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Human Milk Stem Cell as A Potential Therapy for Neonatal Rare Diseases: A Systematic Literature Review

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Structured Abstract

Background: A rare disease is a health problem that only affects a few people, while neonatal is the one that affects newborns such as Necrotizing Enterocolitis (NEC) and Bronchopulmonary Dysplasia (BPD). Despite significant progress in the current understanding of the molecular basis of rare diseases, there is still a lack of approved therapies for most of these conditions. Thus, the number of people suffering from rare diseases continues to rise without effective treatment. This systematic literature aims to review the type of stem cells in human milk and to investigate the type of rare diseases potentially being cured using human milk stem cell therapy.

Methods: This study was selected using four databases, Scopus, Wiley, ScienceDirect, and ClinicalKey, published between 2018 and 2022 in English. After screening titles, abstracts and searching manually, eight articles were analysed using NVivo software.

Results: Research studies have demonstrated the presence of mesenchymal stem cell markers in human breast milk, including CD29, CD44, CD73, CD90, and CD105. Furthermore, it has been found that stem cells derived from human milk possess the potential to effectively treat rare medical conditions such as Necrotizing Enterocolitis (NEC) and Bronchopulmonary Dysplasia (BPD).

Conclusion: This systematic review summarised the data regarding breast milk stem cells, and they may be hopefully used in the treatment of rare diseases even though currently no direct evidence of human milk stem cell therapy being used for the treatment of NEC and BPD.

Keywords: Properties Human milk, stem cell, therapy, neonatal, rare disease

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