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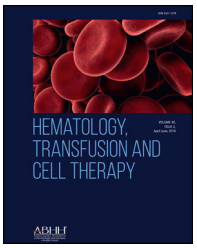

ORAL PRESENTATIONS

ADULT HEMATOLOGY
ACUTE LEUKEMIAS

OP 01

Isolated myeloid sarcoma causing obstructive jaundice in duodenal ampulla: a very rare case

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Objective: Isolated myeloid sarcoma (MS) is a malignant neoplasm of myeloid origin that is located in extramedullary tissues. MS is quite rare and only 5–6% of MS cases originate from the gastrointestinal tract (GIT). Established treatment options for MS include local therapies (surgery or radiotherapy or a combination), systemic chemotherapy, allogeneic hematopoietic stem-cell transplantation (alloHSCT), and targeted therapies. In this article, we present a case of isolated MS localized in the duodenal ampulla that presented with cholestatic jaundice.

Case report: A 19-year-old male patient presented to our hospital with abdominal pain, nausea, and bilious vomiting that had persisted for one week and jaundice in the body that had persisted for one month. Laboratory test results were as follows; complete blood count was normal, total bilirubin 20.7 mg/dl; direct bilirubin 16.7 mg/dl. MRI and MRCP visualized a 3.8 cm × 3.5 cm mass lesion consistent with a tumor that was localized lateral to the pancreatic head and in the duodenal ampulla and causing a sudden interruption in the choledochal duct and dilatation proximally. In the ERCP performed, a mass lesion with fragile mucosa that obstructed the lumen at the level of the duodenal papilla and extended distally was detected. A tissue biopsy was obtained from the lesion; however, transpapillary biliary cannulation could not be performed due to the change in the anatomical position secondary to the lesion. Histopathological sections of the duodenum biopsy specimens showed that medium to large cells with pronounced nucleoli and minimal to moderate eosinophilic cytoplasm infiltrate the lamina propria diffusely. Immunohistochemically, MPO, CD117 and CD34 were diffuse positive in tumor cells. In contrast, positive immunoreactivity was not observed with CD3, CD20, CD10, terminal deoxynucleotidyl transferase (TdT), and cytokeratin (not shown). According to these results, the patient was diagnosed with MS. The peripheral blood smear, bone marrow aspiration, and biopsy performed after the tissue diagnosis was made did not detect AML infiltration and immunophenotyping was normal. A fluorodeoxyglucose positron emission tomography/computed tomography (FDG-PET/CT) was performed prior to the treatment. A focal lesion with moderate metabolic activity was detected in the pancreatic head and duodenal ampulla region (standardized uptake value maximum [SUV max], 4.2). A standard idarubicin and cytarabine regimen (12 mg/m^2 idarubicin on days 1–3 and 100 mg/m^2 cytarabine on days 1–7) was administered. After induction chemotherapy, tumor size decreased significantly. One course of high-dose cytarabine (3 g/m2 q12 h on days 1, 3, 5) was administered as post-remission therapy. And then the patient received alloHSCT from an HLA-matched, related donor as consolidation therapy. The patient currently remains in remission under follow-up in the 6th post-transplant month.

Conclusion: The optimal treatment of the isolated MS is not elucidated due to the lack of relevant data and large prospective studies in the literature. The most recommended treatments are the systemic chemotherapies used in AML remission induction treatment. The authors think that alloHSCT must be considered after the induction of remission in MS, as it offers an advantage in terms of overall survival and leukemia-free survival.

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OP 02

Blinatumomab therapy in a relapsed acute lymphoblastic leukemia with isolated radius involvement following allogeneic bone marrow transplant: a case report

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Introduction: Treatment of relapsed acute lymphoblastic leukaemia after allogeneic bone marrow transplant can be challenging to clinicians and have a grim prognosis. Relapse sites other than bone marrow are generally central nervous system and gonads. Blinatumomab is a bi-specific T-cell engager(BiTE) antibody that mainly targets leukemic cells CD19 protein. Blinatumomab is effective in relapsed ALL with medullary involvement but in extramedullary relapsed setting its activity is not well-know. Here, we report an effective treatment with blinatumomab in a case of acute lymphoblastic leukaemia that recurred with isolated bone involvement after allogeneic bone marrow transplantation (ABMT).

CASE: A 20-year-old woman diagnosed with a Philadelphia chromosome-negative precursor B cell ALL and remission achieved with HyperCVAD/MA regimen. While in remission after two cycles of HyperCVDAD/MA regimen, 100% compatible sibling donor allogeneic bone marrow transplant was performed. İmmunosupresive therapy continued after six months of a transplant due to chronic GVHD that affects eye and skin. The patient presented with pain in the right elbow three years after the transplant. F-18 fluorodeoxyglucose (FDG) positron emission tomography/computed tomography (PET/CT) imaging revealed increased signs of FDG uptake in the right radius. There was no recurrence in aspirate and biopsy from the iliac bone marrow. In the biopsy taken from the right radius, leukemic cell infiltration was detected. Blinatumomab therapy was started. No side effects were observed. After two cycles of blinatumomab therapy, pet/ct showed total metabolic response and remission.

Discussion: In acute lymphoblastic leukemia, Blinatumomab therapy may be an effective salvage treatment in patients with extramedullary relapse.

Keywords: Relapsed acute lymphoblastic leukemia, blinatumomab, allogenic bone marrow transplantation.

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CHRONIC LEUKEMIAS

OP 03

Cardiovascular risk reduction in chronic myeloid leukemia patients treated with the tyrosine kinase inhibitors

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Objective: To identify factors that should be taken into account for the assessment of the necessity the cardiovascular (CV) risk reduction for chronic myeloid leukemia (CML) patients treated with BCR-ABL1 tyrosine kinase inhibitors (TKIs) in the decision making for strategy prevention.

Case report: CV risk reduction is an important consideration in patients with CML based on the necessity to improve prognosis in such a group of patients. The success and high effectiveness of TKIs have increased the focus on survivorship and late toxicity include CV toxicity in CML patients. Survivorship in CML patients depends on CV disease prevention, given its prevalence in the general population. The separate clinical guidelines for CML patients treated with TKIs for CV risk reduction are absent in clinical practice.

Methodology: We observed clinical trials expected TKIs effectiveness and toxicity (we especially focused on cardiotoxicity and hepatotoxicity), clinical guidelines on CV disease prevention for the general population. We also analyzed TKIs and HMG-CoA reductase inhibitors biotransformation, drug-drug interaction TKIs and HMG-CoA reductase inhibitors.

Results: TKIs demonstrated high effectiveness in CML patients based on the published clinical trials. Nilotinib and ponatinib have been linked to the development of vascular occlusive events, CV disease. Type 2 diabetes mellitus development can be associated with nilotinib treatment and as a result, could enhance CV disease. Dasatinib has been associated with pleural/pericardial effusions and pulmonary hypertension. Dasatinib based on clinical trial data is the most liver safe TKI, bosutinib, nilotinib, ponatinib have higher risks of hepatotoxicity in CML patients (ENESTnd trial, BELA Trial, DASISION trial, PACE study). The individual CV risk of the patient and the necessity of CV risk reduction should be based on the personal scores assessment with the cardiac risk score calculator, ASCVD algorithm based on the clinical guidelines on CV disease prevention for the general population. TKIs for CML treatment is the group of drugs that required liver biotransformation through CYP 3A4 cytochrome enzyme and are the inhibitors of CYP 3A4. Atorvastatin and simvastatin are required liver biotransformation with the CYP 3A4. Rosuvastatin and pravastatin are not required CYP 3A4 for their

biotransformation. As a result, if atorvastatin or simvastatin are use with TKIs for CV risk reduction the HMG-CoA reductase inhibitors exposure increase and it should be taken into account in patients with abnormal liver tests due to TKIs using. Rosuvastatin or pravastatin exposure does not change due to simultaneous treatment with TKIs and could be a beneficial role for CV disease prevention.

Conclusion: The decision for the necessity of the CV risk reduction for CML patients treated with TKIs through strategy prevention should be based on the assessment the next factors: individual CV risk of the patient and the necessity of CV risk reduction, liver function, the metabolism peculiarities of TKIs using for CML treatment, the metabolism peculiarities of the HMG-CoA reductase inhibitor potential recommended for CV risk reduction, drug–drug interactions TKI and HMG-CoA reductase inhibitor.

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CHRONIC MYELOPROLIFERATIVE DISEASES

OP 04

Analysis of demographic and clinical characteristics of primary myelofibrosis and post-polycythemia vera/essential thrombocythemia myelofibrosis patients

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Objective: Myelofibrosis (MF), could be de novo (primary myelofibrosis [PMF]), as well as developing in the clinical course of polycythemia vera (PV) or essential thrombocythemia (ET). PMF and post-PV/ET MF have many common features with clinical course and laboratory findings. However, there are insufficient studies showing the etiological or morphological differences between these patients. In this context, the aim of this study was to contribute to the literature by comparing PMF and PV/ET patients who developed MF.

Case report: . . .

Methodology: This retrospective study included 31 patients who were diagnosed with PMF and post-PV/ET MF in the Hematology Department of Dışkapı Yıldırım Beyazıt Training and Research Hospital between 2008–2019. The diagnosis of PMF was made according to the WHO criteria and the IWG-MRT group criteria were used for the diagnosis of PPV-MF and PET-MF. The two groups were compared in terms of demographic and clinical features. The diagnosis date, demographic and clinical features, physical examination findings, mutation analyses, treatment management and follow-up times of all the patients were recorded. Hematological parameters including Hb, hematocrit (Hct), leukocyte (WBC), neutrophil, lymphocyte, monocyte, platelet, platelet distribution width (PDW), mean platelet volume (MPV), LDH, ferritin and Vitamin B12 levels were examined.

