

## Use of Optically Transparent Electrodes for the Assessment of the Erythrocytes Quality during Their Storage

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Using an electrochemical method based on the use of an optically transparent working electrode, it was shown that during the erythrocytes storage under hypothermic conditions (4°C), the degree of reversibility of shape changes decreases when exposed to direct electrical current. With the cathodic polarization of the optically transparent working electrode (−0.5 V), the proportion of erythrocytes converted to spherocytocytes decreased from 99.6 ± 0.4% (1st day) to 42.8 ± 14.5% (42nd day) ( $p < 0.05$ ), and with anodic polarization (1.2 V) the proportion of erythrocytes converted to stomatocytes decreased from 80.6 ± 6.7% (1st day) to 35.4 ± 5.6% (42nd day) ( $p < 0.05$ ). At the later stages of storage, an increase in the number of cells that underwent destruction under the influence of direct electrical current was observed in the samples. The presence of such cells in transfused packed red blood cells can lead to an increase in plasma free hemoglobin levels in the recipient after transfusion. The results obtained may form the basis for the development of new methods for assessing the quality of blood components.

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