Streszczenie w języku angielskim

Lung cancer in patients with COPD - clinical characteristics, diagnostic and therapeutic challenges with emphasis on patients under 55 years old.

Chronic obstructive pulmonary disease (COPD) and lung cancer are one of the most common causes of death worldwide. Lung cancer is the second most commonly diagnosed cancer worldwide (after breast cancer), remaining the leading cause of cancer-related death. COPD is the third leading cause of death worldwide after ischemic heart disease and stroke. Survival in patients with lung cancer and COPD is very poor. Tobacco smoking remains the main cause of tobacco-dependent diseases like lung cancer and COPD. Additionally, there is a 4–6 fold greater risk of developing lung cancer in patients with coexistence of COPD in comparison with smokers with normal lung function. Lung cancer and COPD are diseases attributed to older age with mean age around 70 years old. Although these diseases occur in patients with age less than 55 years old and should not be forgotten during differential diagnosis in younger patients with respiratory symptoms. Screening program for lung cancer using low-dose computed tomography (LDCT) in smokers (>20 packyears) above 55 years old appeared in Poland. However, it is currently under discussion if the screening should be performed in patients younger than 55 years old, especially in patients with COPD. COPD influences diagnostics and treatment of lung cancer. In patients with COPD and heavy tobacco smokers, the COPD symptoms can mask some of the new lung cancer symptoms, especially when grow gradually. Additionally, in patients with COPD the risk of complications during bronchoscopy with biopsy or transthoracic lung biopsy is increased. Moreover, COPD influences treatment of lung cancer. Severe COPD and severe irreversible obstruction can be contraindication to surgical resection or other radical treatment.

The series of publications consist of 3 scientific articles – first one is a review article, second one is an original article, third one is an original case series. Additionally, we present unpublished results of patients survival analysis.

All publications present different aspects about coexistence of lung cancer and COPD. The aim of this cycle of publications is to:

- present current knowledge and scientific literature about the topic,

- analyze the clinical characteristics of patients with coexistence of lung cancer and COPD in many aspects, taking into account current rules of diagnosis of both diseases and the possible specificity of the Polish population,

- present diagnostics and treatment of chosen young patients younger than 55 years old from our study group,

- analyze factors which influence survival in this interesting group of patients.

First publication: "Lung Cancer in the Course of COPD-Emerging Problems Today" is an introduction to the topic and summarize the aspects of coexistence of lung cancer and COPD. It describes epidemiology of lung cancer and COPD, pathogenesis and common pathways, especially role of inflammation, immunity, and autoimmunity, as well as, genetic and epigenetic predispositions. Furthermore, it describes specificity of this group of patients and influence of COPD on the diagnosis and treatment of lung cancer. Additionally, the survival and phenotypes of COPD are described. It is a wide review of current literature showing actual knowledge about the topic.

In second publication "Lung cancer in the course of chronic obstructive pulmonary disease – the clinical picture in light of current diagnostic recommendations" the demographic and clinical data were collected retrospectively from medical histories of 180 patients hospitalized and diagnosed with lung cancer and COPD between 2016 and 2022 in a single lung disease department. The demographic and clinical data describing COPD and lung cancer were collected from medical records.

In the study group 46,1% of patients were females. Ninety-nine percent of all patients presented a history of smoking up to 60 pack-years. Almost half of all patients (46.7%) were diagnosed with COPD during lung tumor diagnosis. The most common grade of airway obstruction was grade 2 (56.9%). Emphysema was described in 55.9% of patients. In terms of comorbid diseases, the number of patients with one or more comorbidities was 86.7%. In particular, cardiovascular comorbidities were common.

The dominant histological type was non-small cell lung cancer (NSCLC) – in 41,4% squamous-cell carcinoma. Furthermore, in terms of cancer stage, the stage III dominated in the group at recognition (52.5%), followed by stage IV (38.4%). The survival rate in the study group was 6.25%.

In 3rd publication “Early-Onset COPD and Lung Cancer: Case Studies Highlighting Diagnostic Challenges in Younger Patients” 3 fatal cases of young patients (46, 50, 53 years old) diagnosed with lung cancer and COPD were described. These patients history was very educative and showed diagnostic and therapeutic challenges of patients with coexistence of these two diseases. These cases are evidence that can lead to greater oncologic vigilance and improvement of lung cancer screening programs.

Additionally, we performed survival analysis of patients from the study group, and analysis of factors prolonging survival. We used restricted mean survival time (RMST) analysis. The longer survival was described in patients with COPD diagnosed during lung tumor diagnostics, compared to patients with previous COPD in medical history, patients with NSCLC compared to SCLC, patients without pleural fluid, patients with cancer stage I and II, or I-IIIA. Survival was worsen with increasing number of metastases. Moreover, shorter survival time was described in patients with anemia and laboratory markers of infection.

To summarize, the whole cycle of publications shows an actual knowledge about the topic. It should be stated that high incidences of COPD among lung cancer patients, especially in women, is striking. A long history of tobacco smoking is still the main risk factor for developing both of these diseases. We strongly emphasize the need for extension of the criteria for screening for lung cancer and COPD in younger smokers. In the group of patients with lung cancer and COPD survival rates were lower in patients with long-lasting COPD, SCLC, pleural fluid, anemia or laboratory markers of infection. Large number of patients with coexistence of lung cancer and COPD allowed to show clinical characteristics of these patients and challenges of diagnostics and treatment.