frustrate global development efforts unless urgent action is taken.

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SP 20

Lymphoblastyc lymphoma/leukemia: a single center experience

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Introduction: Lymphoblastic lymphoma (LBL) is a rare neoplasm of lymphoblasts or precursor T- and B-cell with predominantly involves lymph nodes, mediastinum or extranodal tissues with minimal persistence in bone marrow. LBL amount 2% of all non-Hodgkin lymphomas. T-phenotype is the most common one and reaches above 80% of LBL. LBL and acute lymphoblastic leukemia (ALL) have the same biological entity according WHO Classification of Tumors of Haematopoietic and Lymphoid Tissues 2017. Distinguishing criterion between two diseases is the number of bone marrow blasts 25%. ALL-regimen provide better overall (OS) and disease-free survival (DFS) in contrast with CHOP-like schemes.

Patients and methods. A retrospective review of LBL patients from **N.N. Blokhin National Medical Research Center of Oncology** (Russia, Moscow) during period between 2009 and 2020 was done. Patients were treated according ALL-2009 protocol (Russian ALL-Study Group, ClinicalTrials.gov NCT01193933). Kaplan–Meier curves and log-rank test were used to evaluate the OS and DFS. This study includes 20pts with primary ($n=15$) and relapse LBL ($n=5$). T-cell LBL pts were 18, and 2 were of B-cell lineage. Most patients were males 85% (17 of 20). Stage II and IV both at 45%, stage III 10%. All T-LBL patients showed a mediastinal tumor, B-LBL pts had involved peripheral lymph nodes and soft tissues. The rate of LBL among all primary lymphoid precursor neoplasms (LBL and ALL) was 17.6%. Median follow up was 28 months (0.5–170.5 mo).

Results: All 5 relapse patients were pre-treated out of our center: after CHOP-like treatment with relapse in initial zones and all died from disease ($n=3$), after HyperCVAD, later followed alloHSCT ($n=1$, alive) and 1 pts after ALL-BFM-2002 with mediastinum and CNS relapse. CR rate of primary LBL ($n=15$) was 93%, 1 pts was refractory and later died. Radiotherapy has been carried out in 40% (6 of 15) patients with residual tumor mass after chemotherapy consolidation. 1 patient was been undergoing autoSCT. The 10-year OS of patients with LBL, T-ALL and B-ALL was 73.8%, 48.7% and 54.5% respectively ($p=0.3$). The 10-year DFS in the same groups was 75%, 56.3% and 64.5% respectively ($p=0.2$). Although the results are not statistically significant, we see a trend towards better survival outcomes in patients with LBL. AlloSCT was performed in 2 patients LBL in CR2, one of them alive, the other died of complications.

Conclusion: The results of treatment of LBL pts in **N.N. Blokhin National Medical Research Center of Oncology** are comparable to most of the similar reported studies. The survival results of LBL patients with ALL-regimen therapy seem to be better compared with patients ALL. CHOP-like chemotherapy is a very poor prognostic factor for LBL patients. The role of autoSCT has not been developed. In our center we have satisfied outcomes of LBL with minimal rate of high dose consolidation with autoSCT. Radiotherapy at postconsolidation phase in patients with residual tumor mass reduces the risk of relapse.

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SP 21

Relapsed and refractory classical Hodgkin lymphoma immunotherapy

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Background: Introduction of PD-1 inhibitor nivolumab (Nivo) into a clinical practice revolutionized the treatment of relapsed and refractory classical Hodgkin lymphoma (r/r cHL). Yet there is a set of unresolved clinical questions including the assessment of response, the prognostic factors influencing the survival of patients during immunotherapy, and optimal treatment strategy in patients resistant to nivolumab, as well as the possibility of discontinuation of therapy in case of persistent complete remission. This report presents the results of analysis of nivolumab treatment outcomes in Pavlov University.

Methods: This retrospective study included r/r cHL patients treated with standard-dose nivolumab (3 mg/kg q2w). Therapy was continued until the disease progression, signs of intolerance or could be stopped at the discretion of treating physicians in selected patients with prolonged complete remission. In patients with r/r disease after nivolumab monotherapy, 48 received nivo and bendamustine (Benda) in a 28-day cycle. Benda (90 mg/m^2) was infused on day 1,2 and Nivo – on day 1 of the cycle. The response was assessed by PET-CT scan every 3 months according to LYRIC criteria.

Results: The analysis included 116 patients treated with nivolumab monotherapy (56 m/60 f) with a median age of 32 years (range 14–63). With a median follow-up of 41 (6–54) months after treatment initiation, 108 (93%) patients were alive, the median OS was not reached. Median PFS was 19 mo (13.7–24.4) with a 3-year PFS of 27%. The best overall response was CR in 33%, PR in 34%, SD in 5%, PD in 9%, an indeterminate response (IR) in 20% of pts. Patients with early CR at 3mo after treatment initiation had significantly better prognosis (median PFS 35 mo vs. 17 mo, $p=0.008$). Other clinical factors that predicted prognosis were B-symptoms (median PFS 15 mo vs. 26 mo, $p=0.017$), extranodal disease at the moment of the treatment initiation (median PFS 14 mo vs. NR, $p=0.000$), >4 prior lines of therapy (median PFS 18mo vs. 27 mo, $p=0.05$). In a group of patients ($n=23$) who discontinued nivolumab in complete response (CR), the possibility of durable remission achievement was demonstrated (2-year PFS was 55.1%). The nivolumab retreatment has demonstrated the efficacy with high overall response rate (ORR) and CR (67 and 33.3% respectively). In the group of patients receiving nivo-benda combination after nivolumab monotherapy failure, the

median follow-up was 29 (4–38) months, with the median PFS of 9.8 mo (7.4–12.2). The median OS was not reached, 89.6% of patients were alive. The overall response rate (ORR) was 75% including complete remission (CR) in 44% pts. The progressive disease (PD) was the best response in 10% of pts. The allo-HSCT after Nivo was performed in 14 (29%) pts.