Results: Evaluation was made of a total of 31 patients, including 16 PMF and 15 post-PV/ET MF. The mean follow-up period was 31.1 months [1–107.5]. JAK-2 V617F gene mutation was detected 10 (62.5%) PMF patients and 12 (80%) post-PV/ET MF patients. Splenomegaly was detected at the time of diagnosis in all PMF and post-PV/ET MF patients. When the size of the spleen was examined, there was no statistically significant difference between the two groups.JAK-2 V617F gene mutation was detected 10 (62.5%) PMF patients and 12 (80%) post-PV/ET MF patients. In terms of JAK-2 V617F mutation positivity, there was no statistically significant difference between the two groups. JAK-2 V617F mutation, and allele burden of ≥60% was detected in 70% of PMF patients and in 90% of post-PV/ET MF patients. The allele burden was not determined to affect OS in patients with MF. Hydroxyurea was most frequently used as the first line treatment in PMF (81.3%), while ruxolitinib was preferred in post ET/PV MF (53.3%). Throughout the follow-up period, thromboembolic complications developed in 12.5% of PMF patients and in 13.3% of post-PV/ET MF patients. There was no statistically significant difference between the two groups in terms of thromboembolic complications. Acute myeloid leukemia transformation was observed in 1 (6.25%) patient from the PMF group during the follow-up period. The OS of patients was mean 63.6 months in the PMF group, and mean 78.3 months in the post-PV/ET MF group. As a result of the Log Rank test, no significant difference was observed between the two groups in terms.

Conclusion: The results of this study demonstrated that PMF and post-PV/ET MF patients showed similar demographic, clinical and prognostic features in general. Therefore, patients with ET and PV should be closely monitored for MF development and should be managed as PMF if MF develops.

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OP 05

Incidence in PH-negative myeloproliferative neoplasms in armenia from 2005 to 2019

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Objective: Enhancements of laboratory diagnostics and the emergence of new therapies had a significant impact on incidence, prevalence and survival of patients with MPN. Published epidemiology data are scarce, and multiple sources are needed to assess the disease burden.

Case report: The aim of our work was to identify the patterns and trends of incidence, prevalence and survival of patients with MPN in the Republic of Armenia for the period 2005–2019.

Methodology: The data from Hematology Center blood diseases register, Oncological Center cancer register, as well as the data from death registration were basis of our research. Demographic data were obtained from National Statistical Office PA (http://www.armstat.am). The calculation of standardized indicators has been based upon the data from the Demographic compendium of Armenia from 2005 to 2019.

Results: Analysis of the data obtained has shown that, during the reporting period the average annual incidence of MPN was 1.84 per 100,000 inhabitants, including 2.1 for male and 1.64 for female. Analysis of incidence rates of MPN in relation to sex and age in the period under study revealed high rates in patients in groups 65–74 (8.3) and 55–64 (5.12 per 100 thousand years), respectively. According to the data obtained in the group of patients with MPN, the high annual average incidence rates are noted in PMF (1.09 in 2018) and PV (0.89 in 2016), the lowest for ET (0.7 in 2016) per 100,000 population, respectively. In comparing our data to those obtained for 1966–1971 and 1998–2004 periods, one may detect a statistically significant increase in the total incidence of PMF and PV ($p < 0.001$).

Conclusion: Analysis of the incidence rate in MPNs adjusted for age and gender shown prevalence in group 65–74 (8.3) and in group 55–64 (5.13) per 100,000 inhabitants. The peak of incidence rate for both males and females was the age 65–74 and the male female incidence ratio in this age group was 11.3:6.2. The increasing incidence rate in MPNs in Armenia depends on the improvement of laboratory diagnosis. Thrombotic complications are observed in patients with MPN in 45.3% of cases. In most cases, thrombosis is the first clinical symptom of a myeloproliferative disease, which determines the need for the introduction into clinical practice of molecular genetic testing methods among patients with thrombosis, an increase in blood levels, splenomegaly for the early diagnosis of clonal hematopoiesis and the use of a targeted drug.

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LYMPHOMA

OP 06

The importance of next generation sequence in patients with diffuse large B cell lymphoma

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Objective: Diffuse large B cell lymphomas (DLBCL) are clinically and morphologically heterogen diseases. There are more than 150 gene mutations in DLBCL. Mutations effect disase survey by histon modification, cell proliferation, cell metabolism and differentiation, apoptosis, response to DNA injury, B cell and Toll-like receptor signalization, angiogenesis and immun regulation in patients with DLBCL. We aim to search gene expression frequency, the relation of mutative genes expression with treatment response and survey in patients with DLBCL.

Methodology: The DNAs of patients with DLBCL obtained from formalin fixed paraffin embedded biopsy material in Pathology Department as retrospectively. Illumina genom analyzer and qiaqen method for bioinformatic software was used. Total 141 gene were evaluated. SPSS 17.0 were used for statistically analyses. We used Shapiro-Wilk test relevance for distrubition. The results were described as a number, frequency, and percentage. The chi-squared and Student's *T*, Mann–Whitney *U* tests were used for the analysis. The results were assessed at a 95% confidence interval and a *p*-value of less than 0.05 was accepted as significant.

Results: We found mutation in 13 of 141 genes. The pathological genes were ANKRD26, BRCA1, BRCA2, EZH2, KMT2C, MSH6, MYC, MYD88, NF1, NOTCH1, PMS2, PTEN and WRN. There were relations among ANKRD26, BRCA2, MYD88, NOTCH1 genes with prognosis. The remission rates in patients with ANKRD26, BRCA2, MYD88, NOTCH1 were 33.3% ($p < 0.05$), 52.4% ($p < 0.05$), 0% ($p < 0.05$), 37.5% ($p > 0.05$), respectively. The relapse rates in patients with ANKRD26, BRCA2, MYD88, NOTCH1 gene mutation were 58.3% ($p < 0.05$), 38.1% ($p = 0.37$), 66.7% ($p = 0.23$), 62.5% ($p = 0.03$), respectively.

Conclusion: ANKRD26, BRCA2, MYD88, NOTCH1 genes effect prognosis in patients with DLBCL. Aggressive treatment can be useful in patients DLBCL that have ANKRD26, BRCA2, MYD88, NOTCH1 gene mutations.

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OP 07

Real experience of brentuximab vedotin for cutaneous T cell lymphomas

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Objective: Patients with relapsed/refractory CD30 positive lymphomas have relatively poor outcomes, with reported 3–5-year overall survival (OS) of only 30–50%. Mycosis fungoides (MF) and its leukemic variant, Sézary syndrome (SS), are the most common subtypes of cutaneous T cell lymphoma (CTCL). Brentuximab vedotin (BV) is an antibody-drug conjugate linking a CD30 antibody to four molecules of the microtubule inhibitor monomethyl auristatin E (MMAE), which has multiple proposed mechanisms of action BV is FDA-approved for relapsed Hodgkin's lymphoma (HL) and systemic anaplastic large cell lymphoma (sALCL). National Comprehensive Cancer Network guidelines have already incorporated BV as a primary treatment option in multifocal primary cutaneous anaplastic large cell lypmhoma (pcALCL) and MF.

Methodology: Between January 2018 and June 2020, 10 patients with CD30+ cutaneous T cell lymphoma (MF and pcALCL) who were treated with BV are evaluated in our study. One cycle of BV typically involves 1.8 mg/kg being administered intravenously once every 3 weeks. We detail our experience with BV and the position of BV in our treatment methods for CTCL.

Results: Ten patients (6 male and 4 female) have received BV in our center. Median age at time of commencing brentuximab was 54.5 years (range 34–72 years), 80% of patients had experienced at least one prior line of chemotherapy (range 0–2). Six patients with Mycosis Fungoides (MF) and large cell transformation (LCT) and one with high burden Sezary

Syndrome (SS) and 3 patients with multifocal primary cutaneous anaplastic large cell lymphoma (pcALCL). The median follow-up was 21.5 (range: 4–60) months from the date of diagnosis. Adverse events were grade 1–2 peripheral neuropathy (40%) and gastro-intestinal disturbances (10%). Peripheral neuropathy resolved by discontinuation of therapy. All there pcALCL patients achieved complete remission after 5 cycle of BV. One patient with MF had progressive disease due to nodal involvement and one died of fungal pneumonia after 2 cycles of BV and could not evaluated for disease response.

Conclusion: BV has proven efficacy in both CD30- expressing MF, pcALCL. Same as previous studies, CR could be achieved more frequently in pcALCL than MF in our study. BV is found significantly higher response rates compared to traditional agents like methotrexate or bexarotene and 75% of patients had underwent these therapies before BV. In summary, BV is a promising agent for relapsed refractory CTCL patients with durable remission.

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OP 08

The prognostic impact of comorbidity, nutritional and performance status on patients with diffuse large B cell lymphoma

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Objective: The aim of the study was to investigate the impact of nutritional status, comorbidity and performance status on patients with diffuse large B cell lymphoma (DLBCL).

Methodology: A retrospective study was conducted on DLBCL patients who was diagnosed in our centre between 2009–2018. The study included a total of 112 patients. Demographic and disease characteristics and labaratory test results were recorded. Overall and progression free survival were measured from these data. The methods for the assessments are Charlson comorbidity index for comorbidity, albumin level for nutritional status and ECOG score for performance status.

Results: The average age of the patients was found to be 62.63 ± 15.16 years. The ECOG score of 65 patients (69.1%) is in the range of 0–1. The mean follow-up time of the patients was determined to be 25.24 ± 25.11 (months), and at the end of the follow-up period, 64 patients (57.1%) were found to be alive. The median of 5-year PFS was 13.2 months, and the 5-year OS was 59.8%. Those with CCI-A score <4 and those with ≥4 were compared. PFS, OS and 5-year OS values of those with CCI-A >4 were found to be significantly lower than those with CCI-A score ≤4 ($p < 0.05$). As a result of the Cox-Regression (Backward: LR method) analysis, ECOG and albumin values were found to be independent risk factors for both OS and PFS ($p < 0.05$).

Conclusion: This study demonstrated that CCI-A, ECOG and nutritional status are independent prognostic markers for DLBCL patients. Initial evaluation of these patients should include all of these parameters which are easily available at the time of diagnosis.

