322. STATE OF GLUTATHIONE REDUCTASE – GLUCOSE-6-PHOSPHATE DEHYDRO-GENASE SYSTEM IN SALIVA OF STUDENTS FROM DIFFERENT COUNTRIES

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Introduction. Reduced glutathione performs a protective antitoxic and antioxidant role. The only enzyme, whose basic biological significance to maintain a high level of reduced glutathi-one is glutathione reductase. Normal functioning of glutathione requires coenzyme NADPH, which generates aerobic glucose oxidation pathway (pentose phosphate pathway) through the action of glucose-6-phosphate dehydrogenase. The amount of glutathione varies, so a patholog-ical insufficiency of it was observed at a third of the population. Genetic and biochemical stud-ies have demonstrated the important role of glutathione and glutathione-dependent enzymes, which control the intracellular redox-state, inactivate oxygen radicals, protect from oxidative stress.

Purpose. Comparative analysis of the glutathione reductase – glucose-6-phosphate dehydro-genase state in saliva of students from different countries.

Material and methods. The study involved 46 healthy students (20-23 years): Moldova (group 1), Israel (group 2), Palestine (group 3), Congo (group 4). The study complied with all ethical and legal norms. The activity of glutathione reductase (GR), glucose-6-phosphate dehydrogen-ase (G6PD), content of reduced glutathione (RG) and protein were determined by spectropho-tometry (DiaSys). Statistics: t-Student and Spearman.

Results. The content of RG in the saliva of 2nd group was 33,49 mcmol/g protein (185,6%; $p<0.01$), in the 3rd – 10,1 mcmol/g (56%) and in the 4th – 40,30 mcmol/g (223,4%; $p<0,001$) compared with the 1st group (18,04 mcmol/g, 100%). Activity of GR in the saliva of 1st group was 12,0 IU (100%), in the 2nd group - 20,6 IU (171,7%), in the 3rd – 38,3 IU (319,2%), in the 4th group - 29,1 IU (242,5%). Activity of G6PD in the 1st group was 6,6 IU/l (100%), in the 2nd – 18,7 IU/l (283,3%), in the 3rd – 8,9 IU/l (134,8%), in the 4th group - 13,1 IU/l (198,5%). The results of Spearman's rank correlation analysis showed a close relationship between GR and G6PD in 1st, 2nd and 4th groups. However, the functional relationship between the GR and RG was only found in the third group (Pt <0,0025).

Conclusion: The differences between the content of GR and level of G6PD activity in the sali-ned metabolic features. Correlation analysis using the nonparametric Spearman test showed functional rela-tively close relationship between all the parameters considered, which may indicate modifica-tions of metabolic processes in the growing organism.

Keywords: reduced glutathione, glutathione reductase, glucose-6-phosphate dehydrogenase, saliva.