The Oregon Clinic
Hepatitis C
Education Class

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What is the Liver?

- Weighs about 3 lbs
- Largest organ in the body
- Roughly the size of a football
- Soft and smooth
The Liver is a Factory

- Makes proteins
- Filters wastes and toxins
- Stores sugars and vitamins
- Produces clotting factors, blood proteins, bile, thousands of enzymes
- Metabolizes cholesterol
- Maintains normal blood sugar
What is Hepatitis?

- "Hepatitis" means inflammation of the liver
- Can be caused by:
  - Alcohol
  - Genetic diseases
  - Medications (including over-the-counter)
  - Hepatitis viruses (A,B,C,D,E)
Hepatitis A

- Spread through contaminated food and water
- Vaccine available to prevent hepatitis A
Hepatitis B

- Spread through blood-blood contact
- Also transmitted through sex
- Vaccine available to prevent hepatitis B
Hepatitis C

- Identified in 1989
- Blood test became available in 1992
- Used to be known as “non-A, non-B” hepatitis
- Spread through blood-to-blood contact
- No vaccine available to prevent hepatitis C
Hepatitis C

- About 3 million Americans infected
- About 170 million infected worldwide
- Many do not experience symptoms
How Will You Know if You Have Hepatitis C?

- Many people have no symptoms of the virus.
- The only way to know if you have Hepatitis C is to have a blood test.

If you do have symptoms:
- Fatigue
- Discomfort in the liver area
- Loss of appetite
- Aching joints
- Trouble sleeping
- Depression
How is Hepatitis C Diagnosed?

- Blood testing
  1. Hepatitis C antibody test
  2. Hepatitis C PCR test to find virus in blood
- Liver function tests
What Are Liver Enzymes?

- Chemicals that your liver uses to do its work
- Healthy liver:
  - the level of enzymes in your blood is normal
- Unhealthy liver:
  - the level of enzymes can be higher than normal
How Do People Become Infected With Hepatitis C?

High Risk:

- Blood products
  - Blood transfusions before 1992
  - Other blood products before 1987
  - Current transfusions no longer a major risk factor
- Injection (IV) drug use – 60% of all new infections
How Do People Become Infected With Hepatitis C?

Lower Risk:

- Snorting cocaine or other drugs
- Occupational exposure
- Body piercing & acupuncture with unsterilized needle
- Tattooing
How Do People Become Infected With Hepatitis C?

Lower Risk:

- Non-sexual household contact (rare)
  - Sharing razors or toothbrushes

- Pregnant Mother to child
  - Never reported transmitted by breastfeeding
How Do People Become Infected With Hepatitis C?

- Sexual transmission
  - Low risk in monogamous relationship
  - You do not necessarily need to change your sex habits
  - If you have more than one sex partner, use latex condoms
Hepatitis C is NOT Spread By:

- Sneezing
- Coughing
- Food or water
- Sharing drinking glasses or eating utensils
- Handshakes
- Holding hands
- Hugging
- Kissing on the cheek
- Playing with children
- Donating blood
How does Hepatitis C make my liver sick?

- Hepatitis C Infects only liver cells

- Hepatitis C NEEDs your liver cells to survive

  - Hepatitis C virus attaches itself to a liver cell, then enters the cell.
  - The virus takes over the liver cell equipment to manufacture more of itself.
  - Then new virus exits the cell and attaches to other liver cells to do the same thing all over again.
Immune system attack on Hepatitis C

- Normally your immune system protects you by attacking foreign invaders.
- Hepatitis C mutates to avoid the immune system.
- The immune system increases blood flow to the liver:
  - in order to bring more white blood cells to the area.
  - This causes inflammation in the liver and ultimately damage or scar.
What Happens to People With Hepatitis C Virus?

- 100 Infected With Hepatitis C
- 85 Chronic Disease
  - 17 Cirrhosis
  - 2 Liver Cancer
- 15 No Chronic Disease
Why Should You Be Concerned About Hepatitis C?

- Hepatitis C causes serious problems in some patients
  - Fibrosis
  - Cirrhosis
  - Advanced liver disease
  - Hepatocellular carcinoma (liver cancer)
Fibrosis

- The beginning of scarring
- Caused by infection, inflammation, or injury
- Can prevent the liver from working well
- Can lead to permanent scarring (cirrhosis)
Cirrhosis

- Pronounced “sir-o-sis”
- Means “scarring of the liver”
- At risk for liver failure and liver cancer
- Requires close medical follow-up

Healthy Liver

Liver with Cirrhosis
How Will You Know if You Have Problems from Hepatitis C?

