

## Diet Low in Sugar Improves Nonalcoholic Fatty Liver Disease in Adolescent Patients

Compared to a standard diet, a diet low in free sugars led to a decrease in hepatic steatosis and alanine aminotransferase (ALT) levels in adolescent boys with nonalcoholic fatty liver disease (NAFLD), according to results of an open-label, 8-week, randomized clinical trial published in the January 2019 issue of *JAMA*.

From August 2015 to July 2017, Dr Jeffrey B. Schwimmer and colleagues assessed 40 boys aged 11 to 16 years (mean age, 13 years) with histologically diagnosed and active NAFLD (hepatic steatosis >10%; ALT level  $\geq$ 45 U/L) at 2 US academic clinical research centers. Patients were randomized 1:1 to an intervention diet group, which restricted free sugar intake to less than 3% of daily calories, or to a standard diet group, in which patients consumed their usual diet, for 8 weeks. Diet adherence was assessed twice a week via telephone calls. The final follow-up was conducted in September 2017. The primary outcome was change in hepatic steatosis between baseline and 8 weeks, measured by magnetic resonance imaging proton density fat fraction, with 4% serving as the minimal clinically important difference. Among the 12 secondary outcomes were change in ALT level and diet adherence.

Compared to the standard diet group, the intervention diet group reported a significantly greater mean decrease in hepatic steatosis from baseline to week 8 (21% to 20% vs 25% to 17%). The adjusted week 8 mean difference was -6.23% (95% CI, -9.45% to -3.02%;  $P < .001$ ). The intervention diet group also experienced a significantly greater geometric mean decrease in ALT level from baseline to 8 weeks (103 U/L to 61 U/L) compared to the standard diet group (82 U/L to 75 U/L; adjusted ratio of the geometric mean at week 8, 0.65 U/L; 95% CI, 0.53-0.81 U/L;  $P < .001$ ). Eighteen of the 20 patients in the intervention diet group adhered to the diet. No adverse events were reported in either group.

The authors suggest that a low-sugar diet may have a similar response in adolescent girls. They conclude that additional studies are needed to assess long-term and clinical outcomes.

## Direct-Acting Antiviral Therapy Is Not Associated With Recurrence of Hepatocellular Carcinoma

No significant difference in the risk for overall or early hepatocellular carcinoma (HCC) recurrence was found between patients who received direct-acting antiviral

(DAA) therapies for hepatitis C virus (HCV) infection and those who did not, according to results of a study published online on January 17, 2019 ahead of print publication in *Gastroenterology*. This study addresses concerns of a previous study, which suggested that patients with HCV-related HCC who are treated with DAA therapies are at higher risk for recurrence.

From January 2013 through December 2017, Dr Amit G. Singal and colleagues conducted a multicenter, retrospective cohort study of 793 patients with HCV-associated HCC who experienced a complete response to resection, local ablation, radiation therapy, or transarterial chemoembolization or radioembolization. Patients were located across 31 health systems throughout the United States and Canada. The authors examined the association between DAA therapy (analyzed as a time-varying exposure) and time to recurrence after a complete response using Cox regression. Additionally, they estimated the association between DAA therapy and risk of early HCC recurrence, defined as 365 days after complete response.

Overall, 304 patients (38.3%) with HCV-associated HCC received DAA therapy. One hundred twenty-eight patients (42.1%) experienced HCC recurrence, with 52 patients experiencing early recurrence. Of the 489 patients (61.7%) who did not receive treatment, HCC recurred in 288 (58.9%), with early recurrence in 227 patients. After variable adjustment, DAA therapy was not associated with HCC recurrence (hazard ratio [HR], 0.90) or early HCC recurrence (HR, 0.96). Most recurrences among both treated and untreated patients were within the Milan criteria (74.2% vs 78.8%;  $P = .23$ ). Compared with untreated patients, a higher proportion of DAA-treated patients received potentially curative HCC therapy for recurrent HCC (24.6% vs 32.0%) and achieved a complete or partial response (41.0% vs 45.3%). However, neither group achieved statistical significance.

### In Brief

**Alcohol-associated liver disease (ALD) is the leading indication for liver transplant in the United States, overtaking HCV infection. Of nearly 33,000 liver transplant patients since 2002 who were studied, 36.7% had ALD in 2016 vs 24.2% in 2002. Medication capable of treating HCV infection accounts for some of the shift. *JAMA Intern Med.* 2019 January 22. Epub ahead of print. doi:10.1001/jamainternmed.2018.6536.**