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The Use of Umbilical Cord Blood and Its Components in Clinical Practice

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The article provides a brief description of the components of umbilical cord blood (UCB). Variants of the use of UCB and its components, in particular, mesenchymal stem cells, in experimental biology and medicine, to activate the regeneration of organs and tissues, as part of complex measures for the treatment of chronic diseases of various origins (blood diseases and primary immunodeficiencies, neurodegenerative diseases, myocardial infarction, obesity, diabetes mellitus, liver cirrhosis, immune-dependent and autoimmune pathologies, etc.). The review also presents cases of the use of serum (plasma) UCB in postoperative recovery, for the treatment of eye and neurodegenerative diseases, in the treatment of age-related changes. The possibility of using serum/plasma UCB in the enrichment of culture media for the growth of various cell cultures used in regenerative medicine is described. The importance and necessity of standardization of methods for obtaining UCB and its components, their testing and routes of administration, as well as regulating the use of UCB and its components in clinical practice is emphasized. Particular attention in the review is paid to the use of UCB and its components in experimental biology for modeling the processes of reparation and regeneration of organs and tissues in model animals.

Keywords: umbilical cord blood, mesenchymal stem cells obtained from human PC, plasma, serum, erythrocyte mass