- Blood tests
  - Can be normal even with liver damage

- Liver biopsy
  - Only way to determine the amount of scarring
  - Small risk of complications and very few side effects
  - Should be free of alcohol and street drugs
How will I know if I have liver damage, fibrosis or cirrhosis?

- Liver biopsy

- Sometimes we know there is damage or scar or cirrhosis because of certain blood tests
  - Albumin <3.0
  - Platelets <75,000
  - Prolonged clotting time Prot time, PTT, INR
  - Ascites (fluid on the belly)
  - Esophageal varices—varicose veins of the esophagus
Liver Biopsy

- Done at the hospital
- Performed by interventional radiologist
- Sample taken by needle
Liver biopsy results or score

- **Grade score** – Amount of inflammation
  - Grade 0-2 no inflammation (can lead to scarring)
  - Grade 3-4 lots of inflammation

- **Stage score** – Amount of scarring
  - Usually takes about 10 years for each level/stage of scar
  - Stage 0-2 No scar
  - Stage 3—fibrosis or early scarring. It’s possible to be reversed or repaired
  - Stage 4—Cirrhosis or permanent scar
Liver biopsy scores

- If your exposure was 30 or 40 years ago
  - your liver biopsy shows no scar – stage 0-2,
  - it is unlikely in your lifetime that your liver will ever become scarred.
  - We may recommend that you never need treatment for hepatitis C.
Liver biopsy scores

- If your liver biopsy shows stage 3 or 4 fibrosis or cirrhosis,
  - we will probably recommend you undergo hepatitis C treatment.
  - The goal will be to stop damage or scarring or slow the scarring.
What About Alcohol?

Drinker Without Hepatitis C

Drinker With Hepatitis C

Hepatitis C Non-Drinker

Chance Of Getting Cirrhosis

- Non-Drinker
- Hepatitis C Non-Drinker
- Drinker Without Hepatitis C
- Drinker With Hepatitis C
What's a Standard Drink?

A standard drink in the United States is any drink that contains about 14 grams of pure alcohol (about 0.6 fluid ounces or 1.2 tablespoons). Below are U.S. standard drink equivalents. These are approximate, since different brands and types of beverages vary in their actual alcohol content.

| 12 oz. of beer or cooler | 8–9 oz. of malt liquor | 5 oz. of table wine | 3–4 oz. of fortified wine (such as sherry or port) | 2–3 oz. of cordial, liqueur, or aperitif | 1.5 oz. of brandy (a single jigger) | 1.5 oz. of spirits (a single jigger of 80-proof gin, vodka, whiskey, etc.)
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Many people don’t know what counts as a standard drink and so they don’t realize how many standard drinks are in the containers in which these drinks are often sold. Some examples:

- For beer, the approximate number of standard drinks in
  - 12 oz. = 1
  - 16 oz. = 1.3
  - 22 oz. = 2
  - 40 oz. = 3.3

- For malt liquor, the approximate number of standard drinks in
  - 12 oz. = 1.5
  - 16 oz. = 2
  - 22 oz. = 2.5
  - 40 oz. = 4.5

- For table wine, the approximate number of standard drinks in
  - A standard 750-ml (25-oz.) bottle = 5

- For 80-proof spirits, or “hard liquor,” the approximate number of standard drinks in
  - A mixed drink = 1 or more*
  - A pint (16 oz.) = 11
  - A fifth (25 oz.) = 17
  - 1.75 L (59 oz.) = 39

*Note: It can be difficult to estimate the number of standard drinks in a single mixed drink made with hard liquor. Depending on factors such as the type of spirit and the recipe, a mixed drink can contain from one to...
How many times in the past year have you had . .

• **5 or more** drinks in a day? (*for men*)

• **4 or more** drinks in a day? (*for women*)

• One standard drink is equivalent to 12 ounces of beer, 5 ounces of wine, or 1.5 ounces of 80-proof spirits —
How much is too much alcohol?

