



antibody levels during convalescence in COVID-19 survivors with lymphoma, compared to other hematologic diseases (HemD) and healthy controls (Ctrls).

Methods: Seventeen pts with non-Hodgkin lymphoma (NHL) [follicular (FL); 9; diffuse large B-cell (DLBCL); 8] surviving the acute phase of virologic-proven COVID-19 were evaluated at 3 timepoints (TP) after nasal swab negativity: +1 (TP1), +3 (TP3), and +6 (TP6) months; 28 pts affected by HemD (10 multiple myeloma, 8 chronic lymphoproliferative disorders, 10 myelodysplastic/chronic myeloproliferative syndromes) and 17 Ctrls were also evaluated at the same TP. Antibody (Ab) levels to nucleocapsid (N-Ab) and spike (S-Ab) virus proteins were measured using a highly sensitive luciferase-immunoprecipitation system (LIPS) assay. Positive levels were 125000 LU for N-Ab and 45000 LU for S-Ab.

Results: Mean N- and S-Ab levels were lower in FL and DLBCL than in other HemD pts, both at TP1 (N-Ab 1217517 vs 2205610 LU, $p = 0.03$; S-Ab 580444 vs 1184453 LU, $p = 0.049$) and at TP3 (N-Ab 850510 vs 2094487 LU $p = 0.012$, S-Ab 605284 vs 1230946 LU, $p = 0.074$). At TP6 N-Ab levels declined in all subgroups, while S-Ab levels remained stable. At TP1, compared to HemD, significantly less FL and DLBCL pts reached positive levels of N-Ab (93% vs 59% $p = 0.017$) and of S-Ab (86% vs 47%; $P = 0.008$). Positive levels of N-Ab and S-Ab were also more frequent in Ctrls (100% and 87%; $p = 0.007$ and 0.028) than in NHL pts. Rates of seroprotection remained lower in NHL pts also at TP3 and TP6. Rituximab (RTX) had been given to 14/17 NHL pts, either ≥ 6 months in 5 (prior RTX) or < 6 months in 9 pts (ongoing RTX) before Covid-19 diagnosis. Ongoing RTX had a markedly negative effect on S-Ab levels since none of 9 patients seroconverted at TP1 compared to 5/5 prior RTX pts ($P = 0.0005$). No changes occurred in the rate of seroprotected pts also at TP3 and TP6 except for 1 ongoing RTX pt who reached protective levels at TP6 (see figure). Overall seroprotective Ab at any TP were present in 2 of 18 determinations in ongoing RTX pts, despite RTX treatment discontinuation, and in 15 of 15 determination in prior RTX pts ($p = 0.0001$).

Conclusions: In FL and DLBCL NHL pts the humoral immune response to SARS-Cov2 is less effective than in other HemD and in Ctrls. However, in seroconverted pts, S-Ab levels did not significantly decrease after 6 months. Ongoing RTX at Covid-19 was detrimental in that it did not allow to develop a humoral anti-S immune response and lack of

seroconversion persisted in most pts long-term despite discontinuing RTX. These data could be considered with regard to vaccination policy, although larger studies are needed to confirm them.

Keywords: Aggressive B-cell non-Hodgkin lymphoma, Indolent non-Hodgkin lymphoma

No conflicts of interests pertinent to the abstract.

285 | MULTICENTER RETROSPECTIVE ANALYSIS OF RISK FACTORS FOR MORTALITY OF COVID-19 INFECTION IN PATIENTS WITH LYMPHOMA

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Covid 19 infection leads to significantly higher morbidity and mortality among lymphoma patients (pts.) compared to immunocompetent population. The majority of published data is based on the cohorts diagnosed during the spring and early autumn 2020 Covid-19 outbreak. Here we present a retrospective analysis of mortality

data and risk factors in one of the largest groups of pts. with lymphomas described so far, with majority diagnosed in the second half of 2020 and early 2021.

Patients and methods. A total of 360 pts. followed for lymphoma and participated in NiHiL project in 7 centers in the Czech Republic and with COVID-19 diagnosis during the period from February 2020 to February 26 2021 were included. The lymphoma and COVID-19 characteristics were analysed and descriptive statistic were used.

The median age of the whole group was 65 years (19-89), 58% of them were men, and 55% pts were on the antilymphoma therapy. In terms of lymphoma subtypes, there were 181 (50%) aggressive B-NHL, of which 127 patients with DLBCL and 47 with MCL. 107 patients (30%) with indolent B-NHL, of which 62 patients with FL, 18 MZL, 9 SLL, 7 LPL. 27 (7.5%) patients with T-NHL and 45 (12.5%) with HL. The median follow-up from the diagnosis of COVID-19 was 3 months (1-13), 48% of patients had to be admitted to the hospital. Out of those who required hospitalization died 40%. Overall mortality rate was 21%.

There was no difference in mortality between NHL subtypes, while patients with HL had a significantly lower risk of mortality (hazard ratio 0.32, 95% CI [0.158, 0.648], P 0.04). However, there were fewer patients (44%) with HL on the active treatment of lymphoma, compared to the whole group of NHL (56%), in the group of aggressive NHL even 64%. A lower median age of patients with HL (47) may also contribute to this finding.

Active treatment of lymphoma at the time of infection represented a significantly higher risk of death (hazard ratio 2.25, 95% CI [1.428, 3.546], P 0.001). We did not show a statistically significantly higher mortality with rituximab containing regimens compared to chemotherapy alone. A higher risk of mortality was demonstrated in patients with relapsed, progressive disease (Hazard Ratio 2.08, 95% CI [1.073, 4.034], P 0.01).

Our data confirm an increased risk of mortality, especially in patients with NHL, compared to the general population. The slightly lower risk of mortality compared to previously published data can be explained by the higher incidence of cases with a milder course, recorded for analysis, treated only on an outpatient basis for COVID-19, which did not require hospitalization. The higher risk for patients in active treatment suggests the need for active immunization before treatment, where possible, and the need for effective therapy in case of infection during ongoing anti-tumor therapy, including the use of monoclonal antibodies to treat COVID-19 infection.

Keywords: Cancer Health Disparities

No conflicts of interests pertinent to the abstract.

286 | OUTCOMES OF PATIENTS WITH LYMPHOMA AND COVID-19: AN OBSERVATIONAL COHORT STUDY FROM GELTAMO SPANISH GROUP

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Introduction: COVID-19 is thought to be more frequent and severe in patients with cancer. Lymphoma patients may be especially vulnerable, due to the immunodeficiency and immune dysregulation caused by the lymphoma itself and the antitumor treatments. This study describes the characteristics and outcomes of lymphoma patients after developing COVID-19.

Methods: This is a retrospective multicentre study carried out in the hospitals of the GELTAMO group, which included patients with a histological diagnosis of lymphoma and confirmed SARS-COV-2 infection before June 30th, 2020. The primary outcome was overall survival (OS) 60 days after a COVID-19 diagnosis.