Differentiating Hepatosplenic T-cell lymphoma and NK cell neoplasm: For treatment decisions

Laura Alder
University of Queensland, USA

Introduction: Hepatosplenic T-cell lymphomas (TCLs) are a rare subset of TCLs, accounting for less than 5% of all peripheral T-cell and natural killer (NK) cell lymphomas. They have a poor survival rate, with median survival between 0-5 years and rare complete remissions.

Case Description: A 42-year-old female with past medical history of ductal carcinoma in situ diagnosed five years ago, treated with radiation and lumpectomy presented with two months of progressively worsening right sided abdominal pain and distension. Lab work showed anemia (Hemoglobin of 7.3) and thrombocytopenia (platelets of 126) with leukocytosis (WB 16.5). Imaging showed marked hepatosplenomegaly. Due to a positive ANA, there was an initial concern for lupus. Her liver biopsy showed an infiltration of NK cells. A PET scan showed increased splenic and pharyngeal lymph node uptake. Her bone marrow biopsy had increased population of Natural Killer cells. Interestingly, her CD3 expression was negative, which is unusual in hepatosplenic TCLs. To differentiate between NK or T cell lymphoma TCR rearrangement studies were done, which finalized the diagnosis of Stage IV hepatosplenic TCL. She was started on Prednisone for 1-2 weeks followed by 6 cycles of DA-EPOCH, which was never increased in dosage due to cytopenia. She had a follow up CT scan after 3 cycles which showed increased splenomegaly and a splenic infarct. Her PET scan after the 6th cycle of DA-EPOCH showed marked splenomegaly with diffuse splenic uptake. Her main complaint was abdominal pain. On physical exam, there was significant splenomegaly occupying the whole right hemiabdomen, all the way down to the pelvis, which was tender. Due to her symptoms and thrombocytopenia throughout treatment, a splenectomy was performed. She tolerated surgery well, and most recently was started on pralatrexate.

Discussion: Her molecular markers highlighted the difficulty in differentiating hepatosplenic T-cell lymphoma and NK cell neoplasm, which is necessary for treatment decisions. While her liver biopsy was suggestive of hepatosplenic TCL, her negative CD3 expression raised the possibility of a NK cell neoplasm. However, with no evidence of EBV infection, nor lymphadenopathy, an NK neoplasm was less likely, as well as her CD16 negativity. Another case report also described similar findings. Hepatosplenic TCLs are rare, carry a poor prognosis, and have no accepted standard of care chemotherapy. This patient was started on DA-EPOCH with intention to perform a hematopoietic cell transplantation from her sister, a 10/10 match, if her PET scan was negative after 6 months. A recent study of 54 patients undergoing allogeneic stem cell transplantation for hepatosplenic TCL had better mean overall survival at 68 months than compared with the average of 6-11 months. However, since she was primary refractory, she is now starting her salvage therapy after her splenectomy, which is emerging as a way to improve treatment options and survival. A phase 1 clinical trial in similar patients had positive results with the combination of pralatrexate 25 mg/m2 and romidepsin 12 mg/m2 q 2weeks (d1, 15 of a 28 day treatment cycle). The overall response rate in T-cell was 71%, including complete response rate of 29%.

laura.alder@vcuhealth.org