Underrecognized Zieve's Syndrome

Kiranpreet Gosal, Pratishtha Singh, Katherine Westbrook, Meg Kanoy Carter

Background

- Zieve's syndrome (ZS) was first described in 1958 as a triad of hemolytic anemia, cholestatic jaundice and hyperlipidemia seen in the setting of alcohol abuse and liver disease
- It is an underdiagnosed syndrome due to its lack of awareness within the medical community thus the prevalence among alcoholics is unknown.
- A 38-year-old female with a history of chronic alcohol abuse and recurrent alcoholic pancreatitis presented with two days of altered mentation, right upper quadrant (RUQ) abdominal pain, gait instability and hematemesis.
- She denied fevers, chills, diaphoresis, or melena. She was on no medications and previously drank one pint of vodka daily but was now drinking two to three shots of liquor daily.

Objective

- Vitals: T 98.1 F, BP 103/54, HR 85, O2 97% on room air
- PE: lethargic with generalized jaundice of the skin, diffuse abdominal distention, RUQ tenderness and asterixis.
- Remarkable labs: Hgb 6.9 g/dL, plts 64, LDH 381 U/L, haptoglobin undetectable, reticulocyte count 5.7%, total bilirubin11.2 mg/dL, indirect bilirubin 9.2 mg/dL, AST 204 U/L, ALT 62 U/L, alkaline phosphatase 70 U/L, INR 2.04, triglycerides 172 mg/dL, total cholesterol of 359 mg/dL.
- Direct antiglobulin test (DAT) negative, peripheral smear with macrocytosis.
- Hepatitis A, B, C negative.
- Direct antiglobulin test (DAT) was negative.
- RUQ u/s with hepatic steatosis, CT head negative.

Hospital Course

- Patient was treated conservatively with lactulose and intravenous fluids with improvement in mentation.
- She received one unit of packed red blood cells after which her hemoglobin remained stable.

Hospital Course Cont

- Upper endoscopy showed portal hypertensive gastropathy and a proton pump inhibitor was started.
- At discharge, total bilirubin, indirect bilirubin, liver enzymes, lipid levels and LDH were down trending.
- Patient was encouraged to completely stop using alcohol.

Discussion

- We are presenting a lesser known complication of chronic alcoholism known as Zieve's Syndrome (ZS), found in heavy alcohol users with a triad of hemolysis, jaundice and hyperlipidemia.
- Pathogenesis: It is thought that the mobilization of fat to and from a fatty liver, dysregulation of serum lipids due to damaged pancreatic alpha cells, along with postulated lipoprotein lipase deficiency leads to transient hyperlipidemia that is seen in these patients.
- Hyperlipidemia is commonly missed due to the fluctuating levels that resolve within one to two weeks after an acute episode. The fluctuations in lipid levels can also cause pancreatitis amongst these patients. It is possible that our patient's prior episodes of pancreatitis could have been related to prior undiagnosed ZS.
- The source of hemolysis in ZS may be related to the hyperlipidemia as high levels of lysolecithin and lysocephalin can aggravate the hemolytic process.
- Hemolysis can lead to hyperbilirubinemia however the elevation indirect bilirubin is also seen with liver disease. Recognizing hemolytic anemia rather than macrocytic anemia will help to differentiate ZS from alcoholic hepatitis.
- Treatment: Symptoms typically resolve in 4-6 weeks with alcohol abstinence and conservative therapy. Plasmapheresis is indicated in high-risk patients with severely elevated lipid level, a history of pancreatitis, and intracerebral hemorrhage due to increased risk for complication from the hypertriglyceridemia.

Conclusion

- The diagnosis of ZS in our patient was made based on a history of heavy drinking, the clinical triad and pertinent physical and laboratory examination findings.
- Our patient had new onset generalized jaundicing of her skin as well as asterixis and RUQ tenderness were indicative of liver pathology.
- Her elevated LDH and indirect bilirubin along with low serum haptoglobin and negative DAT were consistent with hemolytic anemia.
- These findings combined with elevated triglyceride level in setting of heavy alcohol use were indications to evaluate for ZS.
- From the few cases available, alcohol cessation is the most important aspect of supportive care.
- In patient's presenting with chronic alcohol use and unexplained hemolytic anemia, clinicians should consider ZS prior to treatment to improve patient safety and promote cost effective care.
- With more information about ZS we can continue to learn about treatment and prevention.

References

1. Zieve L. Jaundice, hyperlipemia and hemolytic anemia: A heretofore unrecognized syndrome associated with alcoholic fatty liver and cirrhosis. Ann Intern Med. 1958;48:471–96.
2. Abughanimeh, Omar MD1; Abu Ghanimeh, Mouhanna MD1; Qasrawi, Ayman MD2; Bahaj, Waled MD2; Kaddourah, Osama MD2; Madhusudhana, Sheshadri MD2 Zieve's Syndrome: An Under-Reported Cause of Hemolysis in Alcoholics, American Journal of Gastroenterology: October 2017 - Volume 112 - Issue - p S1577-S1579
3. Liu MX, Wen XY, Leung YK, et al. Hemolytic anemia in alcoholic liver disease: Zieve syndrome: A case report and literature review. Medicine (Baltimore). 2017;96(47):e8742.
4. Kunz F, Stummvoll W. The significance of plasma phospholipids in Zieve syndrome. Blut. 1970;21(4):210–26.
5. Rady MY, Johnson DJ, Patel B, Larson J, Helmers R. Corticosteroids influence the mortality and morbidity of acute critical illness. Crit Care. 2006;10(4):R101.
6. Hashmi, Salman, et al. "Hyperbilirubinaemia and haemolytic anaemia in acute alcoholic hepatitis: there's oil in them thar veins." Case Reports 2014 (2014): bcr2014203804.
7. Hilz MJ, Huk W, Druschky KF, Erbguth F. Fat deposition surrounding intracerebral hemorrhage in a patient suffering from Zieve syndrome. Neuroradiology. 1989;31(1):102–3.

This research was supported (in whole or in part) by HCA Healthcare and/or an HCA Healthcare affiliated entity. The views expressed in this publication represent those of the author(s) and do not necessarily represent the official views of HCA Healthcare or any of its affiliated entities.