Study Aims and Results
The aim of the study was to find out if the risk of death in people with type 2 diabetes could be altered. The Swedish National Diabetes Register study included 271,174 patients with type 2 diabetes patients and matched them with 1,355,870 controls on the basis of age, sex, and county. The cohort prospective study followed the patients for a median of 5.7 years. Prospective studies follow patients from the beginning of a study until the conclusion of the study. They assessed the patients by age and according to five risk factors: elevated glycated hemoglobin level (hemoglobin A1c), cholesterol level, albuminuria (a symptom of kidney disease), smoking, and elevated blood pressure. The study evaluated certain outcomes—death, heart attack, stroke, and hospitalization for heart failure. The study used the Cox Proportional Hazards Regression Analysis to predict the risk of death. The Cox Analysis is a well-known and widely used model to predict future disease outcomes.

Conclusions
The people with diabetes in the study who had the 5 risk-factors within the target ranges had little or no excess risk of death, heart attack, or stroke compared to the general population.

Editorial Comments
Type 2 diabetes is an extrahepatic manifestation of hepatitis C (HCV). It is also a disease that can lead to an early death and it can cause severe diabetes-related outcomes if it is not well-controlled.

The strength of the current study is that it is a prospective study that followed people over time and it was a large population-based study. This is very positive news for people with type 2 diabetes. It should also encourage people to make lifestyle changes to keep their blood sugar levels within healthy ranges and work to reduce the other 5 risk factors to increase the chances for a longer and healthier life.
Article: Incidence of hepatocellular carcinoma after direct antiviral therapy for HCV in patients with cirrhosis included in surveillance programs—P. Nahom, et al.

Study Aims and Results
The study analyzed records of 1,270 chronic hepatitis C (HCV) patients with biopsy-proven compensated cirrhosis from 2006 through 2012 at 35 centers in France. The patient records were divided into three groups:

1. Patients treated with direct-acting antiviral (DAA) therapy and were cured (336 patients),
2. Patients were treated with interferon-based therapy and were cured (495 patients), and
3. Patients never received DAA therapy and who never had a cure following interferon treatment (439 patients).

The study participants were included in a liver cancer surveillance program with ultrasound exams every six months, and their clinical and biological data were collected.

The patient characteristics in the DAA group were older, had higher proportions of diabetes or portal hypertension (high blood pressure in the liver), and severely impaired liver function. These health markers are predictive of more severe liver disease progression that may lead to liver cancer.

The 3-year incidence of liver cancer was 5.9% in the DAA group, 3.1% in the interferon-cured group and 12.7% in the non-cure group. Importantly, the DAA group had the least amount of liver cancer screening compared to the other two groups.

Conclusions
The authors’ concluded that the slightly higher rates of liver cancer in the DAA group can be explained by the patient characteristics (older age, a higher proportion of diabetes or portal hypertension, and severely impaired liver function) and the lower cancer screening rate.

Editorial Comments
The findings in this study (treatment with DAAs in people with more severe disease) with outcomes of more liver cancer makes sense. However, more studies are needed that have similar patient populations are to confirm these findings.

“The authors’ concluded that the slightly higher rates of liver cancer in the DAA group can be explained by the patient characteristics ...”
Article: Safety and efficacy of ledipasvir sofosbuvir with or without ribavirin for chronic hepatitis C in children ages 6-11—K. F. Murry, et. al.  
Source: Hepatology, https://doi.org/10.1002/hep.30123

Study Aims and Results
Currently, there are no direct-acting antiviral (DAA) drugs approved by the Food and Drug Administration (FDA) to treat chronic hepatitis C (HCV) in children under the age of 12 years old. The aim of the study was to test the safety and effectiveness of ledipasvir plus sofosbuvir (Harvoni) with and without ribavirin to treat children aged 6 to 11 years old. The dose of the drugs was based on intensive sampling of the pharmacokinetics—that is the children’s blood was tested before treatment to identify the dose of the drugs that would be safe and effective to treat the children. The treatment period was 12 or 24 weeks based on the genotype and cirrhosis status. There were 92 children enrolled in the study. The genotype distribution included genotype 1 (88 children), genotype 3 (2 children), and genotype 4 (2 children). Two (2) children had cirrhosis, and 78% of the children were treatment naïve. The overall cure rate was 99% (91 of 92 children). The most common side effects were headache and fever.

