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