Cord Blood Banking in India: Stem Cell Research, Clinical Benefits in Blood-Related Diseases and Emerging Legal-Ethical Challenges

Jyoti Mukherjee
Ph.D Research Scholar, Legal Science Department, Techno India University, West Bengal

Abstract:

Umbilical cord blood is a significant source of haematopoietic stem and progenitor cells and has developed from an experimental source of transplantation into a recognized therapeutic option for several haematological and immunological disorders. Cord blood transplantation has particular implication for patients who lack a suitably matched bone-marrow or peripheral-blood donor. In India, the growth of private cord blood banking has created increasing public interest in the preservation and budding future use of cord blood. At the same time, questions relating to informed consent, commercial advertising, long-term storage, consumer protection and regulatory lapse remain noteworthy. This article examines the development of cord blood banking and stem-cell research in India, with specific attention to the therapeutic benefits of cord blood-derived haematopoietic stem cells in blood-related diseases. It also examines the Indian regulatory and ethical milieu governing cord blood collection, storage and use. The study adopts a doctrinal and descriptive-analytical methodology based on secondary literature, scientific publications, Indian legislation, guidelines and relevant regulatory resources. The review finds that the cord blood transplantation has demonstrated established clinical value in conditions including leukaemia, lymphomas, myelodysplastic disorders, bone-marrow failure syndromes and selected inherited immunological and metabolic disorders. However, the dissimilarity between scientifically established therapeutic applications and speculative future uses is particularly imperative in the Indian commercial cord blood banking sector. The article argues for stronger integration of consumer protection, data governance and regulatory supervision to ensure that the development of cord blood banking in India remains ethically accountable and clinically expressive.

Keywords:

Cord blood banking, stem cells, alternate to bone-marrow, blood disorders, biotechnology regulation, consumer protection.