Conclusions
The authors’ reported that Harvoni was safe and effective in children and that side effects were similar to side effects seen in adolescents and adults treated with Harvoni.

Editorial Comments
The opioid epidemic continues to ravage our country. It affects men and women equally, and we continue to see a rise in pregnant women with HCV and children born with HCV. We need more clinical trials to treat the children with HCV, and hopefully without ribavirin. We also need clinical trials to find out if DAA treatment of pregnant women with HCV is safe and effective.

Note: Questions arise about HCV transmission from biting and spitting in situations that might involve children and in other situations. On the next page I have included an analysis of these possible transmissions of hepatitis B (HBV) and HCV and children worldwide.
Commentary: A review of risk of hepatitis B and C transmission through biting or spitting—H. Pintilie, et. al.


Summary:
The possibility of transmission of hepatitis B (HBV) and hepatitis C (HCV) from biting or spitting is a frequent question. The authors analyzed 245 scientific papers on transmission by biting and spitting but reduced them down to 9 relevant studies. The relevant papers included 16 possible transmission cases of HBV (15 bites, 1 spitting), and 2 possible cases of HCV transmission by a bite.
The authors’ concluded that only 3 plausible transmissions of HBV by bites and 1 by spitting occurred. Only 2 plausible transmissions of HCV occurred by biting. The authors’ commented that even though there are low levels of both viruses in saliva, it is unlikely that HBV or HCV can be transmitted by saliva. The question about biting and spitting comes up frequently. Hopefully, this study will help to alleviate some of the fears and concerns.

Hepatitis C virus infection in children in the era of direct-acting antivirals—M. Pawlowska, et. al.

Summary:
There are approximately 11 million children worldwide infected with HCV. In the United States, it is estimated that 23,000 to 46,000 are living with chronic hepatitis C. The most common transmission of HCV in the United States and worldwide is transmission from mother-to-child infection. Other causes of new infections include transmission of HCV in children with a history of multiple sexual partners, injection drug use among children, and children who are victims of sexual assault.

Non-invasive liver tests are the preferred diagnostic tool to identify children with HCV disease progression and who will require immediate treatment. Direct-acting antiviral medications offer the hope of curing all children (and adults) of HCV but that is only if we make the price of the drugs affordable to everyone with hepatitis C.

This article is an open-access article – free of charge.

Alan Franciscus is the Executive Director and the Editor-in-Chief of the HCV Advocate Website.
Note: This is a new series of articles for people who are newly diagnosed with hepatitis C (HCV or Hep C) or for people who want more basic information. The first in a series is an overview of hepatitis C. Subsequent articles will include topic-specific areas such as transmission/prevention, diagnosing Hep C, etc.

Overview

The hepatitis C virus is a blood-borne virus previously referred to as non-A/non-B hepatitis.

Genotype: Hepatitis C has eight genotypes numbered 1–8. Genotypes are the same Hep C virus but have enough genetic variance in their viral make-up to be classified into different types called genotypes.

Genotype 1 is most common in the U.S. followed by genotype 3, but genotypes 1 through 7 are all found in the United States population. Genotype 8 has only been identified (so far) in Africa and Canada.

Transmission: The hepatitis C virus is transmitted by blood-to-blood contact. HCV enters the body through blood exposure. The virus attacks cells in the liver, where it multiplies (replicates). HCV is also a disease that affects the entire body producing symptoms, conditions and diseases called extrahepatic manifestations (outside of the liver).