Conclusion: Nivolumab is highly efficient in the treatment of r/r cHL with early complete response, B-symptoms and extranodal disease at the treatment initiation being the most significant prognostic factor of PFS duration in our population of patients. The therapy may be discontinued in selected patients with complete remission. Combination of nivo with bendamustine is effective and safe approach for patients with r/r cHL after nivo monotherapy failure.

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SP 22

Literature review: the year in apheresis – what is new?

Joseph Schwartz

Since 1986, the American Society for Apheresis (ASFA) has published practice guidelines on the use of therapeutic apheresis in the Journal of Clinical Apheresis. Since 2007, the guidelines are published in regular intervals to reflect current evidence-based apheresis practice with the most recent edition published in 2019. The ASFA guidelines are written in a user-friendly fact sheet format and represent a concise yet comprehensive review of the English language literature on the use of apheresis to treat disease. The role of the guidelines is to provide the most current information available to apheresis practitioners. The PEXIVAS study is an international, randomized controlled trial comparing therapeutic plasma exchange (TPE) versus no TPE and steroid dosing regimen on the primary composite outcome of end stage renal disease or death in patients with ANCA-associated vasculitis. The study was published in early 2020 in the NEJM. This is the largest study on the role of therapeutic apheresis in ANCA-associated vasculitis published to date. The study showed the TPE does not reduce the risk of ESRD or death in patients with ANCA-associated vasculitis. Based on these findings, an interim updated fact sheet was recently published. In this interim fact sheet, the category recommendation for rapidly progressive glomerulonephritis in the setting of microscopic polyangiitis, granulomatosis with polyangiitis, or renal-limited vasculitis with Cr $\geq$5.7 mg/dL (includes "on dialysis") was changed from category I to category II. Similarly, the grade of evidence was changed from IA to IB to acknowledge previously described important limitations of the PEXIVAS study including the lack of biopsy to define disease severity and the long follow-up period, which may make it difficult to detect initial improvement in the subset of patients at first presentation. This recent seminal publication and its implication for therapeutic apheresis will be discussed. Other topics with new information that will be addressed in this presentation include Hereditary TTP. A recent review on the prevalence, pathogenesis, clinical features of this disorder, as well as therapeutic options was published. Although Hereditary TTP is not currently categorized in the Therapeutic Apheresis guidelines, indications for TPE as well as the use of plasma infusion, and eventually rhADAMTS13 enzyme in this disorder will be discussed. Similarly, Hemophagocytic Lymphohistiocytosis/Macrophage Activating Syndrome (HLH/MAS) will be reviewed including a recent retrospective case series showing use of TPE in combination with immunosuppressive therapy in this disorder.

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SP 23

The ASFA therapeutic apheresis guidelines – 8th edition – overview with focus on hematology/oncology indications

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The ASFA Journal of Clinical Apheresis (JCA) Special Issue Writing Committee is charged with reviewing, updating, and categorizing indications for the evidence-based use of therapeutic apheresis every 3 years to produce "Guidelines on the Use of Therapeutic Apheresis in Clinical Practice: Evidence-Based Approach" which is published in the Journal of Clinical Apheresis. Guideline preparation incorporates systematic review published peer reviewed literature and applies evidence-based approaches in the grading and categorization of apheresis indications. These guidelines serve as a key resource to guide the utilization of therapeutic apheresis in the treatment of human disease. In this session, we will review the evolution of the guidelines and highlight significant changes in the 2019 Journal of Clinical Apheresis 8th Special Issue published in June 2019. Recommendations for the use of therapeutic apheresis for Hematology/Oncology Indications will be briefly reviewed.

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SP 24

Essential molecular characterization of AML patients

Mehmet Yilmaz

Several recurrent somatic mutations have been identified as important features in defining the molecular landscape of AML. Targeting mutations such as FLT3 remained an area with active investigations and variable success while targeting other common mutations such as NPM1, DNMT3A, and TET2 remains challenging.

Cytogenetic characterization of AML: These abnormalities include: AML with t(8;21)(q22;q22); RUNX1-RUNX1T1, AML with inv (16)(p13.1q22) or t (1 6; 1 6) (p 1 3. 1; q 2 2); CBFB-MYH11, AML with t(15;17)(q22;q12); PML-RARA, AML with t(9;11)(p22;q23);MLLT3-MLL, AML with t(6;9)(p23;q34); DEK-NUP214, AML with inv (3)(q21q26.2) or t(3;3)(q21;q26.2); RPN1-EVI1, AML (megakaryoblastic) with t(1;22)(p13;q13); RBM15-MKL14, A recent revision of WHO classification in 2016 has recognized new provisional category of AML with BCR-ABL1. Patients with BCR-ABL1 AML are less likely to have splenomegaly or peripheral basophilia and usu-