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OP 09

Can sarcopenia be a risk factor for bleomycin toxicity?

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Objective: Hodgkin Lymphoma (HL) constitutes 10 percent of lymphomas. It is one of the most curable malignancies with a response rate of around 85%. Most recent guidelines recommend ABVD (adriamycin, bleomycin, vinblastine, dacarbazine) regimen in the first-line treatment of classical HL. Epidemiological studies showed that around 20% of patients treated with bleomycin developed bleomycin pulmonary toxicity (BPT). Risk factors for BPT are under investigation by most lymphoma working groups. Some studies suggested that bleomycin dose could be a risk factor for BPT. Sarcopenia is defined as a syndrome characterized by the loss of muscle mass, strength, and performance. Recent studies suggested that psoas muscle indexes could be used to identify sarcopenic patients. We hypothesized that the same bleomycin dose especially in patients with muscle loss due to the subsequent chemotherapy cycles might be a risk factor BPT.

Methodology: A total of 48 patients with newly diagnosed classical HL were included in the study. All of the patients received at least 2 cycles of a standard dose of ABVD chemotherapy. Sarcopenia was assessed using the psoas muscle index (PMI), which was calculated using values measured on PET/CT images before ABVD chemotherapy and the following formula: cross-sectional area of the bilateral psoas muscle/height^2. Patients were divided into two groups according to the PMI: the sarcopenia group (≤443 mm^2/m^2 for men and ≤326 mm^2/m^2 for women) and the non-sarcopenia group (>443 mm^2/m^2 for men and >326mm^2/m^2 for women). PMI was calculated both prior to the initial chemotherapy and after 2 cycles of ABVD. chemotherapy-related complications such as bleomycin toxicity, hospitalizations, the time course of neutropenia, and hospitalization due to the neutropenic fevers were recorded. Chi-square test and Mann Whitney *U* tests were used for statistical analyses. A *p*-value less than 0.05 were considered as statistically significant.

Results: 29 (60.4%) of the patients were male. 13 of 48 patients (27%) developed BPT after starting chemotherapy. Body Mass Index (BMI) status of these patients with BPT did not change after 2 cycles of ABVD. Mean psoas indexes prior to chemotherapy were 581.36[PLUSMN]188.08 in patients who did not have BPT and 465.29[PLUSMN]149.64 in patients with BPT ($p = 0.052$). Mean psoas indexes after 2 cycles of ABVD were 597.43[PLUSMN]207.38 in patients who did not have BPT and 400.46[PLUSMN]109.21 ($p < 0.001$). 11 of 13 patients with BPT had sarcopenia after 2 cycles of ABVD. There were no statistically significant association with stage, mortality status, time of neutropenia, relapsed disease, neutropenic fever episodes, and psoas muscle indexes.

Conclusion: Sarcopenia after 2 cycles of chemotherapy may be a risk factor for BPT. All patients with sarcopenia received same dose of bleomycin in this study. A significant relation between loss of muscle mass and BPT indicates that higher bleomycin doses in accordance with muscle mass may be a risk factor for BPT development. Dose reductions according to muscle mass can be more logical even if the BMI status of the patients remains the same after 2 cycles of chemotherapy. Randomized clinical trials are needed in this very important topic.

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MYELOMA

OP 10

Bendamustine-bortezomib-dexamethasone (BVD) in heavily pretreated multiple myeloma: old/new in novel agents' era

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Objective: Bendamustine is an old bi-functional alkylating agent which has proved to be effective in relapsed, refractory and in new diagnosed Multiple Myeloma (MM).

Case report: Thus, aiming to provide further insights in this field, also in novel agents' era, we present here a retrospective, real-life analysis of patients with relapsed/refractory MM (rrMM), who had received salvage therapy with bendamustine in combination with bortezomib and dexamethasone (BVD).

Methodology: 81 patients (44 M/37 F), with rrMM, median age at diagnosis 59.4 years (r. 36–82), median age at start of treatment 63.6 years (r.37–86) treated with several lines of treatments (median 6, r. 2–11), every refractory to all the drugs previously received (also Bortezomib), received BVD (B 90 mg/sqm days 1,2; V 1.3 mg/sqm days 1,4,8,11, D 20 mg days 1,2,4,5,8,9,11,12, Pegfilgrastim day +4) every 28 days, until progression. All patients had previously received bortezomib-based and IMIDs-based treatments, and 32% (26/81) had also received radiotherapy. 69% (56/81) had undergone single or double autologous and three (2%) allogeneic stem cell transplant. All patients were relapsed and refractory to last therapies received before BVD.

Results: Bendamustine was well tolerated, with grade 3–4 transfusion-dependent anemia in 56% (46/81) of patients, and 43% (35/81) grade 3–4 neutropenia (no ospedalization was required, no septic shocks were observed). No severe extrahematologic toxicity was observed, only grade 1 gastrointestinal side effect (nausea), treated by common antiemetic drugs. According to IMWG, ORR was 63% (51/81: 7 CR, 18 VGPR, 15 PR, 11 MR) with 11 PD and 19 patients in SD, which can be considered as an impressive result in this subset of rrMM patients. In particular, for 11 patients, BVD was, after having achieved at least a PR, a bridge to second auSCT, and for two patients a bridge to alloSCT. Eight patients have surprisingly achieved a notable PR after failure of novel agents (i.e. Carfilzomib, Daratumumab and Pomalidomide). Median time to response was 1.3 months (r.1–3), median OS from diagnosis was 67.3 months (r.6–151), median OS from start of Bendamustine was 9.6 months (r.2–36).

Conclusion: The triplet Bendamustine-Bortezomib-Dexamethasone has shown significant efficacy in a particularly severe setting of patients, relapsed and refractory to all available therapeutic resources, and, in particular cases, it could be considered as a bridge to a second autologous or allogenic SCT, also after failure of novel agents.

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OP 11

Efficacy and safety of daratumumab with dexamethasone in patients with relapsed/refractory multiple myeloma and severe renal impairment: results of the phase 2 dare study

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Objective: Patients (pts) with multiple myeloma (MM) and severe renal impairment (RI) have poorer overall survival. Daratumumab (DARA), an IgG1κ human monoclonal antibody that targets CD38, has shown efficacy and a favorable safety profile in pts with relapsed or refractory MM (RRMM). Moreover, in population pharmacokinetic analyses, no clinically important differences in exposure to DARA were observed

between pts with MM and RI regardless of renal function. The aim of the DARE study [NCT03450057] was to assess the safety and efficacy of DARA in pts with RRMM and severe RI or requiring hemodialysis.

Methodology: DARE is a prospective, open-label, multicenter, phase 2 study, which included pts with documented RRMM and severe RI (eGFR < 30 ml/min/1.73m^2) or requiring hemodialysis. Participating pts must have ≥2 lines of therapy with both bortezomib- and lenalidomide-based regimens and an Eastern Cooperative Oncology Group performance status (ECOG PS) score ≤2. Exclusion criteria include previous DARA or other anti-CD38 therapy exposure. Pts receive 28-day treatment cycles with 16 mg/kg intravenous DARA (weekly for cycles 1–2, every 2 weeks [wks] for cycles 3–6, and every 4 wks thereafter) and oral dexamethasone (40 mg weekly, each cycle). The primary endpoint is progression-free survival (PFS). Secondary endpoints are overall response rate (ORR; proportion of pts with partial response or better), renal response rate (RRR; proportion of pts with best response of renal partial response or better), and safety. All responses are based on investigators' assessment per International Myeloma Working Group criteria.

Results: Thirty-eight pts with obtained informed consent, enrolled in 7 centers, were included in this analysis. The pts median age was 72 years, and most were male (75%). At study initiation 7% and 93% of pts had International Staging System (ISS) stage II and III disease, respectively; 51% and 49% of pts had revised ISS stage II and III, respectively. At baseline, the median time from MM diagnosis was 4.2 years; 24%, 72%, and 4% pts had ECOG PS 0, 1, and 2, respectively; the median eGFR was 13.0 mL/min/1.73 m^2. Median number of prior lines of therapy was 3, and 35% pts had previous autologous stem cell transplantation. The median number of therapy cycles received per patient was 7.0. The median follow-up was 8 months and the 6-month PFS rate was 51%. The ORR was 41% (including VGPR in 29% of pts). The RRR was 22%. The median time from first DARA dose to first partial response or better was 1.5 months. Of all grade 3 or 4 AEs, the most frequent were anemia (21%), thrombocytopenia (13%), hyperkalemia (11%), and hyperglycemia (8%).

Conclusion: DARA plus dexamethasone was efficacious with a favorable safety profile in pts with RRMM and severe RI or requiring dialysis. Hematologic responses were high in these heavily pretreated pts, while more than one-fifth of them also achieved a renal response.

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OP 12

A novel microrna signature with clinical significance in multiple myeloma

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Objective: MicroRNAs (miRNA) are single-stranded, small non-coding RNA molecules (~21 nucleotides) that regulate protein-coding gene expression at the post-transcriptional level, mainly through interactions with the 3′-untranslated region of target mRNAs. Such interactions lead to mRNA degradation and/or translational repression, depending on the complementarity of the miRNA seed sequence with the mRNAs 3′-untranslated region. They can function as oncogenes or tumor suppressors, possessing a vital role in all stages of tumorigenesis and cancer progression. In the present study, we have investigated the clinical significance of a molecular signature consisting of 10 cancer-related miRNAs in multiple myeloma (MM): miR-15a, miR-16, miR-21, miR-221, miR-222, miR-25, miR-125, miR-155, miR-223, and miR-181a. These molecules were selected due to their well-documented role and clinical significance in numerous human malignancies.

