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FEATURES OF CONNECTION OF PNEUMONIA WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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Abstract

Out of hospital pneumonia against the background of chronic obstructive pulmonary disease (COPD) has a number of clinical and pathogenetic features that allows to distinguish this comorbidity as a separate clinical problem, and pathogenetic peculiarities, which allows to single out this comorbidity into a separate clinical problem. Morphofunctional changes, increased microbial colonization of mucous membranes, disorders in the system of local bronchopulmonary protection, local defense of the bronchopulmonary system, as well as the use of inhaled glucocorticosteroids.

Increase the risk of pneumonia in COPD patients. Out of hospital pneumonia against the background of COPD is characterized by a more severe course. Is characterized by a more severe course with frequent development of acute respiratory failure and decompensation of concomitant pathology. Of concomitant pathology. This article describes the peculiarities of pneumonia pathogenesis against the background of COPD, criteria for differentiation of pneumonia in COPD.

COPD criteria of differential diagnosis of pneumonia and infectious exacerbation of COPD, as well as tactics of antibacterial therapy in the given article, antibacterial therapy in this comorbidity.

Keywords: chronic obstructive pulmonary disease, out of hospital, pneumonia, comorbidity, antibacterial therapy, levofloxacin.

Introduction:

Out-of-hospital pneumonia (OOP) remains one of the most, it is one of the major problems of clinical medicine in today's society in modern society. The incidence of EP in developed countries ranges from 2 to 15 cases per 100 people and the mortality rate among hospitalized patients is 5-15%. lethality among hospitalized patients is 5-15%[1-3]. As for Russia, the average annual incidence of EP in recent years is 14-15‰. According to the data of the Ministry of Health of the Russian Federation, in 2010.Community-acquired pneumonia is defined as. An acute illness that occurs outside the hospital, i.e., outside the hospital or later than 4 weeks after discharge

from the hospital. Long-term care ≥14 days, accompanied by symptoms of lower respiratory tract infection lower respiratory tract infection (fever, cough, discharge of sputum, possibly purulent sputum, chest pain (fever, coughing, sputum discharge, possibly purulent sputum).

In the case of an obligate etiologic role of the infectious agent in the development of the infectious agent in the development of EP, the presence of risk factors the presence of risk factors that determine the onset and course of the disease determining the onset and course of the disease, significantly worsening the prognosis and increasing lethality in EP . Such factors include these factors include elderly and old age, smoking, intake of some medications (glucocorticosteroids (GCS), atypical neuroleptics, inhal neuroleptics, proton pump inhibitors, etc.), as well as the use of certain medications.

and concomitant diseases (heart failure, diabetes mellitus, etc.). An important pathogenetic significance in the development of EP. Chronic obstructive pulmonary disease (COPD) has an important pathogenetic role in the development of EP.

According to the World Health Organization, COPD is diagnosed in 210 million people in the world and causes 3 million deaths each year, which is 5% of all deaths in the world . At present, COPD mortality rate

ranks 4th among all causes of death in the general population. Of all causes of death in the general population, and the level of mortalityis steadily increasing, and it is predicted that by 2030, COPD mortality will be the 4th leading cause of death in the general population. COPD mortality will take the 3rd place among the leading causes of death in the world. By 2030, COPD mortality is projected to be the 3rd leading cause of death in the world. COPD is characterized by the development of exacerbations, the frequency of which increases progressively with the on. The frequency of exacerbations progressively increases with the severity of the disease [11]. According to the data of patients hospitalized with exacerbation COPD is approximately 8%, and in 1 year after an exacerbation it reaches 23% [11]. Among patients with acute respiratory failure (ARF) developed against the background of COPD exacerbation, mortality is 24% and reaches 30% in patients over 65 years old [13]. The factors that make it possible to distinguish EP on the background of COPD as a special clinical situation include

are:

- high prevalence of COPD in the population.

population;