Acute Infection: The first stage of HCV infection is called acute infection—this is the first six months of infection.

Chronic Infection: The second stage of infection is called chronic infection. Up to 75% of people initially infected with hepatitis C may become chronically infected—that is, the infection does not clear up within a six-month period.

Symptoms & Disease Progression: The most common symptoms of hepatitis C include fatigue, depression, and muscle and joint pain. Many people infected with hepatitis C have no symptoms. HCV disease progression may take years. Over time, HCV infection can lead to serious liver damage including severe fibrosis (light to moderate), cirrhosis (extensive scarring), liver cancer, end-stage liver failure and possibly death or the need
for a liver transplant. Today, hepatitis C is the leading reason for liver transplantation in the United States. At this time, there are no tests used upon initial diagnosis that will predict which patients will become seriously ill. For this reason, everyone with hepatitis C should be evaluated by a medical provider and seek HCV treatment as soon as possible.

Hepatitis C Facts

- The hepatitis C virus is unique since it can be cured. HCV treatment has high cure rates (up to 100%), short treatment periods (8 to 12 weeks) and minimal side effects. Treatment may also help slow, stop or even reverse liver disease progression.

- Vaccination against hepatitis A & B is recommended for people with HCV who are not already immune.

- More than 19,000 Americans die annually of complications related to HCV infection.

- A healthy diet and exercise to decrease the risk of fatty liver and improve overall health provides benefits for people with HCV.

- It’s best if individuals with HCV stop or greatly cut down on drinking alcohol and using recreational drugs.

- The Centers for Disease Control and Prevention (CDC) estimates that more than 4 million Americans have hepatitis C, but many researchers believe the true number may be higher.

- There is currently no vaccine to prevent hepatitis C infection.

- For this reason, everyone with hepatitis C should be evaluated by a medical provider and seek HCV treatment as soon as possible.

Hepatitis C 101 - Overview

- Treatment:
  - HCV treatment can cure up to 100% of people treated.
  - HCV treatment has high cure rates (up to 100%), short treatment periods (8 to 12 weeks) and minimal side effects. Treatment may also help slow, stop or even reverse liver disease progression.

- Prevention:
  - Vaccination against hepatitis A & B is recommended for people with HCV who are not already immune.
  - A healthy diet and exercise to decrease the risk of fatty liver and improve overall health provides benefits for people with HCV.
  - It’s best if individuals with HCV stop or greatly cut down on drinking alcohol and using recreational drugs.

- The Centers for Disease Control and Prevention (CDC) estimates that more than 4 million Americans have hepatitis C, but many researchers believe the true number may be higher.

- There is currently no vaccine to prevent hepatitis C infection.
Last month, I wrote about hepatitis C and sugar. Someone asked me if this month I’d discuss artificial sweeteners. Since there isn’t as much research on the impact of artificial sweeteners and the liver, I wasn’t sure I could fill an entire column. However, I’ve been accumulating bits of health news that I have wanted to share, so this month will be a buffet of health information. Hopefully, everyone will find something of interest. However, in this case, you may leave the buffet with a list of foods you don’t want to pile on your plate.

Good Riddance to Trans Fatty Acids
A long time ago, scientists discovered that if you add hydrogen to vegetable oil, the liquid will solidify at room temperature. These fats are called partially hydrogenated and oils (PHOs) or trans fats, and up until recently, they were used in a lot of foods.

Unfortunately, trans fat raises LDL cholesterol in the blood and lowers HDL cholesterol which increases risk of developing heart disease and stroke. Removing PHOs from processed foods could prevent thousands of heart attacks and deaths each year.

After 107 years, the FDA banned PHOs from all foods. As of June 18, 2018, technically manufacturers cannot add PHOs to foods. **One caveat:** The FDA extended the compliance date for some manufactured food to January 1, 2020, and in certain cases January 1, 2021. Although it has been determined that PHOs in food isn’t safe, the FDA is yielding to manufacturers’ concerns.

