

# Impact of hematological malignancy and type of therapy on COVID-19 severity and mortality

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## Objective

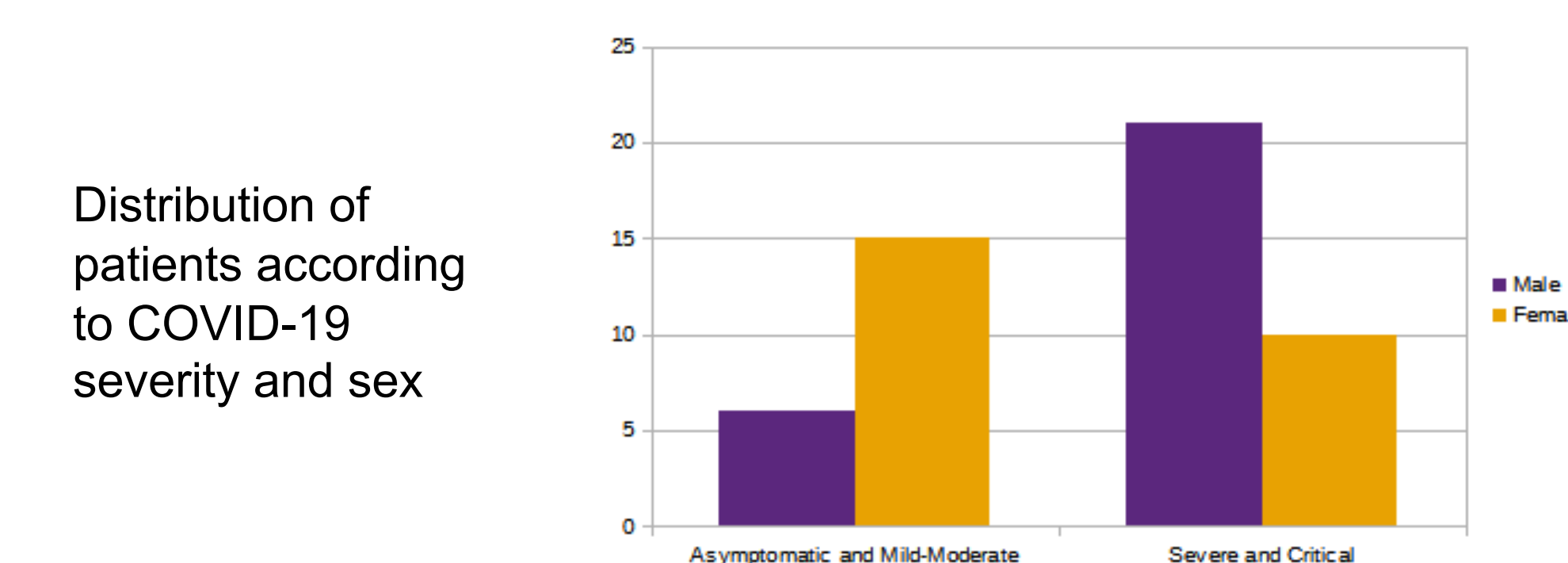
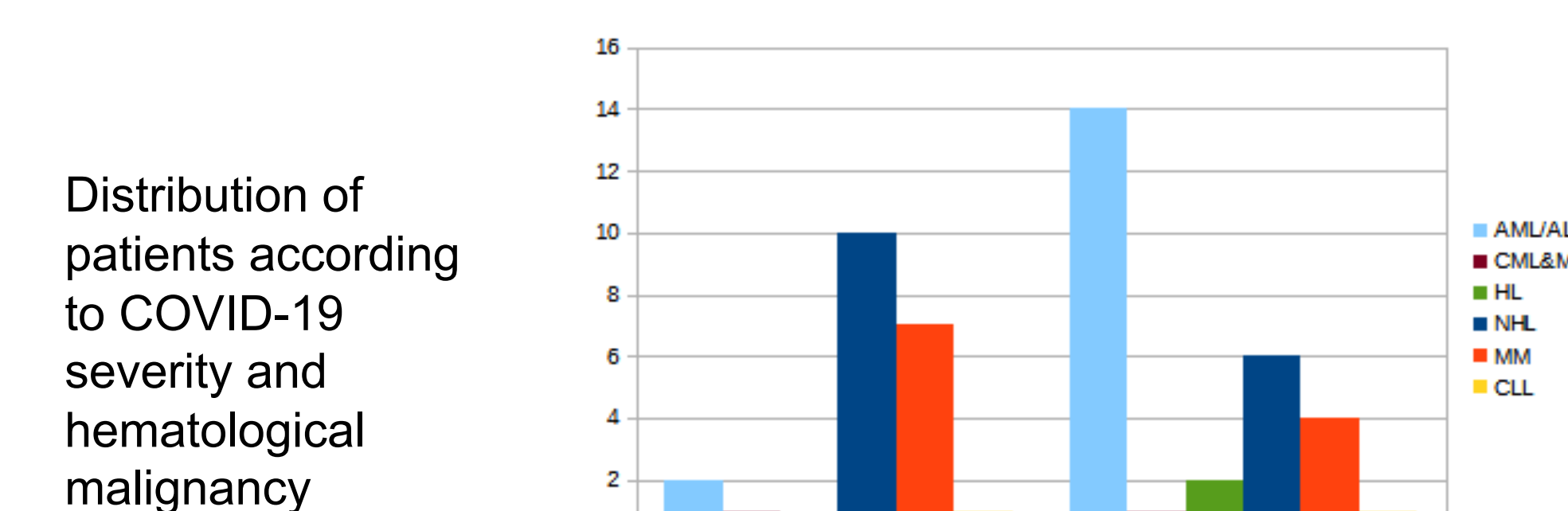
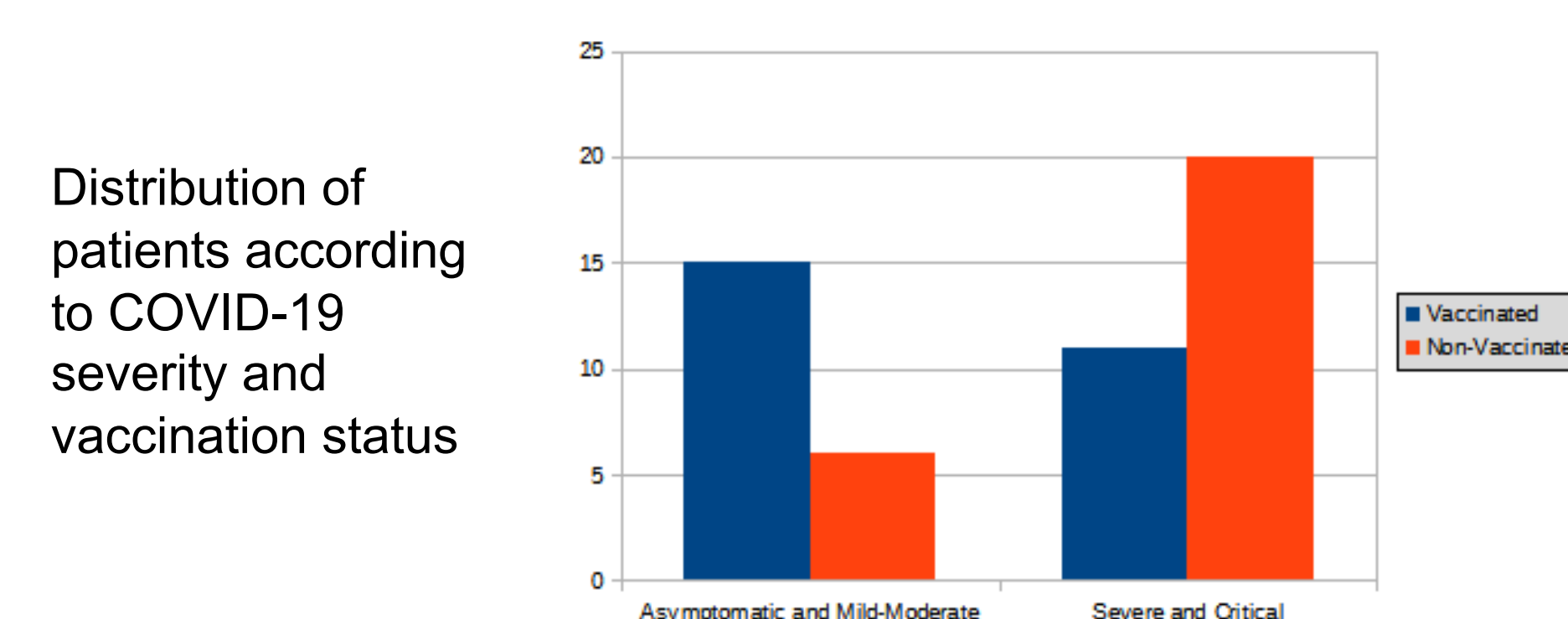
- To evaluate the clinical characteristics (age, sex, co-morbidities, type of hematologic malignancy and therapy) impact on the severity of COVID-19 disease in adult patients with hematological malignancies.
- To evaluate the clinical characteristics (age, sex, co-morbidities, type of hematologic malignancy and therapy) impact on the outcomes of COVID-19 disease in adult patients with hematological malignancies.
- To evaluate the vaccination impact on the severity of COVID-19 disease and outcome in adult patients with hematological malignancies.

