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PATTERNS OF TRANSAMINASE ELEVATION IN PATIENTS ON TPN AND ASSOCIATION WITH MORTALITY

Society: AASLD**Track:** Biliary Tract Diseases**Author(s) and Affiliation(s):**Bipneet Singh¹, Spandana Alluri², Sruthi Ramanan¹, Sheema Rehman¹, Gurleen Kaur³, Syed-Mohammed Jafri²

1. Henry Ford Allegiance Health, Jackson, MI, United States. 2. Henry Ford Health System, Detroit, MI, United States. 3. Government Medical College Amritsar, Amritsar, Punjab, India.

Introduction- There are three primary types of Parenteral Nutrition Associated Liver Disease: 1. Steatosis- Benign, although it can progress to fibrosis or cirrhosis with long-term use 2. Cholestasis- Serious and can progress to cirrhosis, liver failure, and 3. Gallbladder sludge/stones. Risk Factors included intestinal resection, sepsis, excess calories, or lipids. Our study aims to study different patterns of transaminase elevation, determine if the cholestatic or hepatocellular pattern is more predominant, and finally if a certain kind of elevation has a higher mortality risk.

Methods- A retrospective chart review was conducted of all adults (18 years or older) at our center between the years of 2014-2024, who had a history of elevated liver enzymes (ALT, AST, ALP, or Total Bilirubin) while on TPN. Data on indication for TPN, prior history of liver disease, pattern of injury (hepatocellular, cholestatic, or mixed), workup obtained, use of growth factors, and mortality was collected.

Results- A total of 111 patients with elevated liver enzymes (ALT, AST, ALP, and total Bilirubin) were included. 63 (56.7%) patients had a history of prior liver disease with the most common indications for TPN being prolonged malnutrition in 41 (36.9%) patients, and short gut syndrome in 39 (35.1%) patients.

Mortality occurred in 52 (46.8%) patients.

There was no association between elevation of AST and mortality, p=0.422, mean time of death from peak is 38.56 days in population with transient(<30 day duration) and 301.69 days in population with persistent elevation(>30 days)

There was a statistically significant association of ALT with mortality with p= 0.022, with mean time to mortality 63.83 days in transient and 328.1 days in persistent elevation

There was statistical association with ALP and mortality with p= 0.034, with mean time to mortality in 70.8 days and 328.1 days in 2 respective groups.

As for bilirubin, there is no association and the duration to death 70.8 days and 190.8 days in transient and permanent groups.

Further people with TPN change had higher association with p=0.007, with mean time to death 31.79 in change group versus 36 days in no change group.

Most changes in TPN were associated with ALP and T-bili elevation with p= 0.028 and .036 respectively

Discussion- The results firstly indicate that ALT elevation is more strongly associated with mortality followed by ALP. Most of the TPN changes were made in association with cholestatic changes and were associated with higher mortality indicating that patients are already very sick at the time of TPN change and require early vigilance. Further mortality difference between transient and persistent elevation could not be calculated but higher mortality amongst transient elevation was seen hinting acute decompensation being more dangerous with respect to outcomes.

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Bipneet Singh

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