Now before you jump in to a vat of saturated fat, be sure to read the next buffet item.

Saturated Fat is No Friend to the Liver
The title of this small European study says it all: Saturated Fat Is More Metabolically Harmful for the Human Liver Than Unsaturated Fat or Simple Sugars by Panu K. Luukkonen, et al. (Diabetes Care August 2018; 41(8): 1732-1739).

In this study, 38 overweight subjects ate an additional 1000 calories a day for 3 weeks. One group’s calories came from saturated fat, another’s from unsaturated fat, and the third group’s extra calories came from simple sugars. The saturated fat group had the highest increase in liver fat (55%). The simple sugar group had the next highest increase (33%). The unsaturated fat group had the lowest rise (15%). The saturated fat group was the most insulin resistant.

Although this is a small study, the results are compelling. If you need more evidence, see Avoiding Fatty Liver Disease in the July 2018 HCV Advocate. **The bottom line:** Avoid saturated fat and sugar. But, should you switch to artificial sweeteners? Read on.

--- CONTINUED ON PAGE 8 ---
Artificial Sweeteners: Friend or Foe?
Two plant-based sweeteners are used commercially: stevia and monk fruit. The Food and Drug Administration (FDA) has not questioned their safety, so they are considered “generally recognized as safe” (GRAS).

Sugar alcohols are another safe choice. Although they aren’t necessarily calorie-free, they tend to be safe. Erythritol is found naturally in foods. It’s a carbohydrate that tastes sweet, but isn’t recognized by the digestive system as either sugar or alcohol. It’s a particularly good choice for diabetics because it doesn’t spike blood sugar. However, some people feel bloated or gassy from erythritol.

Oligosaccharides, also found naturally in food, are labeled as a fiber. They are also prebiotics. Much like erythritol, bloating and gas can be an issue.

There are other sugar alcohols (sorbitol, mannitol, xylitol, isomalt, and hydrogenated starch hydrolysates), but these are not necessarily good choices for diabetics. These products can also have a laxative effect.

There are six FDA-approved artificial sweeteners that can be used as food additives: saccharin, aspartame, acesulfame potassium (Ace-K), sucralose, neotame, and advantame. Over the years, safety concerns have been raised, but nothing blatant enough to cause these artificial sweeteners to lose FDA-approval.

Aspartame has been the most rigorously tested. We know that rats who are fed aspartame have a higher rate of cancer than rats who weren’t fed aspartame. However, two large studies did not find an increase cancer rate in humans who ate aspartame.

However, although artificial sweeteners may not be harmful, they aren’t necessarily healthy. For many years, the American Heart Association (AHA) and the American Diabetes Association have strongly advised that we reduce our use of artificial sweeteners. In their strongest statement yet, the AHA recently advised against the prolonged use of low-calorie sweeteners by children. (Low-Calorie Sweetened Beverages and Cardiometabolic Health: A Science Advisory From the American Heart Association by Rachel K. Johnson, et al. Circulation, July 30, 2018). AHA recommends that children drink water (plain, carbonated, and unsweetened flavored).

It’s common knowledge that soda consumption is associated with kidney damage. Between the sugar, caramel coloring and other additives, soda drinkers are risking their kidneys, which is a grim thought. Men who drank at least one diet soda a day had a higher risk of multiple myeloma and non-Hodgkin lymphoma.

Water is the way to go. Besides, if water is good enough for children, it’s good enough for adults. The question is, how much water do we need?

Water, a True Elixir
Have you been feeling a bit off your game lately? Is your brain not working at its best? Perhaps you aren’t getting enough fluids, or at least that’s what two researchers found when they looked at the effects of dehydration on cognitive ability. (Dehydration Impairs Cognitive Performance: A Meta-analysis by Wittbrodt and Millard-Stafford, Medicine & Science in Sports & Exercise July 10, 2018). Wittbrodt and Millard-Stafford found that even mild dehydration is associated with mood changes and impaired cognition. If your summer temperatures are as hot as mine are, you may be at risk for the effects of insufficient hydration. I recommend listening to or reading this health news as reported by National Public Radio.
Health Wise  A Buffet of Health Information — CONTINUED FROM PAGE 8

How much water do you need? My favorite assessment system is the urine feedback method. If you are drinking enough liquids, your urine will be colorless or straw-colored. You can compare the color of your urine to the shades on this chart provided by the U.S. Army Public Health Command.