Methodology: Bone marrow aspiration samples were collected from 94 patients with multiple myeloma (MM) and smoldering multiple myeloma (sMM) at the time of diagnosis and CD138+ plasma cells were positively selected using magnetic beads coated with an anti-CD138 antibody. Total RNA was isolated using TRIZol, 200ng RNA of each sample were polyadenylated at the 3′ end and reversely transcribed. An in-house developed real-time quantitative PCR assay was conducted and the results were biostatistically analyzed. For the normalization of the expression levels of each miRNA, the mean expression of two small nucleolar RNAs (RNU43 and RNU48) was used as reference.

Results: Seventy-six out of the 94 BM aspiration samples were derived from MM patients and 18 from sMM patients. The MM patients were classified, according to the R-ISS staging system, as follows: 15 patients with stage I disease, 42 patients with stage II, and 19 patients with stage III. Forty-nine myeloma patients presented with osteolytic lesions at diagnosis. The statistical analysis revealed significantly lower expression levels of miR-16 ($p = 0.036$) and miR-155 ($p = 0.045$) in CD138+ cells of MM patients, compared to those from sMM patients. Furthermore, miR-221 and miR-222 expression levels were negatively correlated with R-ISS; thus, miR-221 and miR-222 expression was significantly downregulated in MM patients with R-ISS stage III ($p = 0.004$ and 0.034, respectively). Interestingly, the expression levels of miR-15a ($p = 0.048$) and miR-16 ($p = 0.047$) were decreased in

MM patients with osteolytic lesions at the time of diagnosis, compared to those without osteolyses.

Conclusion: We conclude that miR-221/222 cluster correlates with more favorable R-ISS stage, revealing a potential favorable prognostic value in MM patients. MiR-15a and miR-16 correlate with the presence of osteolytic disease in MM. The observed decreased expression of these two miRNAs in symptomatic MM patients with osteolytic lesions could constitute a possible biomarker for the occurrence of bone disease. Moreover, decreased expression of miR-16 and miR-155 in MM patients, compared to sMM patients may indicate a putative predictive biomarker able to distinguish symptomatic patients from sMM patients. This ongoing study will further reveal the possible prognostic significance of this 10 miRNAs signature studied, when response to therapy, progression-free and overall survival is available.

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OP 13

Peripheral blood immune profiling of multiple myeloma patients at diagnosis: correlations with circulating plasma cells

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Objective: Circulating Tumor Plasma Cells (CTPCs) detected in the peripheral blood (PB) of newly diagnosed Multiple Myeloma (MM) patients have been associated with adverse prognostic features and poor overall survival. The correlation of CTPCs with the immune profile in PB remains unknown. The aim of the present study was to evaluate the immune profile in the PB of patients with newly diagnosed MM and correlate the results with the presence of low or high number of CTPCs.

Methodology: We analyzed myeloid-derived suppressor cells (MDSCs) and major immune T cell subpopulations, including regulatory T cells (Tregs), in the PB of newly diagnosed MM patients. The percentages of MDCSs and Tregs were correlated with the concomitant presence of low (<0.003%) or high (>0.05%) CTPCs. PB samples of 26 newly diagnosed MM patients were analyzed with flow cytometry using the following panels: (a) the minimal residual disease EuroFlow-based next-generation flow cytometry (NGF) panel, for the detection and identification of PB CTPCs; (b) a panel comprising the surface markers CD15, HLA-DR, CD14, CD124, CD33, CD11b, and LinCD56-CD3-CD19, for the detection of polymorphonuclear MDSCs (PMN-MDSCs), monocytic MDSCs (M-MDSCs) and early-stage MDSCs (eMDSCs); and c) two panels comprising the surface and intra-cellular markers CD25, CD3, CD39, CTLA-4, CD4, CD8, CD45RO, CD45RA, HLA-DR, CD127, Ki67, and FoxP3, for the detection of CD4, CD8 T cells and Tregs. For the evaluation of (b) and (c), prior to staining, mononuclear cells (PBMCs) were isolated from PB using density-gradient centrifugation on Ficoll-paque.

Results: Using NGF, 12 MM patients had high and 14 low CTPCs in their PB. MDSCs averaged $5.42 \pm 5.9\%$ of PBMCs, whereas PMN-MDSCs were the most abundant subpopulation ($4.38 \pm 5.7\%$ of PBMCs) and displayed great heterogeneity between patients. Additionally, 22 distinct T subpopulations were phenotypically identified and analyzed, including CD4 and CD8 T cells, naive Tregs (CD45RA+), effector Tregs (CD45RO+), terminal effectors (HLADR+), CD39+ suppressor Tregs, CD8 Tregs and their proliferating (Ki67+) counterparts. Comparing the percentages of the immune populations among patients with high versus low CTPCs, M-MDSCs were significantly more abundant ($p < 0.05$) in patients with low CTPCs, whereas immune profiling of T cells revealed (although not reaching statistical significance) the presence of increased percentages of proliferating Tregs in those with low CTPCs and increased percentages of naïve CD4 T cells in patients with high CTPCs.

Conclusion: To our knowledge, this is the first study correlating the presence of high versus low CTPCs with the immune profile in PB of MM patients. Low CTPCs correlated with the presence of higher percentage of M-MDSCs. Since the latter has been associated with the CCR5-dependent recruitment of Tregs into the tumor site, our findings suggest that, in low CTPC MM patients, a more effective immune surveillance mechanism, mediated by the interaction of M-MDSCs – Tregs, likely controls CTPC expansion and may contribute to a more favorable prognosis. Analysis of more samples, which is ongoing, will validate our findings and provide more solid results.

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OTHER DISEASES

OP 14

COVID-19 infection in cancer patients: a systematic review and meta-analysis with emphasizing the risk and prognosis stratification

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Objective: Various cancer societies worldwide have released guidelines to care for cancer patients suffering from COVID-19. Given the findings from our meta-analysis, in the absence of prospective data, we recommend diligent preventive care measures, full supportive care for immunosuppressed patients to minimize the risk of infection, limiting patient's visits to the hospital when possible and using telecommunication technology. Future studies should focus on collecting all the baseline characteristics of cancer patients suffering from COVID-19, all cancer and chemotherapy or radiation-related variables as well as the detailed COVID-19 care protocol followed in these patients and the dynamic biochemical and inflammatory profile of these patients during the infection.

Case report: Our meta-analysis, suffers from several limitations. All the included studies are retrospective, the number of cancer patients is small, and many important data were not reported in these studies (cancer types, stages, and treatments).

Methodology: Several groups have published on outcomes of cancer patients infected with of the SARS-CoV-2 virus causing the COVID-19 infection. However, most of these reports are single-center studies with a limited number of patients. We performed a systematic review and meta-analysis to evaluate the impact of COVID-19 infection on cancer patients. We searched PubMed, Web of Science, and Scopus for studies that reported the risk of infection and complications of COVID-19 in cancer patients. The literature search retrieved 22 studies (1018 cancer patients).

Results: The analysis showed that the frequency of cancer among COVID-19 confirmed patients was 2.1% (95% CI: 1.3%, 3%) in the overall cohort. These patients had a mortality of 21.1% (95% CI: 14.7%, 27.6%), severe/critical disease rate of 45.4% (95% CI: 37.4%, 53.3%), ICU admission rate of 14.5% (95% CI: 8.5%, 20.4%), and mechanical ventilation rate of 11.7% (95% CI: 5.5%, 18%). The double-arm analysis showed that cancer patients had higher risk of mortality (OR = 3.23, 95% CI: 1.71, 6.13), severe/critical disease (OR = 3.91, 95% CI: 2.70, 5.67), ICU admission (OR = 3.10, 95% CI: 1.85, 5.17), and mechanical ventilation (OR = 4.86, 95% CI: 1.27, 18.65), compared to non-cancer patients. Further, cancer patients had significantly lower platelet levels and a significantly higher D-Dimer, C-reactive protein, and prothrombin time

Conclusion: cancer patients are at a higher risk of COVID-19 infection-related complications. Therefore, cancer patients need diligent preventive care measures and aggressive surveillance for earlier detection of COVID-19 infection.

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PLATELET DISEASES

OP 15

The factors that affect the results of the response to rituximab treatment in ITP patients

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Objective: ITP is an acquired thrombocytopenia caused by antibodies that develop against platelet antigens. The underlying mechanism is thought to be specific immunoglobulin G (IgG) autoantibodies produced by the patient\'s B cells, mostly formed against platelet membrane glycoproteins such as GPIIb/IIIa. Preventing serious bleeding is in the decision to start treatment. Patient with platelet count <30,000/microL or signs of severe bleeding (intracranial or gastrointestinal), platelet transfusion along with glucocorticoid and/or IVIG therapy should be started immediately. If there are still signs of bleeding or platelet count <20,000/microL following glucocorticoid-based treatments, three principal choices such as rituximab, splenectomy, TPO agonists can be used as a second-line therapy. The aim of our study is to determine the factors that affect the results of the response status to rituximab treatment in ITP patients.

Methodology: Twenty five patients with the diagnosis of ITP who were treated in Hematology Clinic at Ankara Numune Hospital, Ankara City Hospital and Şanlıurfa Mehmet Akif İnan Hospital Hematology Clinic. The dose of rituximab administered in patients is 375 mg/m^2 once a week for four consecutive weeks. Treatment response criteria are; those with a platelet >30,000 were defined as a response, and those with >100,000 as a complete response.

Results: Seventeen of the patients (68%) were female and 8 (32%) were male. Median age was 34 (18-71). All Patients who treated with Rituximab was received corticosteroid as a first line treatment. Twenty (80%) of the patients was responded to Methyl prednisolone (MP) treatment, 5 patients (20%) were resistant to MP treatment. Eleven patients (44%) had steroid dependent disease before Rituximab treatment. Thirteen (52%) of the patients were underwent splenectomy. Three patients (12%) received Eltrombopag treatment before Rituximab treatment. The response was observed in 20 of 25 patients who received Rituximab so overall response rate (ORR) is 80%. Complete Response (CR) was observed in 17 (68%) of the patients and partial response was in 3 (12%) of the patients. In patients with complete response, the median response time was on the 15th day (6–90 days). In patients with partial response, the median time was 12th day. After a median follow-up of 48 months (12–186), for 20 patients who were rensponsive to Rtiuximab, median duration of response was 15 months (2–68 months). In the follow-up period, clinical recurrence was detected in 12 (60%) of 20 patients, while permanent remission was achieved with Rituximab in 8 patients (40%). In patients with MP-dependent group, the Rituximab response rate is significantly higher than patients with non-dependent ($p = 0.027$). There was no difference in response to Rituximab treatment in splenectomized patients, those who received eltrombopag therapy before or whom have steroid resistant disease. In addition, the median time for Rituximab response in the MP dependent group is significantly higher than the MP resistant group (9.4 months vs. 17.4 months, $p = 0.006$).