## Methods

- The retrospective study includes adult (18 years old and above) hematological-oncological patients with a positive COVID-19 RT-PCR in the period of February 2020 and January 2022
- Anonymous data was collected from the Hospital Information System of Kauno Klinikos Hospital
- Patients were divided into 2 groups: Asymptomatic and Mild-Moderate and Severe-Critical.
- **Asymptomatic** patients were found to have a positive RT-PCR result. **Mild - moderate** patients that showed symptoms and were treated for COVID-19 in the ward and received symptomatic and supportive treatment. **Severe** patients were transferred to the COVID-19 department and required treatment with dexamethasone, convalescent plasma and remdesivir. **Critical** patients were transferred to the ICU in order to get advanced treatment, were intubated and/or died during the course of the disease.
- Differences between the groups was assessed: demographical characteristics, type of malignancy, treatment modality, vaccination status, bone-marrow transplantation and laboratory results.

## Results

- We have found that in the “asymptomatic and mild-moderate” group 15 (71.42%) were vaccinated and 6 (28.57%) were not. In contrast, in the “severe and critically ill” group, only 11 (35.48%) were vaccinated, while 20 (62.52%) were unvaccinated ( $p=0.011$ )
- Acute leukemias were found to be the most common hematological-oncological disease in severe and critical patients (45.15%), multiple myeloma (33.33%) and lymphoma (47.62%) patients were susceptible to COVID-19 infection but were more likely to have a less aggressive course of disease ( $p=0.027$ ).
- The distribution of the patients between the groups was 6 male patients (28.5%) and 15 female (71.5%) that were asymptomatic or having a mild-to-severe course of disease. The severe and critically ill patients consisted out of 21 (67.74%) males and 10 (32.26%). Male sex ( $p=0.006$ ) was found to be statistically significant factor that predicted a severe and critical course of COVID-19.



## Conclusions

- Acute leukemias, male sex and older age are significant characteristics that impacted the severity of COVID-19 disease in our cohort.
- Acute leukemias and hospitalization in the ICU were predictors of mortality.
- Vaccination of hemato-oncological patients led to a lower presentation in the severe or critical group of patients and had improved the outcomes of the patients in this cohort.

## Key words

Hematological oncological disorders, COVID-19