- recurrent exacerbations

COPD exacerbations, the frequency of which progressively increases with increasing severity of the disease.
frequency of COPD exacerbations progressively increases with increasing severity of the disease;
- morphofunctional changes in the bronchopulmonary system in COPD patients;
- increased microbial colonization of bronbronchial mucous membranes in COPD patients;
- Difficulties in diagnosing EP on the background of COPD exacerbations (infectious exacerbation of COPD or EP?);
- frequent comorbidity in COPD patients, especially among the elderly and elderly (congestive, heart failure, diabetes mellitus, chronic renal failure, cirrhosis, chronic alcohol intoxication, etc.), which is a predictor of a more severe course of EP;
- a more severe course of both EP and COPD when they are combinedin combination ("syndrome of mutual aggravation"), especially in older patients with frequent development of ODN and increased risk of mortality;
- increased risk of antibiotic resistance of microorganisms in the microbiome, risk of antibiotic resistance due to frequent prescription of antibacterial drugs.
Antibiotic resistance due to frequent prescription of antibacterial drugs for exacerbations of COPD. Although there has been a fair amount of research. There are many studies on EP in patients with various comor. The data on EP in patients with concomitant COPD are rather limited .At the same time, according to a number of epidemiologic studies, COPD has been reported in patients with comorbidities .According to a number of epidemiologic studies, COPD is most often associated with pneumonia .The risk of developing EP in COPD patients increases with the severity of the disease, increases with increasing severity of the disease. Thus, according to the results of observation of 20,375 patients aged 45 years and older, the likelihood of hospitalization due to EP in those with normal tory function was 1.5 cases per 100 person years. While in the presence of stage III-IV COPD, the rate was as high as 22.7 cases per 100 person years. This rate was as high as 22.7 cases . In observation of a large group of COPD patients (40,414 patients 45 years of age and older), it was found that the incidence of EP in them was 22.4 cases per 1,000 person-years. 22.4 cases per 1000 person-years, significantly increasing significantly in those over 65 years of age . To independent risk factors for the development of EP in patients with COPD, the authors include age over 65 years, severity of the course, as well as the prior the severity of the course, as well as previous hospitalizations for exacerbations of COPD, hospitalizations for COPD exacerbations, chronic respiratory insufficiency, which requires longterm oxygen therapyat home, congestive heart failure, dementia. In

another study of 596 people, the incidence of EP in patients with COPD exacerbation was twice as high as in the general population. Of patients in the general population, and the total number of cases of VP cases of EP amounted to 55.5 per 100 person years . A total of 88 episodes of EP were detected during the 3-year follow-up period. Of these, 64 patients had 1 episode of EP,9 patients had 2 episodes and 2 patients had 3 episodes. High EP prevalence in patients with exacerbation of COPD, which amounted to 78.5 per 100 person-years over a 3-year period, was noted. The frequency of EP in patients with exacerbation of COPD co was 18.7% of cases, which is consistent with the data of other authors . Similar results were obtained during a 4-year follow-up period 2630 COPD patients. Out-of-hospital pneumonia was diagnosed in 40 patients (15.3%). The risk of developing EP increased with age, with low body mass index, presence of lung cancer, bronchiectasis, and in patients taking inhaled GHB in patients taking inhaled GCS (IGCS) . The high incidence of EP in COPD patients is supported by is confirmed by pathologic-anatomical studies. Thus, according to I.A. Zarembo et al, EP was found in 46.5% of deceased patients with COPD. Considered as the main, concomitant and background disease.

Even higher rates of postmortem diagnosis of EP in COPD patients were found in 46.5% of deceased patients with COPD (70.9%) is given by A.L. Chernyaev .Among the risk factors for pneumonia in COPD patients, first of all, it is necessary to mention. Smoking, which has a depressing effect on various parts of local defense influence on various links of local defense lungs (mucociliary clearance, cellular and humoral links). Pathogenetic peculiarities of EP in COPD patients can be may be caused by various disorders in the system cellular link of local lung defense. It is suggested that in patients with EP on the background of COPD the reaction of alveolar macrophages to bacterial bacteria. Crophages to bacterial infection may be different from that in infectious exacer COPD exacerbation and is associated with a different phenoty activation of alveolar macrophages, the main cellular component of the local immune system the main cellular link of local immunity lung tissue in COPD patients with EP M1-phenotype was observed, which is characterized by the following increased expression of receptors to tumor necrosis factor α and interleukin-6 to tumor necrosis factor α and interleukin-6 in macrophages, which is accompanied by the development of inflammation inflammation, destruction of extracellular matrix and bactericidal activity. On the contrary, infectious exacerbation of COPD in the absence of M2-phenotype was observed in the absence of EP (increased level of M2 receptor expression). Of expression of receptors to mannose, arginase),which promotes tissue regeneration, angiogenesis, cell proliferation, angiogenesis, cell proliferation, and inhibition the inflammatory response. The presence of COPD leads to morphologic

