Red Blood Cell-Nitric Oxide Interactions in Health and Disease: Overview

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The interactions between red blood cells (RBCs) and nitric oxide (NO) play complex and important roles in the regulation of blood flow in the systemic and pulmonary circulations. At the simplest level, RBCs inactivate NO through hemoglobin-oxidation, an interaction that promotes vasoconstriction in the lung during hypoxia (hypoxic pulmonary vasoconstriction) and in the periphery during normoxia. RBCs also promote production of NO through shear-stress interactions with the vascular endothelium and via hemoglobin-mediated reduction of nitrite. This lecture will review RBC-NO interactions in the context of health and disease, and discuss the therapeutic potential of this relationship.

AUTHOR QUERIES

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