Conclusion: Rituximab is a second line treatment for ITP patients especially whom are not suitable for splenecetomy. It should have more priority to TPO agonists regarding the success to obtain long-term remission.

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STEM CELL TRANSPLANT

OP 16

The role of T helper 22 cells during engraftment at hematopoietic stem cell transplantation

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Objective: T helper 22 (Th22) and T helper 17 (Th17) cells that are especially a subtype of CD4+ T lymphocyte are known to secrete interleukin 22 (IL-22). Th22 cells have been reported to play a role in infection, chronic inflammation, tumor development, autoimmune disease pathogenesis, and cell development. However, the role and number of cells whose carrying IL-22 in patients with hematopoietic stem cell transplantation is unknown. In this study, the number of circulating cells carrying IL-22, IL-17A, TNF-α and IFN-γ were investigated before hematopoietic stem cell transplantation (at stem cell infusion day) and during engraftment.

Methodology: A total of 10 patients who underwent autologous or allogeneic hematopoietic stem cell transplantation consecutively at the Department of Stem Cell Transplantation at Akdeniz University School of Medicine between July and December 2019 and 10 healthy people as a control group were included in this study. After separating the peripheral blood mononuclear cells (PBMCs) from the peripheral blood both at the transplantation day (before stem cell infusion) and at the engraftment, PBMCs were incubated by phorbol myristate acetate (PMA), ionomycin and monensin for 4 h. After that, the number of absolute lymphocytes carrying IL-22, IL-17A, TNF-α and IFN-γ among CD3 and CD4 double-positive T cells were determined by flow cytometry in patient and control groups, respectively.

Results: The diagnosis of patients' were multiple myeloma (6/10), B cell acute lymphoid leukemia (1/10), acute myeloid leukemia (1/10), non-hodgkin lymphoma (1/10), and gestational trophoblastic disease (1/10), respectively. While 6 of patients (') had autologous stem cell transplantation, 4 patients (@) had allogeneic stem cell transplantation. The number of absolute lymphocytes carrying IL-22, IL-17A, TNF-α and IFN-γ was found significantly lower in the patient group compared with the control group as shown in Table 1. In the patient group, although, there was no statistically significant difference between them, the number of absolute lymphocytes carrying IL-22, IL-17A, TNF-α and IFN-γ at engraftment were higher than stem cell infusion day (D0). Table 1 The absolute count of lymphocytes carrying IL-22, IL-17A, TNF-α and IFN-γ at stem cell infusion day (D0).

Conclusion: In our study, we detected that the number of absolute lymphocytes carrying IL-22, IL-17A, TNF-α and IFN-γ at stem cell infusion day (D0) were significantly lower in the patient group compared with control group. This might be related with previous received treatments including conditioning regimen, chemotherapy or radiotherapy. In addition to, although there was a trend increased the absolute count of lymphocytes carrying IL-22, IL-17A, TNF-α and IFN-γ at engraftment in the patient group, there was no significant difference between D0 and engraftment. This could be related to small sample size as well. In conclusion, we think that further larger prospective studies are needed to clarify for this issue in patients with hematopoietic stem cell transplantation.

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OP 17

Story of success of haploidentical hematopoietic stem cell transplantation in aplastic anemia: a systematic review and meta-analysis of clinical outcome and risk assessment

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Objective: Story Of Success Of Haploidentical Hematopoietic Stem Cell Transplantation in Aplastic Anemia: A Systematic Review and Meta-analysis of Clinical Outcome and risk assessment. Authors: Ghada ElGohary1,2 1King Khalid University Hospital, Riyadh, Saudi Arabia 2Faculty of Medicine Ain Shams University, Cairo Egypt Running title: Haploidentical Stem Cell Transplantation in Aplastic Anemia.

Case report: Abstract Aplastic anemia (AA) is a very serious hematological disorder which can be solely cured by hematopoietic stem cell transplantation (HSCT). Haploidentical HSCT is a new emerging modality with encouraging outcomes in several blood conditions,yet it is still under several trials in AA Objectives: To assess the feasibility and safety of the haploidentical HSCT in patients with severe and very severe AA.

Methodology: This is a systematic review and meta-analysis of studies related to haploidentical stem cell transplantation in idiopathic aplastic anemia emphasizing the investigating rates of successful engraftment, acute graft-versus-host-disease (aGvHD), chronic GvHD (cGvHD), besides the transplant-related mortality (TRM), and post-transplantation viral infections (including cytomegalovirus [CMV]) in patients with AA.

Results: The effects of reduced intensity (RIC) and non-myeloablative conditioning (NMA) as well as various GvHD-prophylaxis regimens on these outcomes were evaluated in our study. In total of fifteen studies that were identified, (577 patients, 58.9% males), successful engraftment was observed in 97.3% of patients (95% CI, 95.9–98.7) while grade II-IV aGvHD and cGvHD has been reported in 26.6% and 25.0%, respectively. The incidence of TRM was 6.7% per year (95% CI, 4.0 to 9.4). RIC regimens were associated with higher proportions of successful engraftment (97.7% vs. 91.7%, $p = 0.03$) and aGvHD (29.5% vs. 18.7%, $p = 0.008$) when compared to NMA regimens with no differences in cGvHD or mortality incidence. When compared to methotrexate-containing regimens and other regimens, post-transplant-cyclophosphamide-containing regimens (PTCy) has helped to reduce the rates of aGvHD (28.6%, 27.8%, and 12.8%, respectively, $p = 0.02$), CMV viremia (55.7%, 38.6%, and 10.4%,

respectively, $p < 0.001$), and CMV disease in initially-viremic patients (2.1%, 33.0%, and 0%, respectively, $p < 0.001$).

Conclusion: We can conclude that Haploidentical HSCT is associated with promising outcomes in terms of successful engraftment and reduced complications. Engraftment success has been noticed in the majority of patients with severe and very severe AA, while TRM and GvHD rates were acceptable. NMA conditioning was better in terms of lower CMV viremia and acute GVHD but not in terms of RRT, mortality and engraftment. The addition of PTCy regimens have showed lower GvHD and lower CMV incidence at a price of non-significant increase in the incidence of mortality per year. NMA vs. RIC and PTCy vs others may be used depending on both patient's and donor's profiles besides each institution's setup and resources Recommendation: Still we are in need of more studies to weigh the risk and benefits of Haplo SCT in AA.

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OP 18

Long-term results of allogeneic peripheral blood hematopoietic stem cell transplantation for severe aplastic anemia

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Objective: Aplastic anemia (AA) is a life-threatening disorder of hematologic stem cell which, if untreated, may be associated with significant morbidity and mortality due to the recurrent infections or bleeding. Currently, the first treatment option is allogeneic hematopoietic stem cell transplant (allo-HSCT) for patients younger than 40 years. Bone marrow is recommended as the stem cell source due to less graft versus host disease (GVHD) risk and better outcomes than peripheral blood (PB)-derived stem cell. Recently, a few data of PB-derived allo-HSCT in AA has been published, due to its easy applicability and early engraftment advantage. The aim of this study is to share the data of AA patients who have underwent PB-derived allo-HSCT in our bone marrow transplantation center.

Methodology: Twenty-seven patients who underwent PB-derived allo-HSCT from human leukocyte antigen matched sibling donors were analyzed retrospectively.

Results: The median follow-up time of the patients was 95.2 months (range, 4.8–235 months). The 10-year survival was 89%. The median neutrophil and platelet engraftment time was 11 days (range, 9–16 days) and 13 days (range, 11–29 days, respectively. Primary platelet engraftment failure was observed in only 1 patient (3.7%). Acute and chronic GVHD observed in 2 (7.4%) and 3 (11.1%) patients, respectively. Neutropenic fever was observed in 13 (44.8%) of patients until the engraftment after allo-HSCT. One patient died due to CMV infections, two died due to septic shock secondary to fungal infection.

Conclusion: This study demonstrated that PB is the stem cell source of choice for patients with SAA.

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PEDIATRIC HEMATOLOGY
HEMATOLOGY – GENERAL

OP 19

Hematological parameters and peripheral blood morphologic abnormalities in children with COVID-19

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Objective: The aim of this study is to evaluate the hematologic parameters and peripheral blood cell morphological changes in children with COVID-19 and compare them with those of children suspected but then confirmed to be negative for SARS-CoV-2.

Methodology: Thirty children were tested to be positive for SARS-CoV-2 and the remaining 40 were negative. Hemoglobin, leukocyte, neutrophil, lymphocyte, monocyte counts according to age-specific intervals, platelet, large unstained cell counts, and delta neutrophil index were recorded. Differential counts were formulated by manual counting and morphology of the blood cells were evaluated.

Results: The mean leukocyte counts of the SARS-CoV-2 positive and negative groups were $7.0 \pm 3.7 \times 10^9$/L and $10.4 \pm 7.1 \times 10^9$/L, respectively ($p < 0.05$). Nine (30%) children with COVID-19 had lymphopenia. Among children with COVID-19, absolute lymphocyte count was lower in those with pneumonia ($p < 0.05$). Reactive lymphocytes were noted in 77.8% and 90% in the SARS-CoV-2 test positive and negative groups, respectively ($p > 0.05$). Mean absolute neutrophil counts of the SARS-CoV-2 test positive and negative groups were $3.7 \pm 2.9 \times 10^9$/L and $5.4 \pm 4.2 \times 10^9$/L ($p < 0.05$). Four patients (13.3%) with SARS-CoV-2 test positive had neutrophilia and seven (23.3%) had mild neutropenia. In the peripheral smear, vacuolated monocytes and dysplastic changes in neutrophils and platelets were noted in both groups.

