

DOI: 10.5152/TurkThoracJ.2019.225

[Abstract:0136] OP-092 [Accepted: Oral Presentation] [COPD]

Comparison of Complete Blood Counts of Stable COPD Patients at Two Different Altitude in Turkey

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Objectives: The aim of this study was to evaluate how altitude difference affects complete blood count (CBC) in patients with stable Chronic Obstructive Pulmonary Disease (COPD).

Methods: Study Design: Cross-sectional study. Place and Duration of Study: Department of Pulmonology, Kars Harakani State Hospital (Group 1) and Samsun Chest Diseases and Thoracic Surgery Hospital (Group 2), Turkey, from March to September 2018. A total of 400 patients (200 female, 200 male) with stable COPD were included. For each group, 100 female and 100 male patients were randomly selected from hospitals. Age, BMI (kg/m²), comorbidity, smoking status, CBC were evaluated. Hemoglobin, hematocrit, WBC, MPV, platelet, lymphocyte count and percentage, platelet/lymphocyte rate (PLR), neutrophil count and percentage, neutrophil/lymphocyte rate (NLR), eosinophil count and percentage, PDW, PCT were recorded.

Results: Patients living at high altitude were significantly older, had lower weight and had lower FEV1 levels. COPD stages of Group 1 patients were more severe ($p<0.001$). There were no moderate COPD patients in this group and the patients had fewer comorbidities (43%). Hemoglobin, hematocrit, MPV, WBC, neutrophil count and percentage, NLR and PLR were significantly higher in Group 1 ($p<0.001$). PDW, PCT, lymphocyte count and percentage, eosinophil count and percentage were significantly higher in Group 2 patients ($p<0.001$).

Conclusion: Hemoglobin, hematocrit, MPV, WBC, neutrophil count and percentage, NLR and PLR were higher in patients living at high altitude. PDW, PCT, lymphocyte count and percentage, eosinophil count and percentage were significantly higher in patients living at low altitude.

Keywords: Altitude, chronic obstructive pulmonary disease, complete blood count