reorganization of bronchopulmonary structures (bronchial remobronchial remodeling, emphysematous bullae, fibrotic changes, etc.), accompanied by functional disorders with the development of bronchopulmonary diseases, respiratory insufficiency, hypoxia, pulmonary hypertension . Disturbance of mucociliary clearance in COPD patients inevitably contrib inevitably contributes to the occurrence of mucostasis, which is in conditions of increased microbial colonization of bronchial muccolonization of bronchial mucous membranes is a risk factor of lower respiratory tract infections.

One of the complications of COPD is the development of bronchiectasis, the incidence of which increases with the severity of the disease. The incidence of bronchiectasis increases with increasing severity of the disease. According to high-resolution computer tom ography resolution computer tomography shows that bronchiectasis is found in 50% of patients with stage IV COPD . Presence bronchiectasis, serving as a permanent microbial reservoir may be an additional risk factor for the development of EP on the COPD patients show increased colonization of bronchial mucous membrane by potentially pathogenic microorganisms. This is caused by pathomorphologic changes in the bronchial mucosa. Pathomorphologic changes in the bronchial mucosa and disorders in the local defense system. When the threshold of bacterial load the threshold of bacterial load, a new quality of the disease - infectious exacerbation of COPD, which clinically manifests itself by increased coughing, dyspnea, increased volume and purulence of sputum. Antibacterial therapy (ABT) for infectious exacerbations of COPD helps reduce the bacterial load below the threshold of clinical manifestation.

However, often with insufficient eradication activity of antibiotics, bacteria colonize the respirbacteria colonize the respiratory tract during remission without causing clinical symptoms. Potentially pathogenic microorganisms can provoke the development of pneumonia in COPD patients with a peculiar etiologic spectrum and different disease outcomes. Thus, increased microbial bronchial mucosa microbial colonization increases the risk of EP development on the background of COPD .One of the risk factors for the development of pneumonia one risk factor for the development of pneumonia in COPD patients may be the use of SSRIs, prescribed in severe course of the disease. Among COPD patients with and without pneumonia the number of patients taking IHCS, was 74% and 48%, respectively, which allows.It allows us to consider IHCS treatment as a risk factor for the development of EP .According to a meta-analysis including 170 patients with COPD who received for at least 24 weeks of IHCS either as monotherapy or in combination with bronchodilators. A significant increase in the incidence of pneumonia (by 60 percent) was observed.

Incidence of pneumonia (60-70%) compared to patients using bronchodilators alone. It is estimated that one in 47 patients of the 47 patients treated with IHCS developed pneumonia within a year. At the same time, the increase in mortality from pneumonia in the group of COPD patients of pneumonia in the group of COPD patients, group of COPD patients treated with IHCS was not revealed. A large case-control study was devoted to the study of the effect of IHCS intake on the risk of EP in COPD patients .It included patients over 66 years old, all deaths within 30 days were taken into account. The cohort COPD patients included 175,906 patients (meanage 72 years, 50.1% male, median follow-up of 7.1 years of follow up). The frequency of IHCS administration inof patients who had suffered from EP amounted to 48.2%, in the control group - 30.1%.After taking into account the influence of other risk factors, the risk of hospitalization due to EP of hospitalization for EP while taking IHCS amounted to 70% (odds ratio (OR) 1.70; 95% confidence interval (CI) 1.63-1.77), which appeared to be dose-dependent. The maximum risk occurred at high doses of IHCS (>100 mcg in terms of fluticasone; OR 2.25). In assessing the risk of developing of fatal EPs within 30 day sit was found that current use of IHCS increased the risk by 53% (OR 1.53), and the use of high-dose IHCS increased the risk by 78% (OR 1.78), use of high-dose IHCS increased it by 78% (RR 1.78). Thus, the study demonstrated a dose dependenta dose dependent increase in the risk of hospitalization and lethal outcome in EP on the background of IHCS administration in X-ray patients. Predictors of pneumonia in patients with COPD receiving IHCS are severe pneumonia.

