



Rozprawa na stopień doktora nauk medycznych

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***Wpływ COVID-19 na ocenę stanu ogólnego chorych z rakiem płuca***

***Streszczenie w języku angielskim***

Patients with lung cancer are more susceptible to severe COVID-19 and have a higher risk of hospitalization and mortality. Disruptions in healthcare, disturbances in diagnosis and treatment, as well as a more severe course of the disease reflected by a higher percentage of patients presenting with a worse performance status assessed by ECOG PS, are significant factors that may have a negative impact on oncological care and treatment outcomes for lung cancer patients during the pandemic. Therapeutic decisions for lung cancer patients are made, among other factors, based on the assessment of overall health status, defined by the extent of the underlying disease and comorbidities. There is evidence indicating that patients with ECOG PS 2 constitute a heterogeneous group, and it is important to differentiate between patients whose overall health status is primarily influenced by the underlying disease and those whose performance status is affected by comorbidities such as chronic cardiovascular or respiratory diseases or, particularly relevant during the pandemic, COVID-19 infection. In the case of patients with ECOG PS 2 resulting from the progression of the underlying disease, the benefits of incorporating immunotherapy are smaller compared to patients in the second group, where

optimizing the treatment of comorbidities may allow for effective implementation of causal treatment, including immunotherapy.

The aim of this research was to assess the impact of the COVID-19 pandemic on the evaluation of the general health status of lung cancer patients and the effects of the pandemic on treatment outcomes in this group of patients.

The study group consisted of patients admitted for the diagnosis and treatment of lung cancer during the 12 months prior to the outbreak of the COVID-19 pandemic (pre-COVID group, including patients admitted between April 1, 2019, and March 31, 2020 (n=132)), and patients admitted during the COVID-19 pandemic (COVID group, including patients admitted between April 1, 2020, and March 31, 2021 (n=188)).

The material for analysis comprised electronic medical records in the CliniNET EDM system including data on age, gender, date of admission, date of histopathological confirmation of lung cancer, histopathological type of lung cancer, clinical stage, performance status expressed as ECOG PS, type of treatment administered, assessment of treatment radicality, and date of death (if available) or date of the last contact with the patient (in case of no information regarding the date of death).

The collected data were analyzed using the STATISTICA 13.0 software (StatSoft, Krakow, Poland). The normality of distribution was assessed using the Shapiro-Wilk test. Differences between the study groups were evaluated using the Chi-square test or the Mann-Whitney U test.

During the pandemic, there was a significant decrease in the number of patients presenting with a good performance status expressed as ECOG PS 0-1, in favor of patients presenting with a worse performance status ECOG PS  $\geq 2$  (ECOG PS 0-1 pre-COVID-19 vs. COVID-19: 107 (81.1%) vs. 135 (71.8%); ECOG PS  $\geq 2$  pre-COVID-19 vs. COVID-19: 24

(18.2%) vs. 53 (28.2%);  $p = 0.04$ ). The clinical stage of the disease at the time of admission was statistically higher during the pandemic (CS I-IIIa pre-COVID-19 vs. COVID-19: 28 (21.2%) vs. 22 (11.7%); CS IIIB-IV pre-COVID-19 vs. COVID-19: 104 (78.8%) vs. 165 (87.7%). We also observed a more frequent qualification of patients for immunotherapy during the COVID-19 period and a higher percentage of deaths before the initiation of treatment. These results allow for the assessment of the early effects of the COVID-19 pandemic on the evaluation of the health status of lung cancer patients and treatment outcomes. We have demonstrated that the outbreak of the COVID-19 pandemic has significantly negatively impacted the condition of lung cancer patients. These findings provide a basis for further research on the long-term effects of the pandemic in this patient group.