And yes, coffee and tea aid in hydration. In case you didn’t hear the news, coffee is good for the liver.

What About Coconut Water?
Science hasn’t answered this definitively. Here’s what we know:

- Coconut water and coconut milk are two entirely different products. Coconut milk is loaded with saturated fat and calories; coconut water is not.
- If you are drinking coconut water because you believe in the potential health benefits of coconut, keep in mind that there isn’t much coconut in coconut water. However, it does have sodium and potassium, which means coconut water may help to replenish lost electrolytes after you have worked up a sweat.
- The jury is still out on coconut products. Coconut oil is mostly saturated fat, but some small studies point to some potential benefits. Use it sparingly until we have solid research. Remember even olive oil isn’t something one should drink by the glass.

Bringing this back to the liver, keep in mind that the liver doesn’t like excess calories. Healthy foods can become unhealthy if eaten to excess, including coconut oil. If you want to drink a soda occasionally, keep it to one and be sure the occasions are infrequent. Choose healthy options most of the time and your body will be better off.

Is Apple Cider Vinegar a Magic Bullet?

Avoid fads and unproven speculation. How do you know what to eat? I like Michael Pollan’s food rules. They are simple: “Eat food (which means eat real, unprocessed, whole food). Not too much. Mostly plants.”

Want something a little more specific? Consider a Mediterranean diet. The health benefits are well researched. A recent study of evaluating health outcomes and diet of people with cirrhosis found that a diet rich in fermented milk, vegetables, cereals, coffee, and tea is associated with a higher microbial diversity and a lower risk of 90 day hospitalizations (Diet affects gut microbiota and modulates hospitalization risk differentially in an international cirrhosis cohort by Jasmohan S. Bajaj, et al. Hepatology July 2018, Volume 68).

Whatever you eat, choose carefully from the health buffet.

Bon appétit.

Lucinda Porter, RN, is a long-time contributor to the HCV Advocate and author of “Free from Hepatitis C” and “Hepatitis C One Step at a Time.” She blogs at www.LucindaPorterRN.com and HepMag.com
Vanderbilt Transplant Center Opens the Door to Using Hearts from Hepatitis C Donors

The practice of transplanting kidneys from donors exposed to hepatitis C in to hepatitis C-negative recipients is well underway. So the obvious next question is, “Can we transplant other hepatitis C-exposed organs and tissue in the same way?”

In a recent press release, doctors at the Vanderbilt Transplant Center reported on successful heart transplantation using donated hearts that were exposed to hepatitis C. In the past, these organs would not have been used. Rather than die, heart transplant recipients are receiving organs that were exposed to hepatitis C, and then treated using direct-acting antivirals. These new treatments are both safe and well tolerated, with excellent cure rates even in immunosuppressed patients.

Since fall 2016, Vanderbilt has transplanted more than 44 patients with hearts from hepatitis C-exposed donors, representing the largest experience of any transplant center to date.
WHAT’S UP!

We have updated the following HCV Advocate Fact Sheets:

1. Nutrition and Hepatitis C
2. Alcohol and HCV
3. Being a Positive Mother
4. Overview of Women and HCV
5. A Guide to HIV and HCV Coinfection

Watch Our Video!

Click here to listen to a real patient talk about her journey from diagnosis to treatment to cure.

Don’t forget to check out the PackHealth – a free resource to help patients navigate their HCV treatment journey from applying for treatment to cure!

Do you have hepatitis C? Get support. Get answers.

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