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BIOMARKERS OF PROTEINS OXIDATIVE DAMAGE

Summary

The prevalence of prooxidative processes in the body is associated with development of oxidative stress, one of the symptoms of which is oxidation of proteins. Direct analysis of the amount of reactive forms of oxygen and nitrogen is a very difficult task. Therefore, in assessing the severity of oxidative stress, markers generated by free radical reactions with proteins are often used. They are much more durable and thus easier to analyze. The most important biomarkers of oxidative damage of proteins are protein carbonyl compounds, 3-nitrotyrosine, S-nitrotriazoles, kynurenine, 3-chloro-tyrosine, bromo-tyrosine, methionine sulfoxide, dityrosine, oxohistidine and so called advanced oxidation protein products (AOPP).

Protein carbonyls, 3-nitrotyrosine and AOPP are the best indicators for evaluating of oxidative damage of proteins in laboratory animals. Their content in the body is clearly increasing in response to oxidative stress caused by such factors as improper diet, micronutrient deficiencies, toxic poisoning, infections or aging.

Key words: 3-nitrotyrosine, advanced oxidation protein products, biomarker, oxidative stress, protein, protein carbonyl