

Prognosis of Patients with COVID-19 and Hematologic Malignancies

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Abstract : Coronavirus Disease-2019 (COVID-19) causes persistent concern for poor outcomes in vulnerable populations. Patients with hematologic malignancies (HM) have been found to have higher COVID-19 case fatality rates compared to those without malignancy. While cytopenias are common in patients with HM, especially in those undergoing chemotherapy treatment, hemoglobin (Hgb) and platelet count have not yet been studied, to our best knowledge, as potential prognostic indicators for patients with HM and COVID-19. The goal of this study is to identify factors that may increase the risk of mortality in patients with HM and COVID-19. In this single-center, retrospective, observational study, 65 patients with HM and laboratory confirmed COVID-19 were identified between March 2020 and January 2021. Information on demographics, laboratory data the day of COVID-19 diagnosis, and prognosis was extracted from the electronic medical record (EMR), chart reviewed, and analyzed using the statistical software SAS version 9.4. Chi-square testing was used for categorical variable analyses. Risk factors associated with mortality were established by logistic regression models. Non-Hodgkin lymphoma (37%), chronic lymphocytic leukemia (20%), and plasma cell dyscrasia (15%) were the most common HM. Higher Hgb level upon COVID-19 diagnosis was related to decreased mortality, odd ratio=0.704 (95% confidence interval [CI]: 0.511-0.969; P = .0263). Platelet count the day of COVID-19 diagnosis was lower in patients who ultimately died (mean 127 ± 72 K/uL, n=10) compared to patients who survived (mean 197 ± 92 K/uL, n=55) (P=.0258). Female sex was related to decreased mortality, odd ratio=0.143 (95% confidence interval [CI]: 0.026-0.785; P = .0353). There was no mortality difference between the patients who were on treatment for HM the day of COVID-19 diagnosis compared to those who were not (P=1.000). Lower Hgb and male sex are independent risk factors associated with increased mortality of HM patients with COVID-19. Clinicians should be especially attentive to patients with HM and COVID-19 who present with cytopenias. Larger multi-center studies are urgently needed to further investigate the impact of anemia, thrombocytopenia, and demographics on outcomes of patients with hematologic malignancies diagnosed with COVID-19.

Keywords : anemia, COVID-19, hematologic malignancy, prognosis

Conference Title : ICHBD 2021 : International Conference on Hematology and Blood Disease

Conference Location : New York, United States

Conference Dates : October 07-08, 2021