Conclusion: Leukocyte, neutrophil and monocyte counts were significantly lower in children with COVID-19 compared with symptomatic children without COVID-19. Lymphopenia, reactive lymphocytosis and dysplasia, could be noted in children with COVID-19. Further studies on hematological findings linked with the course of the disease in children are warranted.

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OP 20

Risk factors and outcomes related to intensive care unit admission of children with hematological and solid organ malignancies: single-center experience

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Objective: Despite the developments in the diagnosis and treatment of cancer, malignancy remains one of the important causes of mortality in children. Aggressive chemotherapy leads to severeinfections or complicationsaffecting many systems, causing admissions to intensive care units (ICU). In our study, we aimed to evaluate the demographic data, clinical findings, and prognostic factors affecting hospitalization in the intensive care unit of the patients with hematological malignancy (HM) and solid organ malignancy (SOM).

Methodology: Between June 2013 and December 2018, patients were enrolled in our study between 28 and 18 years of with HM and SOM, who were hospitalized in the Pediatric Intensive Care of the University of Health Sciences Ankara Children's Hematology Oncology Training and Research Hospital. Demographic, clinical, laboratory, and treatment characteristics and survival in ICU were recorded.

Results: During the study period, 232 admissions of 158 patients with HM and SOM who were treated in ICU were evaluated. Patients diagnosed with acute lymphoblastic leukemia (ALL) and central nervous system (CNS) tumors were the most frequently hospitalized patients in the ICU, respectively. One hundred fifty-eight patients included in our study, 89 (56.3%) died. There was no statistically significant difference between HM and SOM patients in terms of mortality rate. The overall survival rate was calculated as 51.7%. Mortality was found to be higher in patients who need ICU admission while staying in the hospital, patients between the ages of 15–18, patients needed respiratory support before ICU and underwent mechanical ventilation (MV) during the first 24 h of hospitalization, and patients needed inotropic support. Neutropenia, thrombocytopenia, hypoglycemia, hypoalbuminemia, and high levels of AST/ALT, urea, creatinine, total and direct bilirubin, LDH, and CRP values were associated with mortality. Detection of recurrenceor refractory disease and organ dysfunction is an independent risk factor on mortality.

Conclusion: One-year overall survival rate of our patients was 51.7%. Relapse/refractory disease and organ dysfunction were identified as two independent risk factors on mortality. Prospective, multicenter studies are needed to determine the increasing importance of factors in the follow-up of patients with hematological and solid organ malignancies and to determine long-term survival rates.

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OP 21

A case report of RAS-associated autoimmune lymphoproliferative disorder

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Objective: Clinically, RAS-associated autoimmune lymphoproliferative disorder (RALD) is characterized by splenomegaly, peripheral lymphadenopathy and autoimmunity. The autoimmune phenotype can present in childhood or adulthood and primarily includes autoimmune hemolytic anemia, immune thrombocytopenia (ITP) and neutropenia. In this report, we present a patient with RALD. The patient showed somatic mutation for NRAS mutation.

Case report: A two-year-old boy was referred with the complaints of ecchymoses. There was no consanguinity between parents and he had a healthy sibling. It was learned that the patient presented with bruises at the age of 12 months, and was follow up with thrombocytopenia, which responded partially and transiently to intravenous immunglobin (IVIG) and steroids. Physical examination at admission revealed hepatosplenomegaly and cervical lymphadenopathies. Complete blood count showed hemoglobin (Hb) 10.6 g/dL, mean corpuscular volume (MCV) 74 fL, white blood count 11.3×10^9/L and platelet 15×10^9/L with monocytosis on blood film. Bone marrow of the patient showed megaloblastic changes and no increase in megakaryocytes. Additionaly, patient was found to have hypergamaglobulinemia. Double-negative (CD4-CD8-) T cells were 2% and a decrease in lymphocyte activation was observed with T and B cell subgroups. Mycophenolate mofetil was started. The patient was followed up with the autoimmune lymphoroliferative syndrome (ALPS) phenotype and genetic work-up revealed NRAS c.38G>A heterozygous mutation. The patient was diagnosed with ALPS type 4 (NRAS somatic mutation). Thrombocytopenia responded to mycophenolate mofetil.

Results: Genetic analysis of the RAS mutation should be performed in cases that does not meet the defined diagnostic criteria of ALPS or JMML.

Conclusion: RAS-related lymphoproliferative disease is a rare genetic disorder of the immune system and is a newly classified disease. RALD presents with autoimmunity, lymphadenopathy, and/or splenomegaly, but without a defect in FAS-dependent apoptosis or an increase in peripheral double negative T lymphocytes. The absolute or relative monocytosis in particular is an important characteristic of this disorder and help differentiate it from ALPS. JMML may be characterized with autoimmunity and may be similar to RALD as a clinical and laboratory phenotype. Approximately 15–30% of patients

diagnosed with JMML have somatic, activating RAS mutations. Response to steroids/IVIG in our patient prompted RALD diagnosis, rather than JMML. Finally genetic analysis of the RAS mutation should be performed in cases that does not meet the defined diagnostic criteria of ALPS or JMML.

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LEUKEMIA/LYMPHOMA/HISTIOCYTE DISORDERS

OP 22

Bone mineral density and bone resorption in the acute leukemia during childhood

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Objective: Acute leukemia is the most common malignancy in children and has been reported to be associated with low bone mass. The urinary cross-links lysyl-pyridinoline (dipyridinoline [Dpd]) are established biochemical markers of osteoclastic bone resorption and collagen degradation. We believe that acute leukemia treatment; we wanted to investigate the effect on bone mineral density (BMD, g/cm^2) and bone resorption. It has been asked to investigate whether this effect is continuing or not with the passing years.

Methodology: Our materials were 29 leukemia patients who completed their treatments. The patients were divided into two groups. Group I consisted of 19 patients (the ones in the 1.00 ± 0.15th months after treatment) and Group II consisted of 10 patients (the ones in the 43.36 ± 18.39th month). 52 healthy children formed BMD group and 20 children formed Dpd control group. The BMD and urine Dpd values of the healthy ones and the patients were measured.

Results: In 10 of total 29 cases (4.48) osteopeni and osteoporosis were determined. A meaningful difference could not be found in the average values of BMD between the groups. In the evaluation of all cases and the groups separately, any effect of the chemotheraphy could not be found on BMD. It was found that age had a meaningful effect on BMD in the Group I ($p < 0.05$). The age and the time after the treatment affected BMD in a meaningful level in Group II ($p < 0.00001$, $p < 0.05$, respectively). BMD was increasing significantly with age and interval. The average BMD of 29 cases was 0.66 ± 0.17 g/cm^2, while of control group was 0.65 ± 0.16 g/cm^2. Average Dpd levels in urine were 32.92+13.74 and 30.15 ± 13.48 nmol/mmol Cr in the patients and control group respectively. The average BMD and Dpd values of the patients were not different than of the control group. A meaningful negative relation was determined between BMD and Dpd values separately in both all cases and Group II. Dpd value in urine decreased with the increase in the value of BMD. As the age of diagnosis increased, BMD increased. When the age of diagnosis increased, Dpd was determined as decreased. In the evaluation of all cases and groups separately, bone resorption and BMD were not different between the one taking radiotherapy (0.60 ± 0.15 g/cm^2 and 31.29 ± 18.09 nmol/mmol Cr) and the one not taking radiotherapy (0.67 ± 0.20 g/cm^2 and 37.29 ± 11.91 nmol/mmol Cr). In Group I, there was a meaningful difference ($p < 0.05$) between Bsds of the patients taking cranial radiotherapy (1.04 ± 0.74) and the ones not taking cranial radiotherapy (-0.19 ± 0.80) and taking extracranial radiotherapy (-1.36 ± 0.93). Cranial radiotherapy effected Bsds negatively in Group I while this effect could not be seen in Group II.

Conclusion: It was concluded that the childrens completing acute leukemia treatment could reach carry out the ideal height and weight with a sufficient and balanced nutrition program and maintain BMD values proper to their ages.

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LEUKEMIA/LYMPHOMA/HISTIOCYTE DISORDERS

OP 23

A girl with SAMD9L mutation presenting with pancytopenia, immunodeficiency and myelodsyplasia

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Objective: Several monogenic causes of familial myelodysplastic syndrome (MDS) have recently been identified. Genetic studies disclosed heterozygous missense mutations in SAMD9L, a tumor suppressor gene located on chromosome arm 7q. Consistent with a gain-of-function effect, ectopic expression of the 2 identified SAMD9L mutants decreased cell proliferation relative to wild-type protein.

Case report: A one month old girl was referred to our hospital with bruising. She was followed-up at a local hospital with thrombocytopenia for three weeks. She had normal physical examination findings except petechiaes on her extremities, trunk, and face. There was no bleeding diathesis and consanginous marriage in her family history. Complete blood count showed hemoglobin of 7.2 g/dL, reticulocyte of 2.4%, leukocyte count of 3.1×10^9/L, absolute neutrophil count of 0.3×10^9/L, platelet count of 2×10^9/L. Coagulation tests, liver and kidney functions were normal. Her viral serologies were negative for EBV, CMV, rubella, hepatitis and parovirus B19. However, vitamin B12 level was below normal limits, then cyanocobalamin treatment was started. Her mother's serum vitamin B12 level was normal. Immune thrombocytopenia was considered and intravenous immunoglobulin (IVIG) was given to her, and platelets raised to 87×10^9/L, thereafter decreased to 14×10^9/L within a few days. Bone marrow aspiration showed hypocellularity with dysplastic changes in myeloid lineage. Karyotype analysis revealed 46,XX der(20), and negative for monosomy 7. Her neurologic examination was normal except bulging of anterior fontanel, cranial ultrasonography was performed and it showed triventricular hydrocephalus and left cerebellar hypoplasia. A

ventrculo-peritoneal shunt was inserted to her. She had cellular and humoral immunodeficiency with decreased peripheral blood B and natural killer (NK) cell numbers (C19+20 cell number of 1%) and low immunoglobulin levels. On the follow-up, she received monthly IVIG prophlylaxis and platelet transfusions as needed. Genetic analysis disclosed that a heterozygous missense variant in SAMD9L (c.2627T > C). Bone marrow aspiration was planned to done in every 3 months on the follow-up. Platelet count and hemoglobin levels gradually increased over the time, but monosomy 7 was positive at the age of 2 in the 52% of the cells. She underwent hematopoietic stem cell transplantation (HSCT) from a matched unrelated donor with myeloablative conditioning regimen.

