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PB1977 EVALUATION OF ANTIBODY RESPONSES AMONG FIVE DIFFERENT SARS-COV-2 VACCINES IN CHRONIC MYELOID LEUKEMIA PATIENTS – A REAL-WORLD STUDY

Topic: 8. Chronic myeloid leukemia - Clinical

Ana Carolina Toreli*[1], Marisol Miranda Galvis[2], Marcelo Addas Carvalho[1], Eliana Miranda[1], Leonardo Fechio[1], Adriana Da Silva Santos Duarte[1], Audrey Basso Zangirolami[1], Gislaine Duarte[1], Samuel Souza Medina[1], Fernando Pericole[1], Bruno Benites[1], Kolhe Ravindra[3], Kimya Jones[3], Harmanpreet Singh[3], Sara Olalla Saad[1], Carmino Antonio De Souza[1], Jorge Cortes[2], Katia Pagnano[1]

[1]Hematology And Hemotherapy Center, University Of Campinas, Campinas, Brazil; [2]Georgia Cancer Center, Augusta University, Augusta, United States; [3]Department Of Pathology, Medical College Of Georgia, Augusta University , Augusta, United States

Background:

Patients with hematologic malignancies have displayed lower rates of seroconversion to SARS-CoV-2 vaccines. Hematologic malignancies are a heterogeneous group of disorders and there is limited data concerning the immunogenicity post-vaccination among chronic myeloid leukemia (CML) patients, overall and by vaccine type.

Aims:

To analyze the seroconversion rates following two and three doses of five different SARS-CoV-2 vaccines among CML patients. We also explore the association between antibody responses, tyrosine kinase inhibitors (TKIs) and treatment response.

Methods:

We evaluated a prospective cohort of CML patients from two CML reference centers from Brazil and USA who received at least two doses of the SARS-Cov-2 vaccine. Blood samples were collected to measure SARS-CoV-2 IgG antibodies and neutralizing antibodies (nAB). All patients completed a health-related questionnaire.

Results:

Between August 2021 and December 2022, 135 CML patients were enrolled (102 in Brazil and 33 in USA). Demographics and clinical features of patients from both centers were similar, with 59% and 57% male patients, respectively (p= 0.90). Median age was 58 (33-85) and 64 (26-80) years (p= 0.82). All patients from the Brazil cohort were Hispanic, while only 7.5% of the USA group self-reported this ethnicity (p=0.001). Most patients were in the chronic phase at diagnosis (96% vs. 97%, p=0.85) and at enrollment (98% vs. 100%, p=0.42). The majority were taking TKIs, while 11% were in treatment-free remission (87% vs. 94%; 13% vs. 6%, respectively; p=0.28). In the Brazilian cohort 60% were receiving imatinib, 37% second-generation TKI (Dasatinib, Nilotinib, Bosutinib), and 2% third generation (Ponatinib) in the US cohort 30% received imatinib, 61% second-generation and 9% third-generation (Ponatinib, Asciminb) (p<0.0001). Response status was similar between cohorts, with most patients with at least major molecular response (MMR) (82% vs. 73%, p=0.24). Regarding SARS-CoV-2 vaccines, AstraZeneca and CoronaVac were the most common brands of initial vaccination schedule applied in the Brazilian patients (66.5% and 29%, respectively), while Moderna and Pfizer-BioNTech were most common in the US (64% and 33%). The median interval of days between the second dose and the first sample collection was 96 days (22-697). Prior to SARS-CoV-2 vaccination, 13% had experienced COVID-19 whilst 26% acquired it after vaccination. There were no severe cases of COVID-19 after vaccination. Independent predictors for higher seroconversion rates were the type of the applied vaccines and the current CML response to the treatment. Higher seroconversion rates were observed in mRNA (Moderna and Pfizer-BioNTech) and recombinant viral vector (AstraZeneca and Janssen) compared to inactivated virus (CoronaVac) (HR: 2.20; 95%CI 1.07-4.51; p<0.031). Patients with MMR or better

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had significantly higher seroconversion rate compared to no MMR (HR: 1.51; 95% CI 1.01-3.31; p<0.0001).

Summary/Conclusion:

Patients receiving mRNA and recombinant viral vector vaccines and those with at least MMR have the highest seroconversion rate after vaccination. Still, our results suggest that all vaccine types may prevent severe COVID-19 in CML patients.

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