

**GLUTATHIONE RECYCLING AND ANTIOXIDANT ENZYMES IN  
ERYTHROCYTES OF NEWBORNS AND HEALTHY ADULTS**

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RBC may present a good antioxidant tool to reduce and defend tissues from overproduction of reactive oxygen species (ROS) (Van Asbeck). In fact they have relatively high activities of catalase, glutathione peroxidase and superoxide dismutase and are characterized by an efficient GSH recycling that promptly restore normal level of GSH when RBC are exposed to oxidants (Di Simplicio et al.).

Newborn is considered a subject at risk of radical pathologies because its tissues (especially the lung) at birth must overcome dramatic changes in oxygen tension. Consequently high ROS production in all tissues is expected at birth and consequences may be deleterious whether they are not promptly eliminated by local antioxidant defences and RBC circulation. In premature newborns and in those delivered under hypoxic conditions the risk of neonatal radical pathologies is increased for several reasons, as lack of adequate antioxidant supply in comparison with the normal gestation or higher consumption of the antioxidant defences when a therapeutic intervention with oxygen is necessary. In these subjects differences in antioxidant repertoire at erythrocytes levels may further increase the risk factor for developing neonatal pathologies.

In this study we have compared the antioxidant potential of RBC in newborns, at term and preterm, and adults in order to know differences in specific antioxidant defences.

Our preliminary results have indicated that enzymes of the GSH recycling are more expressed in newborns than in adults. A further confirmation was obtained by in vitro experiments of oxidative stress of adults and newborns RBC exposed to tert-butyl hydroperoxide.