Methodology: We herein report a girl presenting with pancytopenia and immunodeficiency which was revealed SAMD9L mutation.

Results: SAMD9L, the gene is located in a region of chromosome 7 that is commonly deleted in myeloid malignancies. In mice, Samd9l deficiency causes development of MDS with age, suggesting that SAMD9L is a tumor suppressor. Heterozygous SAMD9L missense mutations may cause of familial MDS like Ataxia-pancytopenia syndrome which is associated with neurological findings (ataxia and nystagmus), cytopenias and predisposition to myeloid leukemia involving −7/del(7q). In addition, SAMD9L may regulate differentiation of diverse immune cell lineages like B and NK cells, however cellular basis of neurological manifestations in the carriers remains unclear.

Conclusion: In conclusion, SAMD9L mutation screening should be considered in all pediatric patients with MDS, AML, or JMML with chromosome 7 aberrations, even in the absence of neurological symptoms or a family history of myeloid malignancies.

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RED BLOOD CELL DISORDERS

OP 24

The effects of vitamin D deficiency on myocardial deformation and functions in patients with β-thalassemia

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Objective: β-Thalassemia major (TM) is an inherited hemoglobin disorder resulting in chronic hemolytic anemia, and regular lifelong transfusion therapy remains the mainstay in the treatment of patients. Cardiac involvement is the leading cause of death in patients with β-TM. The association between vitamin D deficiency and left ventricular systolic and diastolic dysfunction has been previously demonstrated in the literature. Speckle-tracking echocardiography (STE) is feasible and valid for the evaluation of cardiac function via an assessment of the longitudinal deformation of the myocardium through the cardiac cycle. Our study aims to evaluate the effect of vitamin D deficiency on myocardial deformation and functions in children with thalassemia major by STE.

Methodology: In this prospective study, 33 patients with β-TM, receiving regular blood transfusions, and undergoing iron chelation therapy were enrolled in April 2018-January 2020. Vitamin D and ferritin levels, cardiac magnetic resonance (MR) T2* value, conventional echocardiography, and speckle tracking were evaluated. LV regional circumferential, and longitudinal strain values were measured. Vitamin D levels considered <20 ng/ml, 20–30 ng/ml, >30 ng/ml as deficient, insufficient, and sufficient, respectively. Myocardial functions of patients with vitamin D deficiency or insufficiency were evaluated by STE before and after vitamin D replacement.

Results: The mean age of patients was 15.4 ± 3.09 years; the male/female ratio was 18/15, and mean ferritin levels were 2017 ± 1573 ng/ml. Vitamin D level deficiency was detected in 30 (90%) and insufficient in 3 (10%) of our patients. Cardiac T2* value was normal in 21 patients and 12 patients had iron accumulation on cardiac T2* MR. The mean of left ventricular ejection fraction (LVEF) was 64 ± 4.7%, and the mean left ventricular shortening fraction (LVSF) was 34.2 ± 3.8% before vitamin D replacement, and LVEF was 65.1 ± 5.2% and LVSF 35 ± 3.7% after vitamin D replacement ($p > 0.05$). The mean left ventricle global longitudinal strain (LVGLS) was 19 ± 2.7% before replacement and 24 ± 2.7% after replacement (p: 0.04). The left ventricle global circumferential strain (LVGCS) was 20 ± 2.8% before replacement and 25 ± 3.8% after replacement (p: 0.03). While there was no significant difference in right ventricular functions before and after vitamin D replacement, but a statistically significant increase was observed in parameters showing left ventricular diastolic functions after replacement. There was a significant improvement in the global longitudinal strain of left ventricular after vitamin D replacement.

Conclusion: Vitamin D deficiency is frequently observed in patients with β-TM. It is reported that vitamin D deficiency causes decreased contractility and leads to an increase in cardiac iron involvement accordingly cardiomyopathy in these patients. Speckle tracking echocardiography could be used as a feasible method for evaluating subclinical myocardial dysfunction in patients with β-TM. In patients with β-TM, diastolic functions are primarily affected in the case of cardiac toxicity. In our study, we observed that our patients' diastolic functions had improved after vitamin D replacement therapy.

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OP 25

The molecular spectrum of patients with hereditary spherocytosis: a single center experience

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Objective: Hereditary spherocytosis (HS) is a hemolytic anemia with variably severity, caused by defects in the

components of red cell membranes. It is characterized by anemia, jaundice, splenomegaly and cholelithiasis. The clinical manifestations vary widely, ranging from nearly asymptomatic to transfusion-dependent or severe life-threatening anemia. It is difficult to identify atypical cases with classical approaches. The known HS gene mutations are SPTA1 gene, SPTB gene, ANK1 gene, SLC4A1 gene and EPB42 gene. In this report, the next-generation sequencing (NGS) was used to analyze our patients with HS and we identified mutations responsible for HS.

Methodology: Patients who were diagnosed with hereditary spherocytosis with osmotic fragility testing between 2007–2019; ten were further tested for molecular background. Diagnosed in our center were analyzed retrospectively. Either NGS or ANK1 Sanger testing were used.

Results: The 10 cases of HS comprised 8 males and 2 females. The age of patients ranged from 5 months to 17 years. Hemolytic anemia, jaundice and splenomegaly were the most common findings in our cases. Gallstones were detected in four patients (40%). The family history was positive in 5 (50%) patients. Splenectomy and cholecystectomy was performed in two cases and three cases, respectively. The results corfirmed ANK1 gene mutation in 50%; SPTB gene mutation in 20%, EBP42 gene mutation in 10%; SPTA1 gene mutation in 10%. The clinical features of the patients are summarized in the Table 1. Table 1. Patient Age Sex Age of diagnosis Family history Splenomegaly Gallstone Splenectomy/Cholecystectomy Mutated gene 1 1 Female 1 year Yes + – –/– SPTB 2 10 Female 10 years Yes + – +/– ANK1 3 12 Female 7 years Yes + + +/+ ANK1 4 12 Female 2 years Yes – + –/+ ANK1 5 10 Male 6 years No – + –/– ABCG8 6 2 Female 5 months No + – –/– ANK1 7 13 Female 15 years Yes + – –/– ANK1 8 8 Female 7 years No + + –/+ EBP42 9 2.5 Male 2 years No + – –/– SPTB 10 19 Female 17 years No + – –/– SPTA1.

Conclusion: Consistent with the literature, the most common gene mutated was ANK1. Collectively, our results suggest that mutation analyses will complement other conventional tests for accurate diagnosis of HS, especially in those who are under transfusion programme and are followed with a diagnosis of unspecified hemolytic anemia.

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STEM CELL TRANSPLANTATION

OP 26

Eltrombopag for thrombocytopenia following pediatric allogeneic hematopoietic stem cell transplantation

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Objective: Failure of platelet recovery is a complication occurring after allogeneic hematopoietic stem cell transplantation (HSCT). Poor graft function, relapse, viral infections, drug toxicity, immune processes may lead to decreased platelets production. Treatment options are limited for thrombocytopenia caused by poor platelet production. While the use of Eltrombopag (ELT) was retrospectively investigated in adult patients, data regarding the potential benefit of these agent for pediatric posttransplant thrombocytopenia are lacking. We report three pediatric patients who received ELT for thrombocytopenia occurring after HSCT.

Case report: The median patients' age at HSCT was 13.3 years (10–18). All patients had HSCT from a sibling donor with the bone marrow stem cell source. All patients were treated with a myeloablative conditioning regimen. Patients engrafted at a median time of 19 days (10–24) for neutrophils and 49 days (44–49) for platelets. Bone marrow aspirates showed a decrease number of megakaryocytes, and all patients had been ineffectively treated with high-dose intravenous gamma globulin and with steroids before ELT initiation.

Methodology: ELT was started at a median time after HSCT of 57 days (42–90), the starting dose being 25 mg/day, and the maximum administered dose was 75 mg/day. ELT was continued for a median period of 64 days (28–286). All patients reached sustained platelets count >50,000/μL after a median time from starting ELT of 197 days (87–210). The median platelet count at last evaluation was 115,000/μL (range 66,000–125,000/μL). ELT was well tolerated, and no patient have developed important side effect.

Results: Our cases became transfusion independent after a median time from starting ELT of 197 days. In the pediatric post-HSCT setting, only few previously published case reports described the successful use of ELT as a treatment for thrombocytopenia. Li et al. reported three children transplanted for nonmalignant disease treated for both primary and secondary failure of platelet engraftment. Treatment was effective in two patients, but not in one patient transplanted for Gaucher disease. In Masettis' study, the 60-day cumulative incidence of platelet recovery >50,000/μL after ELT treatment was 75%. Similarly, Tanaka et al. described 12 adults treated for primary and secondary post-HSCT thrombocytopenia who reached platelet count>50,000/μL in 60% and 71% of cases respectively.

Conclusion: Our study supports the safety and efficacy of ELT for treatment of prolonged thrombocytopenia after allogeneic HSCT in children. Future prospective studies are needed to confirm these findings.

