem cells that can be used to treat some types of diseases.
- **Hematopoietic stem cells** can mature into different types of blood cells in the body.
- Globally, cord blood banking is recommended as a source of **hematopoietic stem cell (derived from bone marrow, peripheral blood, or umbilical cord blood)** transplantation for haematological cancers and disorders where its use is recommended.
- For all other conditions, the use of cord blood as a source of stem cells is not yet established.

Stem Cells

- Stem cells are special human cells that have the ability to develop into **many different cell types**, from muscle cells to brain cells.
- Stem cells are divided into **two main forms- Embryonic stem cells** and **Adult Stem Cells**.
- **Embryonic stem cells** come from **unused embryos** resulting from an **in vitro fertilization** procedure and that are donated to science.
 - These embryonic stem cells are **pluripotent**, meaning that they can turn into more than one type of cell.
- **Adult Stem Cells:** There are **two types** of adult stem cells.
 - One type comes from fully **developed tissues**, like the brain, skin, and bone marrow.
 - There are only **small numbers** of stem cells in these tissues, and they are more likely to generate only certain types of cells.
 - For example, a stem cell derived from the liver will only generate more liver cells.
 - The second type is induced **pluripotent stem** cells.
 - These are adult stem cells that have been **manipulated in a laboratory** to take on the pluripotent characteristics of embryonic stem cells.

Indian Council of Medical Research

- ICMR is the **apex body** in India for **formulation, coordination and promotion of biomedical research**.
- Its mandate is to conduct, coordinate and implement medical research for the benefit of the Society; translating medical innovations into products/processes and introducing them into the public health system.
- it is funded by the Government of India through the **Department of Health Research, Ministry of Health & Family Welfare**.

Source: TH