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RELATIONSHIP BETWEEN PLASMA/ERYTHROCYTES GLUTATHIONE RATIO AND HEALTH STATUS

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Considering the crucial antioxidant role of glutathione (GSH) in cells, its assessment is useful for both healthy populations and in different diseases. It is usually measured either in erythrocytes or in plasma, while it is unknown whether the distribution of GSH between these compartments depends on a presence of a disease, thus affecting the results. Therefore, our aim was to investigate the relationship between GSH in plasma and erythrocytes of healthy and diseased subjects. The study included 60 participants, 25 healthy subjects, and 35 patients with different diseases (cancer, heart failure, kidney diseases, chronic fatigue, sarcoidosis, Lyme disease). GSH levels were determined in plasma and erythrocytes using spectrophotometric method with Ellman's reagent. GSH plasma/erythrocytes ratio between two groups was compared by Mann-Whitney U test and the results are presented as median (interquartile range). The median value of plasma/erythrocytes ratio for healthy subjects was 3.79 (3.32-5.71), and for patients, it was 27.54 (1.53-54.76). This ratio was significantly higher in the group of patients compared to healthy participants ($P=0.018$). Our results indicate a redistribution of GSH from erythrocytes to plasma in the presence of different diseases. The fact that this preliminary study points out an association of health status with plasma/erythrocytes GSH ratio, regardless of the heterogeneity of a patient group, encourages further research in this direction.