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ONCOLOGY
SOLID TUMORS

OP 27

Bone marrow involvement in non-small cell lung cancer

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Objective: Purpose of the study is to evaluate the possibility of detection DOCs in BM and to identify the frequency of BM involvement in patients with NSCLC, as well as their effect on the population of bone marrow lymphocytes.

Case report: There is evidence that disseminated tumor cells (DOCs) in the bone marrow (BM) are precursors of subsequent distant metastases. There is evidence indicating an important role for bone marrow lymphocyte subpopulations in hematogenous metastasis. The detection of DOCs in non-small cell lung cancer (NSCLC) will provide important information about the features of metastasis, as well as the possibilities of identifying new targets for the treatment of NSCLC.

Methodology: 62 bone BM of NSCLC patients were studied by morphological and immunological methods. DOCs analysis was performed using flow cytometry (FACS Canto II, USA, Kaluza Analysis v2.1 software), monoclonal antibodies to CD45, cytokeratins directly labeled with various fluorochromes were used. Lymphocyte populations CD3, CD4, CD8, CD19, CD20, CD16, CD27 were studied.

Results: DOCs (EPCAM+CD45-) in the BM were found in 43.5% of patients (threshold level:1 cell per 10 million myelocaricytes). The presence of DOCs did not correlate with tumor size, lymph node status, stage of the tumor process. The highest detection rates of DOCs were observed at stages IA and IIA: 60.7% and 58.3% respectively. BM involvement in adenocarcinoma was observed in 45% cases, in squamous cell carcinoma - in 37% samples ($p = 0.501$). It was found that DOCs are more often detected in more differentiated tumors ($p = 0.023$). Significant correlations between the presence of DOCs in the BM and myelogram parameters have not been established. A decrease in the number of granulocyte germ cells was observed in 4% of BM involvement ($p = 0.036$). A significant increase in the level of subpopulations of CD16 + CD4-NK-cells ($p = 0.002$), CD27 + CD3 + T-cells ($p = 0.015$) with bone marrow damage was revealed.

Conclusion: The possibility of detecting DOCs in the BM of NSCLC patients has been established. BM involvement was 43.5%. DOCs are detected even in the early stages of NSCLC. Relationship between BM involvement and the degree of tumor differentiation was found. More frequent BM involvement was observed in adenocarcinoma compared with squamous cell carcinoma of the lung. The relationship between DOCs and bone marrow lymphocyte populations was revealed: subpopulations of CD16 + CD4−, CD27 + CD3+.

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OP 28

The prognostic significance of neutrophil/lymphocyte ratio in patients with terminal cancer

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Objective: Predicting the life expectancy in patients with terminal cancer is important in terms of clinical assessment and treatment approaches. Although, various prognostic scoring systems have been established and still often used, those are based on subjective parameters. There is a recently increased tendency to anticipate prognosis by prognostic laboratory tests that consist of objective parameters and are easily applied. The role of inflammation in cancer development and progress is a well-known topic. Neutrophil/lymphocyte ratio (NLR) is a objective parameter that could show the level of systemic inflammation. Increasing NLR has been associated with worse prognosis in many type of cancer. In this study, we evaluated the prognostic role of NLR in terminal cancer patients.

Methodology: Patients of 432 who were enrolled as a terminal cancer in Department of Medical Oncology were included in this study. The information of those patients were obtained retrospectively from medical archive records. Hemogram and biochemistry results which were examined on the first day of patients' last hospitalisation were used. Statistical analyses were done by Independent Sample T or Mann Whitney U test. Two main subgroup were defined; patients who died in first 30 days from last hospitalization or patients who died after 30 days from last hospitalization.

Results: Descriptive data and statistical analysis results are shown in Table 1. The median age of patients was 62. 268 (b) of patients were male and 164 (8) were female. The most frequent cancer type were lung (1), colorectal (%9), and esophagus/stomach (%8), respectively. While the median NLR was 11.36 (min–max, 0.11–367.67), the median thrombocyte/lymphocyte ratio (PLR) was 305.39 (min–max, 3.23–4150). 381 (88%) of the patients were in the group that died within 30 days after the last hospitalization. The median NLR was significantly higher in patients who died within 30 days compared with patients who died after 30 days (11.84 vs. 7.5, $p < 0.001$, respectively) as shown in Table 1. On the other hand, there were no differences between 2 group in terms of other parameters including hemoglobin, leukocyte count, lactate dehydrogenase (LDH), mean platelet volume (MPV), PLR, CRP/albumin ratio, monocyte count, and prognostic nutritional index (PNI) (Table 1).

Conclusion: There is a strong relationship between inflammation and cancer. NLR is a marker to show inflammation. In this study, we showed that increased NLR was associated with worse prognosis in patients with terminal cancer. There are few studies evaluating the prognostic role of NLR in terminal

cancer patients in the literature, and our study results are compatible with those. The limitation of our study is to be a retrospective design and single-center study. Further prospective multi-center trials are needed to clarify the prognostic role of NLR. In conclusion, we think that NLR can be used safely for anticipating prognosis in terminal cancer patients due to its easy usage and objectivity.

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OP 29

Anti-Yo positive paraneoplastic cerebellar degeneration associated with ovarian cancer: a rare case report

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Objective: Paraneoplastic cerebellar degeneration (PCD) is a rare neurological complication of cancer characterized by rapid development of cerebellar ataxia resulting from tumor-induced autoimmunity against cerebellar purkinje cells. Anti-Yo antibody which is also known as anti-Purkinje cell cytoplasmic antibody type-1, is highly specific and the most frequent antibody in patients with PCD. Here we present a case of anti-Yo-associated PCD in a patient with ovarian cancer. After the patient was diagnosed with PCD, ovarian cancer recurrence was shown.

Case report: A 54-year-old female patient, who was in remission with ovarian cancer applied to us with a 6-month history of progressively worsening unsteadiness while walking. She was diagnosed as ovarian cancer in November 2016 and operated, and then 6 cycles of carboplatin plus paclitaxel adjuvant treatment was given. She did not have any other disease and history of drug, smoking, and alcohol use. There was no important family history. On physical examination, her speech was minimally dysarthric. While she was walking, ataxia was observed. Other system examinations were normal. Hemogram, biochemistry, muscle enzymes, thyroid function tests, vitamin B12, and 25-OH-D were in the normal range. CA-125 increased compared to 3 months ago.(23–53 U/mL)Because of the increased CA-125 level, computer tomography and then PET-CT scan was taken. There was a 1.5-cm diameter hypermetabolic nodular pelvic lesion. Brain MR and EMG were planned for complaints of walking and balance disorders. Nothing was found in the examinations and tests to explain the current condition of the patient. The paraneoplastic panel was taken from the blood and cerebrospinal fluid (CSF) samples. Anti-Yo antibodies were three positive in both the CSF and blood samples. The patient was diagnosed with PCD due to clinical findings and anti-Yo positivity both CSF and blood samples. Since the main treatment of paraneoplastic syndrome was the excision of the primary lesion, it was discussed for the excision of the recurrent mass. But this patient was not eligible for re-surgery. So carboplatin, gemcitabine plus bevacizumab treatment protocol was initiated for recurrent ovarian cancer. Plasmapheresis was performed 5 times, every other day. A significant improvement in walking were observed in the patient after 2 weeks from discharge.

Conclusion: Here we described a patient who developed ataxia 3 years after remission of ovarian cancer and diagnosed with PCD. Diagnosing a paraneoplastic syndrome and mild elevation of CA-125 level have led to the diagnosis of recurrence of ovarian cancer. In approximately 30% of patients, the ataxic symptoms occur when the cancer is in remission as it was in this reported case. Therefore, when a patient is diagnosed with PCD, whole-body screening is necessary to reveal the underlying malignancy. Although there is a strong association between PCD and Anti-yo; its pathological function is still not clear. Treatment of PCD is unfavorable and patients usually have a poor prognosis. Plasmapheresis, intravenous immunoglobulin (IVIG), and cyclophosphamide are the treatment options. Also, it is very important to treat underlying malignancy. In conclusion, in patients with unexplained neurological symptoms and a history of cancer, paraneoplastic syndromes should be considered and an underlying malignancy should be investigated.

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OP 30

Gastroenteropancreatic neuroendocrine carcinoma: single center experience

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Objective: In general, all high grade, poorly differentiated gastrointestinal neuroendocrine carcinomas (GIS-NEC) exhibit aggressive behavior characterized by widespread metastases in the early stages. It relapses very quickly, even in the early stages. The prognosis is extremely poor. These tumors show similarities with small cell carcinoma of the lung in terms of morphology, biological behavior and chemosensitivity. In this study, we aimed to investigate survival according to primary tumor localization and the stage besides clinical and demographic data of GIS-NECs.

Methodology: Twenty-seven patients with the diagnosis of GIS-NEC were included in the study. Patients under the age of 18, patients with another malignancy other than GIS-NEC and patients having GIS NEC but whose data were missed, were not included in the study.

Results: In this study, 15 male (55.6%) and 12 female (44.4%) patients were included. Median age was 66 years old. The primary localizations were as follows, in 15 (55.6%) patients; gastric, in 4 (14.8%) patients; esophagus, in 4 (14.8%) patients; colorectal, in 2 (7.4%) patients; pancreas and in 2 (7.4%) patients; small intestine. At the time of diagnosis, in 21 (77.8%) patients Stage 4 disease, in 5 (18.5%) patients stage 2 and 3 disease and in 1 (3.7%) patients stage 1 disease was present.

During the follow-up, 16 (59.3%) patients were ended up with exitus. Feature characteristics of the patients were summarized in (Table 1). While median survival was not achieved in stage 2 and 3 patients, it was 8 months in stage 4 patients. (Figure 1). Based on the primary tumor localization, mOS was 7 months in the gastric, 5 months in the pancreas, 7 months in the small intestine, 6 months in the esophagus. In colorectal localization mOS could not be reached (Table 2).

Conclusion: In our study, gastric localization was the most common in GIS-NECs. The shortest survival was observed in the pancreatic localization.

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