

Question 28 – March 14

A 45 year old man with biopsy-proven nonalcoholic steatohepatitis with stage 2 fibrosis presents to your clinic. He is obese with a BMI of 50, and has diabetes treated with metformin, hyperlipidemia treated with atorvastatin and hypertension treated with lisinopril. He has tried unsuccessfully for 10 years to lose weight. ALT is 120 U/L, AST 90 U/L, bilirubin 1.0 mg/dL, creatinine 1.0 mg/dL, and hemoglobin A1c 8.0%. Viral serologies and tests for autoantibodies are negative. Ultrasonography shows diffuse fatty infiltration.

Your recommendation at this time is:

- A. Start a weight loss program with orlistat
- B. Start Vitamin D supplementation
- C. Change atorvastatin to ezetimibe
- D. Refer for bariatric surgery evaluation
- E. Change metformin to pioglitazone

Answer: D

This patient has medically complicated obesity and has failed weight loss attempts in the past. He has poorly controlled diabetes and fibrosis at a relatively young age. Bariatric surgery is indicated for medically complicated class 2 obesity (BMI ≥ 35) or class 3 obesity (BMI ≥ 40) without complication. Nonalcoholic steatohepatitis does not preclude candidacy for bariatric surgery, and in fact bariatric surgery has been shown to result in significant improvement in histologic features of NASH. The likelihood of successful weight loss for this patient with nonsurgical medical intervention is low. Vitamin E, not vitamin D, has been shown improve the inflammation associated with NASH, but has not been shown to reverse fibrosis and does not address this patients' other obesity-related medical conditions. Management of NASH at this time must focus on management of comorbid conditions, including hyperlipidemia, and therefore stopping atorvastatin is not appropriate. Although pioglitazone has been shown in small studies to improve inflammation associated with NASH, in a large, randomized placebo controlled trial it did not meet its primary end-point and thus changing hyperglycemia therapy is unlikely to have a significant impact on this patients' clinical course.

References:

Sanyal, A. J., N. Chalasani, K. V. Kowdley, A. McCullough, A. M. Diehl, N. M. Bass, B. A. Neuschwander-Tetri, J. E. Lavine, J. Tonascia, A. Unalp, M. Van Natta, J. Clark, E. M. Brunt, D. E. Kleiner, J. H. Hoofnagle and P. R. Robuck (2010). "Pioglitazone, vitamin E, or placebo for nonalcoholic steatohepatitis." *N Engl J Med* 362(18): 1675-1685.

Weiner, R. A. (2010). "Surgical treatment of non-alcoholic steatohepatitis and non-alcoholic fatty liver disease." *Dig Dis* 28(1): 274-279.

Chalasani, N., Z. Younossi, J. E. Lavine, A. M. Diehl, E. M. Brunt, K. Cusi, M. Charlton and A. J. Sanyal (2012). "The diagnosis and management of non-alcoholic fatty liver disease: Practice Guideline by the American Association for the Study of Liver Diseases, American College of Gastroenterology, and the American Gastroenterological Association." *Hepatology* 55(6): 2005-2023.

Van Wagner L and Rinella M. The role of insulin sensitizing agents in the treatment of non-alcoholic