

Streszczenie w języku angielskim

INTRODUCTION: Oxidative stress, resulting from disturbances in redox homeostasis, plays an important role in the pathogenesis of many chronic diseases. Increasing attention has been given to biomarkers reflecting the intensity of oxidative damage, such as advanced oxidation protein products (AOPPs), which may support the assessment of disease course and patient prognosis.

AIM: The aim of the dissertation was to evaluate the clinical and prognostic significance of AOPPs as biomarkers of oxidative stress in selected diseases associated with chronic inflammation and disturbances of redox homeostasis. The potential usefulness of AOPPs in assessing disease course and risk stratification was investigated in patients with COVID-19, community-acquired pneumonia, and early-stage breast cancer.

MATERIALS AND METHODS: The study was conducted in three groups of patients: 66 patients with COVID-19, 70 patients with early-stage breast cancer, and 71 patients with community-acquired pneumonia. AOPPs concentrations were assessed in relation to clinical, laboratory, and prognostic parameters. In breast cancer patients, the associations between AOPPs, selected angiogenesis markers, and biological features of the tumor were additionally analyzed. In patients with community-acquired pneumonia, ischemia-modified albumin (IMA) and the Charlson Comorbidity Index (CCI) were also evaluated.

RESULTS: In patients with COVID-19, significant associations were found between AOPPs concentrations and markers of disease severity, inflammation, and organ damage. AOPPs concentrations decreased during the follow-up period. In patients with early-stage breast cancer, higher AOPPs concentrations were associated with more aggressive biological features of the tumor, angiogenesis markers, and poorer prognosis. In patients with community-acquired pneumonia, elevated AOPPs and IMA values were observed in individuals with unfavorable clinical outcomes and higher mortality. Statistical analyses indicated the potential usefulness of AOPPs in prognosis assessment and patient risk stratification.

CONCLUSIONS: AOPPs may serve as a useful biomarker of oxidative stress associated with the intensity of inflammatory processes, endothelial dysfunction, and the course of chronic and neoplastic diseases. The obtained results indicate the potential prognostic value of AOPPs and their possible involvement in angiogenesis and remodeling of the tumor

microenvironment. AOPPs may support prognosis assessment and patient risk stratification; however, confirmation of their clinical usefulness requires further research.

Keywords: advanced oxidation protein products (AOPPs), oxidative stress, prognostic marker, angiogenesis

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