

Evaluation of the relationship between pneumothorax and inflammatory factors in patients with COVID-19 - a case-control study-April to September 2021

Abstract: The prevalence of pneumothorax in patients with coronavirus disease (COVID-19) who are admitted to the intensive care unit (ICU) and are mechanically ventilated to maintain adequate oxygen is about 0.3%. Rapid diagnosis and treatment and even prevention of pneumothorax in COVID-19 patients are very important. Little is known about the relationship between pneumothorax and the level of inflammatory factors.

Aime: The present study was conducted with the aim of investigating the relationship between pneumothorax and inflammatory factors in patients with COVID-19 in the form of a case-control study.

Materials and Methods: This retrospective study is a case-control type that was conducted from the beginning of April to September 1400 in patients with covid-19 in two groups of cases and controls, who were hospitalized in the ICU of Imam Khomeini Hospital in Ardabil during this period. The case group consisted of Patients with covid-19 with pneumothorax complications and the control group consisted of covid-19 patients without pneumothorax complications. The inclusion criteria for the study were people with covid-19 with definite diagnosis (CT scan) with severe disease. and not having mechanical ventilation and not prescribing positive pressure ventilation (ppv) / not suffering from COPD and other lung diseases such as asthma and with an age of less than 60 years. Tests (on arrival) of patients including CRP, LDH, ESR, neutrophil, lymphocyte, platelet, and WBC were recorded. Information related to age, sex, place of residence, chest tube insertion, intubation, history of underlying disease, lung disease, heart disease, blood pressure and receiving corona vaccine were completed based on the designed questionnaire. The results were analyzed using SPSS software.

Results: In this study, 40 cases and 40 controls were included in the study based on the study objectives, in terms of variables such as age, sex, marriage, place of residence, intubation, history of underlying disease, lung disease, heart disease, blood pressure, average lymphocyte, platelet , ESR, CRP, receiving the corona vaccine and the outcome of the disease, there was no significant difference between the two groups of cases and

controls, but there was a significant difference in the mean level of neutrophil WBC and LDH.

Conclusion: The present study showed that the incidence of pneumothorax is not related to the demographic characteristics of patients with covid-19. In the present study, the relationship of pneumothorax with the level of inflammatory factors such as ESR, CRP, lymphocytes and platelets was not significant. But in our study, the incidence of pneumothorax was associated with high levels of WBC and neutrophils. Perhaps this relationship can be due to the addition of microbial and bacterial contamination in patients who had corona and pneumothorax at the same time. Although larger studies with more samples can produce more accurate results.

Keywords: Covid-19 patients, pneumothorax, inflammatory factors