SUGAR AND LIVER:

STUDY 1:

Schwimmer JB, Ugalde-Nicalo P, Welsh JA, et al. Effect of a Low Free Sugar Diet vs Usual Diet on Nonalcoholic Fatty Liver Disease in Adolescent Boys: A Randomized Clinical Trial. JAMA. 2019;321(3):256–265. doi: 10.1001/jama.2018.20579

The study concluded Adolescent boys with NAFLD, 8 weeks of provision of a diet low in free sugar content compared with usual diet resulted in significant improvement in hepatic steatosis. This is an open-label, 8-week randomized clinical trial of adolescent boys aged 11 to 16 years with histologically diagnosed NAFLD and evidence of active disease (hepatic steatosis >10% and alanine aminotransferase level ≥45 U/L) randomized 1:1 to an intervention diet group or usual diet group. The intervention diet consisted of individualized menu planning and provision of study meals for the entire household to restrict free sugar intake to less than 3% of daily calories for 8 weeks.

The mean decrease in hepatic steatosis from baseline to week 8 was significantly greater for the intervention diet group (25% to 17%) vs the usual diet group (21% to 20%). The geometric mean decrease in alanine aminotransferase level from baseline to 8 weeks was significantly greater for the intervention diet group (103 U/L to 61 U/L) vs the usual diet group (82 U/L to 75 U/L) and the adjusted ratio of the geometric means at week 8 was 0.65 U/L (95% CI, 0.53 to 0.81 U/L; $P < .001$).

STUDY 2:

Schwarz JM, Noworolski SM, Erkin-Cakmak A, et al. Effects of Dietary Fructose Restriction on Liver Fat, De Novo Lipogenesis, and Insulin Kinetics in Children With Obesity. Gastroenterology. 2017;153 (3):743-752. (doi: 10.1053/j.gastro.2017.05.043. Epub 2017 Jun 1.)

The effect of 9 days of isocaloric fructose restriction on de novo lipogenesis [DNL], liver fat, visceral fat (VAT), subcutaneous fat, and insulin kinetics in obese Latino and African American children with habitual high sugar consumption (fructose intake >50 g/d) in 9-18 years old; (n = 41), were studied. Starch was substituted for sugar, yielding a final fructose content of 4% of total kilocalories. Metabolic assessments were performed before and after fructose restriction. Liver fat, VAT, and subcutaneous fat were determined by magnetic resonance spectroscopy and imaging.

Compared with baseline, on day 10, liver fat decreased from a median of 7.2% (interquartile range [IQR], 2.5%-14.8%) to 3.8% (IQR, 1.7%-15.5%) ($P < .001$) and VAT, visceral fat decreased from 123 cm^3 (IQR, 85-145 cm^3) to 110 cm^3 (IQR, 84-134 cm^3) ($P < .001$). The DNL area under the curve decreased from 68% (IQR, 46%-83%) to 26% (IQR, 16%-37%) ($P < .001$). Insulin kinetics improved ($P < .001$). These changes occurred irrespective of baseline liver fat. The findings support efforts to reduce sugar consumption.

LEDIPASVIR-SOFOSBUVIR IN CHILDREN 6-12 YEARS:

STUDY 3:

Murray, K. F., Balistreri, W. F., Bansal, S. et al (2018), Safety and Efficacy of Ledipasvir–Sofosbuvir With or Without Ribavirin for Chronic Hepatitis C in Children Ages 6-11. Hepatology, 68: 2158-2166. doi:10.1002/hep.30123

It is an open-label study with 92 patients, 88

with genotype 1(maximum), 89 received treatment with ledipasvir-sofosbuvir without ribavirin for 12 weeks, 97% were perinatally-infected, and 78% were treatment naive. The median age was 9 years.(age : 6 – 12 years)

The doses of ledipasvir (45 mg) and sofosbuvir (200 mg) were half of those used in adults.

Patients were assigned to ledipasvir- sofosbuvir for 12 weeks, except for interferon-experienced cirrhotic patients with HCV genotype 1, who received ledipasvir-sofosbuvir for 24 weeks. HCV genotype 3 interferon-experienced patients with or without cirrhosis were assigned to ledipasvir-sofosbuvir plus ribavirin for 24 weeks. SVR12 was 99% (91/91).

Ledipasvir-sofosbuvir was well-tolerated; the common adverse events reported were headache ,pyrexia and abdominal pain. Consistent with observations in adolescents and adults, treatment with ledipasvir-sofosbuvir was well tolerated in children 6 to <12 years old.

ORAL ANTIBIOTICS & PEDIATRIC IBD.

STUDY 4:

Jessica Breton, Arthur Kastl, Natalie Hoffmann,et al. Efficacy of Combination Antibiotic Therapy for Refractory Pediatric Inflammatory Bowel Disease, Inflammatory Bowel Diseases, izz006, https://doi.org/10.1093/ibd/izz006

Oral combination antibiotics may improve disease course in refractory inflammatory bowel disease. Sixty-three patients with refractory UC, Crohn's colitis, and IBD-U. received a combination of 3 or 4 oral antibiotics (most commonly amoxicillin, metronidazole, and either doxycycline or ciprofloxacin) for a median (IQR) of 29 (21–58) days.

Children over the age of 7 years were prescribed triple therapy (orally prescribed) with amoxicillin 50 mg/kg divided by 3 (up to 500 mg three times a day), metronidazole 15 mg/kg divided by 3 (up to 250 mg three times a day), and doxycycline 4 mg/kg divided by 2 (up to 100 mg twice a day). Doxycycline was substituted for ciprofloxacin 20 mg/kg divided by 2 (up to 250 mg twice a day) in children 7 years and younger. Patients with a known allergy to 1 of the drugs were treated with oral gentamycin instead of the allergenic drug. Vancomycin could be added as the fourth medication (250 mg, or 125 mg in those younger than 8 years, four times a day) in those younger than 8 years) in hospitalized children. The antibiotic cocktail was typically prescribed for 3 ± 1 weeks.

Thirty-four patients (54%) were deemed corticosteroid-refractory or -dependent, with the majority (62/63) having a previous or present loss of response or primary nonresponse to anti–tumor necrosis factor alpha (anti-TNFα) therapy. Use of combination antibiotics led to a significant decrease in median Pediatric Ulcerative Colitis Activity Index (PUCAI) score (IQR) from 55 (40–65) to 10 (0–40; $P < 0.0001$) over 3 ± 1 weeks, with 25/63 (39.7%) patients achieving clinical remission(PUCAI <10 points). The clinical benefits of oral antibiotics were independent of anti-TNFα therapy optimization.

Compiled by: Dr. Yogesh Waikar