Immunological Response to SARS-CoV-2 After Infection and/or Vaccination Among Chronic Myeloid Leukemia Patients – A Prospective Study

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BACKGROUND

- Patients with hematologic malignancies have an increased risk of SARS-CoV-2 infection, severe COVID-19, and higher mortality rates.
- There is limited data on COVID-19-related immunity in cancer patients by the fact this population has been excluded from the majority of clinical studies.

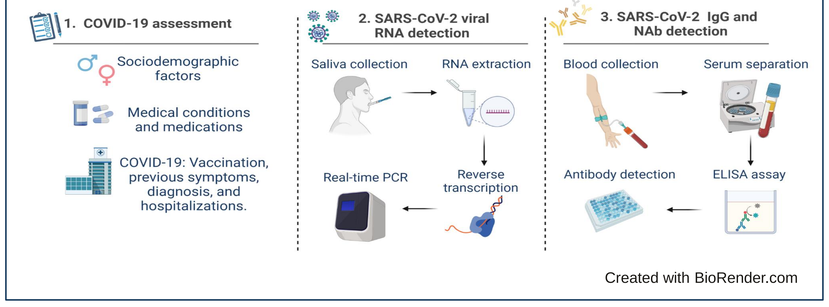
STUDY OBJECTIVES

- We investigated the immunological response to SARS-CoV-2 after infection and/or vaccination.
- We explored the impact of active therapy with tyrosine kinase inhibitors (TKIs) and treatment response on antibody levels.

PATIENTS AND METHODS

- SARS2 SeroPrevalence and Respiratory Tract Assessment (SPARTA) is an ongoing prospective study.
- We targeted a cohort of patients with Chronic Myeloid Leukemia (CML) and compared them with a non-cancer group (control).

Figure 1. Study Design

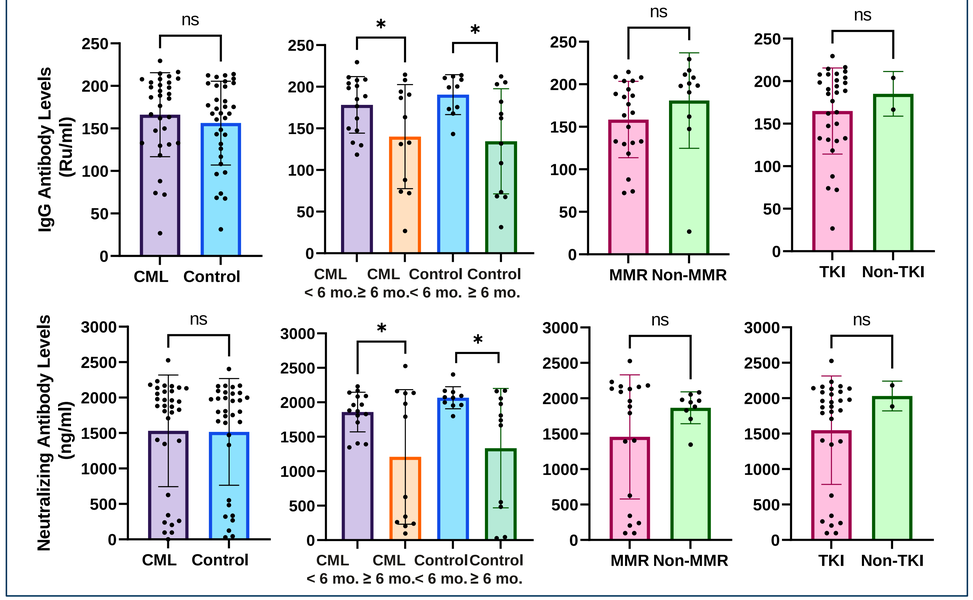


RESULTS

Table 1. Subjects baseline characteristics

Characteristic	CML group no. (%)	Control group no. (%)	p value
Mean age – yr (range)	55.5 (26-80)	52.10 (23-81)	0.45
Sex			
Female	17/38 (44.7)	22/41 (53.7)	0.63
Male	21/38 (55.3)	19/41 (46.3)	
Race			
White	33/38 (86.8)	32/41 (78.0)	0.57
Black or African American	3/38 (7.9)	6/41 (14.6)	
Other	2/38 (5.4)	3/41 (7.3)	
COVID-19 vaccine			
Yes	31/38 (81.6)	32/41 (78.0)	0.78
No	7/38 (18.4)	9/41 (22.0)	
Previously diagnosed with COVID-19			
No	23/38 (60.5)	5/28 (17.9)	<0.01***
Yes	15/38 (39.5)	23/28 (82.1)	
Viral test for COVID-19			
Not detected	36/36 (100)	34/36 (94.4)	0.49
Detected	0/30 (0)	2/36 (5.6)	
IgG Antibody test for COVID-19			
Detected (≥ 11 Ru/ml)	32/38 (84.2)	34/38 (89.5)	0.42
Not detected	6/38 (15.8)	4/38 (10.5)	
nAB Antibody test for COVID-19			
Detected (≥ 12 ng/ml)	32/38 (84.2)	33/37 (89.2)	0.73
Not detected	6/38 (15.8)	4/37 (10.8)	

Figure 2. Comparison of SARS-CoV-2 IgG and NAb antibody levels among groups



CONCLUSIONS

- The immunological response to SARS-CoV-2 among CML patients is comparable to that in non-CML subjects.
- TKI therapy and the response to treatment did not impact the development of antibodies.
- Antibody levels decreased over time, with the most significant drop after 6 months since the last immunization dose.