In COPD patients receiving IHCS, the severity of COPD, the presence of diabetes mellitus, and the dielevated placental growth factor levels. The latter is considered a new biomarker of increased risk of pneumonia with the use of IHCS. Among the pathogenetic mechanisms for the development of EP in COPD patients treated with IHCS may bemay be the suppression of both cellular (alveolar macrophages), as well as humoral (synthesis of secretory immunoglobulin A) factors of local defense of the lungs, as well as the increase in the local defense of the lungs. Factors of local lung defense, as well as increased microbial colonization of bronchial mucous membranes. It has been noted that Gram-negative Pseudomonas aeruginosa, were more frequent in COPD patients. In early studies of this comorbidity, COPD was already COPD was found to be the most frequent background disease in patients with COPD. COPD was the most frequent background disease in patients in patients with severe EP.The purpose of one of the prospective, multicenter.One prospective multicenter study was to evaluate the rates mortality in hospitalized patients with or without the presence or absence of COPD. There were 70 EP patients, of whom 24 had COPD, confirmed by spirourologic results. COPD, confirmed by the results of spirographic examination. It

was found that in EP patients with COPD had a significantly higher 30-day mortality rate in comparison with the patients without COPD. The purpose of one of the prospective, multicenter. The authors believe that the presence of COPD and elevated RASO2 is very important to consider when assessing the severity and prognosis of patients with EP. The authors believe that the presence of COPD and elevated RAS2 are important to consider when assessing the severity and prognosis of patients with EP. However, in COPD patients the pneumonia severity index with regard to such indicators as pneumonia severity index taking into account such indicators as elderly age, male gender and pneumonia . Predictors of treatment. The predictors of treatment were the presence of indications for hospitalization in the intensive care unit hospitalization in the intensive care unit (ICU) and elevated blood glucose in the blood. The data on the unfavorable prognosis in patients with EP on the background of COPD were obtained in two more. The data on unfavorable prognosis in patients with EP with COPD were obtained in two other studies. M.I. Restrepo et al. study, patients with EP and COPD had a higher 30- and 90-day mortality rate higher 30- and 90-day mortality than in patients with VP without COPD. GP patients without COPD (OR 1.32 and 1.34 respectively) respectively) . In the work of J. Rello et al.suggested that COPD should be included in the list of factors predictors of EP mortality (OR 1.44). In the diagnosis of EP, one of the most difficult situations in the internist's and pulmonologist's practice is the alternative: "pneumonia or infectious exacerbation of COPD". Diagnostic errors in such situations occur in the direction both over and underdiagnosis of CAP.

Conclusion

Verification of pneumonia in patients with COPD exacerbation is practically important from the point not only of view of the diagnosis, but also management tactics. The low level of diagnostics of EP in COPD patients is evidenced by pathology anatomical studies. In hospital, there was no in-patient diagnostics of EP in 34.7% of case 82.1% of cases . It is emphasized that the level of diagnostics of pneumonia in COPD is the lowest among all types of pneumonia.G.E. Bajmakanova et al. analyzed the clinical symptomatology in patients with the disease clinical symptomatology in patients with COPD patients with and without the presence of EP (figure).The majority of patients associated the exacerbation of COPD with a previous viral infection. Severity exacerbation severity according to Anthonisen criteria was more severity of exacerbation according to Anthonisen criteria was more pronounced in the group of patients with EP ($p = 0.024$). In patients with EP compared to patients without EP. Body temperature increased more significantly ($p < 0.001$), more

frequent chills (p < 0.0001), hemoptysis (p = 0.006), and chest pain (p < 0.0001). In addition, COPD patients with EP had a higher level of C-reactive protein (CRP) in serum (106 vs. 29 mg/L), which, along with the frequency of COPD exacerbations and the COPD exacerbation index. Along with the frequency of COPD exacerbations and the Charlson comorbidity index. Charlson comorbidity index was found to be an independent predictor of 30-day mortality. The data of this study confirmed that the determination of SRB assay is a highly sensitive and specific test for the diagnosis of bacterial infection (>16.5 mg/L) and pneumonia (>51.5 mg/L) in COPD patients . More recent studies have also. It was also found that patients with EP with COPD have higher concentrations of CRP procalcitonin, tumor necrosis factor α,interleukin-6 in serum than in patients with infectious exacerbations. These laboratory parameters may acquire differential differentiation, laboratory parameters may acquire differential diagnostic value in complex clinical situations in patients with infectious exacerbations of COPD without pneumonia .

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