

1128. A single-center study of COVID-19 infection in patients with chronic lymphocytic leukemia.

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Introduction

- In the COVID-19 pandemic, CLL patients are potentially a high-risk population because of intrinsic frailty, immunosuppressive therapies, and frequent hospital visits for treatment delivery.
- In this study, we retrospectively analyzed the pre-infection patient characteristics, COVID-19 clinical symptoms, clinical severity, care setting and outcome in CLL in Department of Hematology of Jiangsu Provincial People's Hospital.

Research Objective

- To survey the vaccination status, CLL status, characteristics and outcomes of COVID-19 infections in CLL patients in Department of Hematology of Jiangsu Provincial People's Hospital in China.

Methods

- Patients enrolled: 343 CLL pts were confirmed with COVID-19 infection during December 2022 to May 2023.
- These patients were investigated by questionnaire and telephone follow-up.
- including the pre-infection patient characteristics, COVID-19 clinical symptoms, clinical severity, care setting and outcome.

Results

- 343 CLL patients were confirmed with COVID-19 infection during December 2022 to May 2023. Among these patients, median age was 60 years (range 24–87), Of which 19.0% (65/343) were over 70 years old.
- Characteristics for the entire cohort were described in Table 1.

Results

Table 1: Baseline characteristics for the cohort

Characteristics of the cohort (n=343)		n	%
Sex			
Female		221	64.4%
Male		122	35.6%
Age, [range]		1	60[24,87]
18-25 years old		12	0.3%
26-50 years old		66	19.2%
51-69 years old		211	61.5%
≥70 years old		65	19.0%
Comorbidities before COVID-19			
No comorbidity		167	48.7%
1 comorbidity		107	31.2%
2 comorbidities		47	13.7%
3 or more comorbidities		22	6.4%
Hypertension		88	25.7%
Diabetes		43	12.5%
Viral hepatitis type B		31	9.0%
Chronic cardiopathy		21	6.1%
Renal impairment		10	2.9%
Chronic pulmonary disease		4	1.2%
Obesity (BMI≥30)		9	2.6%
Smoking history		50	14.6%
Other tumor history		14	4.1%
Malignancy status at COVID-19 diagnosis			
Watch-and-wait		120	35.0%
CR		92	26.8%
PR		39	11.4%
SD		42	12.2%
PD		23	6.7%
Lines until COVID-19 onset			
1		120	35.0%
1 line		140	40.8%
2 or more lines		43	12.5%
Last vaccination before COVID-19			
Not vaccinated		204	59.5%
One dose		10	2.9%
Two doses		45	13.1%
Three doses		75	21.9%
Four doses		4	1.2%
COVID-19 severity			
Mild infection		255	74.3%
Severe infection		88	25.7%
COVID-19 symptoms at onset			
Fatigue		260	75.8%
Pulmonary		122	35.6%
Pulmonary + Extrapulmonary		234	68.2%
Extrapulmonary		106	30.9%
Asymptomatic		23	6.7%
Stay during COVID-19 episode			
Home		255	74.3%
Hospital		88	25.7%
ICU		9	2.6%
Low-flow oxygen inhalation		49	14.3%
Non-invasive mechanical ventilation		3	0.9%

- The difference analysis of Mild COVID-19(n=88) and Severe COVID-19(n=255) infection in Table 2.
- Age >70 years($p=0.015$), liver disease ($p<0.001$), progressive disease (PD, $P<0.001$), and ≥2 prior CLL therapy($p=0.016$) were associated with severe COVID-19 infection.

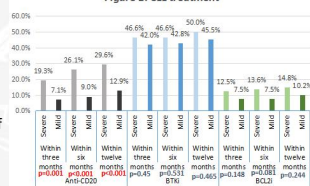
Table 2: The difference analysis of Mild COVID-19 and Severe COVID-19 infection

	Mild infection (n=88)		Severe infection (n=255)		p
	n	%	n	%	
Age					
≥70 years old	21	23.9%	33	12.8%	0.015
Comorbidities before COVID-19					
No comorbidities	128	50.2%	39	44.3%	0.414
1 comorbidity	81	33.8%	26	29.5%	
2 comorbidities	32	12.5%	15	17.0%	
3 or more comorbidities	14	5.5%	8	9.1%	
Diabetes	28	11%	15	17%	0.138
Hypertension	61	23.9%	27	30.7%	0.211
Chronic cardiopathy	15	5.9%	6	6.8%	0.752
Chronic pulmonary disease	3	1.2%	1	1.1%	0.916
Liver disease	14	5.5%	17	19.3%	<0.001
Renal impairment	6	2.4%	4	4.5%	0.292
Obesity	8	4.3%	1	1.6%	0.333
Smoking history	35	13.7%	15	17%	0.447
Last vaccination before COVID-19					
Not vaccinated	146	58.2%	58	66.7%	0.508
One dose	7	2.8%	3	3.4%	
Two doses	35	13.9%	10	11.5%	
Three doses	59	23.5%	16	18.4%	
Four doses	4	1.6%	0	0%	
Malignancy status at COVID-19 diagnosis					
No treatment	97	40.8%	23	29.5%	
CR	68	29.0%	23	29.5%	
PR	33	13.9%	6	7.7%	
SD	29	12.2%	13	16.7%	
PD	10	4.2%	13	16.7%	<0.001
Lines until COVID-19 onset					
NO treatment	108	42.4%	27	30.7%	0.016
1 line	103	40.4%	39	44.3%	
≥2 lines	64	17.3%	22	25.0%	

Results

- The proportion of patients with severe COVID-19 infection who had received anti-CD20-based treatments, BTK inhibitors treatments, and Bcl-2 inhibitors treatments within the last 12 months were higher than that of patients with mild COVID-19 infection
- Similarly, a significantly higher proportion of patients with severe COVID-19 infection had received anti-CD20-based treatments within the last 6 months and within the last 3 months compared to patients with mild COVID-19 infection (Last 6 months:26.1% vs.9.0%, $p<0.001$; Last 3 months:19.3% vs.7.1%, $p=0.001$).

Figure 1: CLL treatment



Conclusion

- CLL patients have a low rate of COVID-19 vaccination and a high rate of severe COVID-19 infection.
- High proportion of severe COVID-19 infection were confirmed in patients with active disease, previous multiple lines of therapy, advanced age, and multiple comorbidities and multiple comorbidities.
- In addition, anti-CD20-based treatments within the last 12 months may be a risk factor for exacerbating COVID-19 infection.

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