

B-Cell Acute Lymphoblastic Leukemia with Liver Infiltration Presenting as Acute Alcoholic Hepatitis

Katherine O'Neil; Alexis Antonopoulos; Kristen Hernandez; Marisha Sirdar, MD

New York Institute of Technology College of Osteopathic Medicine

Church Health - Baptist Memorial Hospital Family Medicine Residency – Memphis, TN

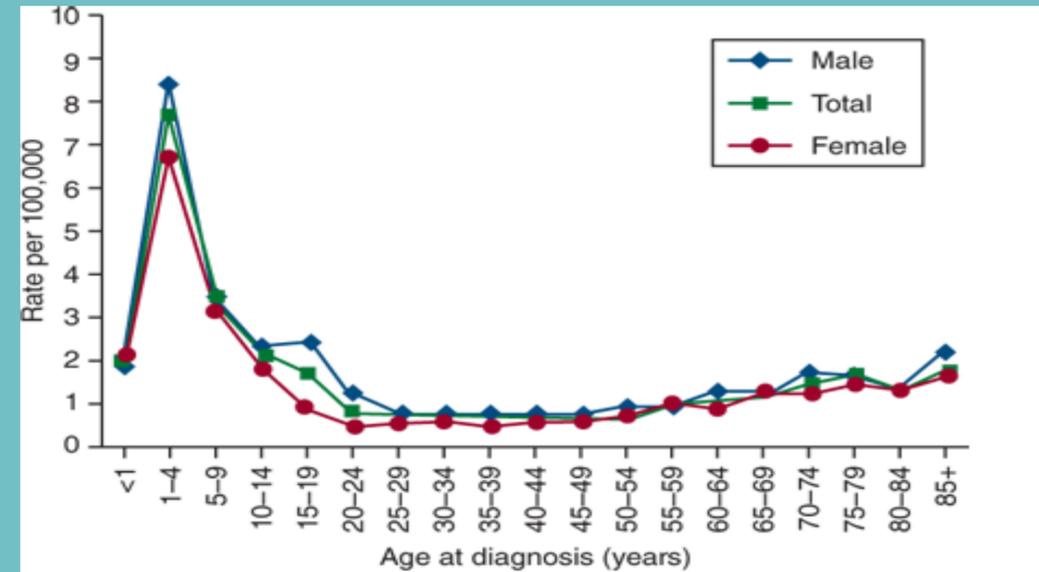


Introduction

Acute hepatic injury with complete blood count (CBC) indicating an absence of peripheral cytopenias is a rare presentation of lymphoid malignancies, such as B-cell acute lymphoblastic leukemia (B-ALL). B-ALL is a relatively rare malignancy which occurs most commonly in young pediatric patient populations¹. Most patients present with complications of pancytopenia and bone marrow failure such as anemic pallor and fatigue, fragility with delayed wound healing, or increased susceptibility to infections². Ineffective hematopoiesis is a consequence of bone marrow infiltration by immature precursor blast cells that are pathognomonic of B-ALL.

Hepatic involvement in lymphoblastic leukemia is a frequent phenomenon usually seen late in the disease course. Signs of liver involvement such as elevated transaminases or hyperbilirubinemia is often mild or even silent at the time of diagnosis³.

There are few reports within literature describing cases of B-ALL presenting as acute hepatitis in adolescents or young adults⁴. This presentation of leukemia is to be reported so that acute lymphoblastic leukemia is kept on the differential for any previously healthy young adult presenting with acute hepatitis.



Source: K. Kaushansky, M.A. Lichtman, J.T. Prchal, M.M. Levi, O.W. Press, L.J. Burns, M. Caligiuri: Williams Hematology, 9th edition
www.accessmedicine.com
Copyright © McGraw-Hill Education. All rights reserved.

Patient Description

21 year old African American male with no significant past medical history presented to the Emergency Department with four days of worsening abdominal pain, nausea, non-bloody non-bilious vomiting, and dark urine. The patient reported a recent history of mild alcoholic consumption of about 4-5 beverages several days prior to the initial encounter. The patient denied any tobacco or illicit drug use. On physical exam, all vitals were within normal limits and his BMI was consistent with a healthy weight to height ratio. The only abnormalities observed were scleral icterus and mild abdominal tenderness to deep palpation of the right upper quadrant (RUQ) with a negative Murphy's sign.

RUQ ultrasound displayed no acute abnormalities. Liver Function Tests (LFTs) showed an alanine transaminase (ALT) of 3,358 U/L, an aspartate transaminase (AST) of 2,538 U/L, and an alkaline phosphatase (ALP) of 181 U/L. Total bilirubin was elevated at 7 mg/dL.

CBC with differential showed an isolated elevation of blasts at 19% with no peripheral cytopenias or lymphocytosis. Viral studies for EBV, CMV, HIV, and Hepatitis A/B/C or E were all negative.

Subsequent bone marrow biopsy revealed 94.5% blasts with increased hemophagocytic histiocytosis. Biopsy results consistent with B-ALL and additional concern for a rare syndrome called Hemophagocytic Lymphohistiocytosis (HLH).

CT abdomen/pelvis showed a mildly heterogeneous liver with no distinct masses, possibly suggestive of hepatic steatosis. Trans-jugular liver biopsy was performed and confirmed leukemic infiltration of the liver versus HLH or a variety of other autoimmune disorders.

Discussion

This patient presented with symptoms suggestive of an isolated event of hepatocellular injury thought to be secondary to alcohol ingestion and acute alcoholic hepatitis.

Unique to this patient was the complete absence of peripheral cytopenias, lymphocytosis, or systemic B-cell symptoms such as weight loss, intermittent fever, fatigue, or night sweats seen with most cases of leukemia.

Conclusions

- This case highlights the need to be vigilant to unusual presentations of B-cell Acute Lymphoblastic Leukemia in adults
- Isolated liver damage due to B-ALL is not a common initial presentation and may precede systemic neoplastic signs or symptoms of cancer

References:

1. American Cancer Society. *Cancer Facts & Figures 2019*. Atlanta; American Cancer Society; 2019.
2. Bruguera M, Miquel R. The Effect of Hematological and Lymphatic Diseases on the Liver. In: Rodés J, Benhaoum JP, Blei AT, Reichen J, Rizzetto M, editors. *Textbook of Hepatology*. 3rd edition. Oxford, UK: Blackwell; 2007.
3. Kantarjian HM, Wolff RA, editors. *The MD Anderson Manual of Medical Oncology*, 3rd edition. New York, NY: McGraw-Hill.
4. Litten JB, Rodríguez MM, Maniaci V. Acute Lymphoblastic Leukemia Presenting in Fulminant Hepatic Failure. *Pediatric Blood Cancer*. 47:842–845. 2006.
5. K. Kaushansky, M.A. Lichtman, J.T. Prchal, M.M. Levi, O.W. Press, L.J. Burns, M. Caligiuri. *Williams Hematology*, 9th edition. New York, NY: McGraw-Hill.