**Men**
- Safe up to 2 per day
- No more than 4 per day
- No more than 14 per week

**Women**
- Safe up to 1 per day
- No more than 3 per day
- No more than 7 per week
Other reasons to avoid Alcohol

- Can lead to fatty liver
- In lab studies, alcohol stimulated the growth of Hepatitis C virus
- Alcohol consumption will keep you off a transplant list if you need one.
- Some lab studies show that Alcohol reduces or interferes with the actions interferon.
Advanced Liver Disease

- Fatigue
- Difficulty thinking clearly or concentrating
- Yellow jaundice
- Swelling
- Fluid in the abdomen
- Gastrointestinal bleeding
- Poor blood clotting
Hepatocellular Carcinoma

- Most common type of liver cancer
- Chronic hepatitis C increases the risk
- Treated with surgery, medications or liver transplant
Liver Transplant

- May be needed for patients who develop liver failure or liver cancer
- About 50% of all U.S. liver transplants result from liver damage caused by hepatitis C
- Most patients with hepatitis C will never need a liver transplant
With Hepatitis C, You Should:

- **Avoid all alcohol**
  - If there is liver damage
- Be careful with all medications, including over the counter and herbal medications
- Tell all health care providers that you have hepatitis C
What Medications to Avoid?

- Acetaminophen (Tylenol® and others): no more than six extra strength (500mg) or 8 (325) regular strength per day
- Ibuprofen and other anti-inflammatory medications (Motrin®, Advil®, Aleve®, and others)
  - Hepatitis C patients without cirrhosis may take the recommended dose on bottle
  - Hepatitis C patients with cirrhosis should NOT take any
What About Vitamins and Herbs?

- Iron supplements not recommended
  - They may increase the rate of liver scarring

- Milk thistle is safe, BUT not shown to improve liver disease

- Talk with your medical care provider before starting any new medication or supplement
Treatment of Chronic Hepatitis C
Goals of Treatment

- Clear all the hepatitis C virus from the body
  ("sustained response")
- Slow or stop damage to the liver
- Help decrease symptoms
What Treatment is Available?

- Pegylated interferon
  - Long-acting, taken once a week
- Ribavirin is a pill taken twice daily
What is Your Hepatitis C Genotype?

6 different genotypes of hepatitis C

- Like different breeds of dog
- Genotype 1:
  - Most common in U.S.
- Genotypes 2 & 3:
  - Less common
What is PCR or viral load?

- Number of viruses present
- Can go up and down
- It can be 100,000 or 9 million

It is **NOT** a measure of how bad things are or how much damage has been caused.
Does Treatment Work?

- Genotype 1,4—50% chance of sustained response or cure 1 year after completion of treatment

- Genotype 2-3—80-90% chance of sustained response or cure 1 year after completion of treatment
How long do I need to take medication?

- Genotype 1 and 4—48 weeks (1 year)
- Genotype 2 and 3—24 weeks (6 months)
Blood testing

- 2 weeks after starting therapy -- CBC
- every 4 weeks or more often as needed
How will I know if my medication is working

- Decrease in viral load (PCR)
- Measured at 4 weeks
  - < 25 or negative is rapid response.
  - Increases chance of cure or sustained viral response to 90%
- Usually takes about 5 days for result
- Many insurances will look at the 12 week result to decide if they will continue to pay for treatment
Side Effects of Interferon & Ribavirin

Common Side Effects:

- Flu-like symptoms
  - Headache
  - Fatigue
  - Muscle & joint aches
  - Fever, chills

- Psychiatric symptoms
  - Depression
  - Difficulty sleeping
  - Difficulty concentrating
  - Irritability
Side Effects of Interferon & Ribavirin

Less Common Side Effects:

- May occur from the beginning:
  - Upset stomach, diarrhea
  - Decreased blood counts
  - Skin irritation from shots

- May occur later in treatment:
  - Hair loss
  - Weight loss
  - Thyroid problems
Can I use marijuana while I am on hepatitis C treatment?

- No
- It may worsen fibrosis or damage
- It may interfere with the hepatitis treatment from working.
Decreased blood counts

- **Anemia**—
  - Hgb &/or Hct < 10/30
- **Red blood cells carry oxygen**
- **Procrit—erythropoetin**
  - Assists bone marrow to produce red blood cells
  - Injection
  - Taken once or twice weekly
  - Expensive
  - May cause bone pain
- **Blood transfusion**

- **Neutropenia**
  - Absolute neutrophils < 0.5
- **White cells fight infection**—
  - But no reported hospitalizations
- **Neupogen**
  - Assists the bone marrow to produce white blood cells
  - Injection
  - Taken once or twice weekly
  - Expensive
  - May experience bone pain
Thrombocytopenia

- Low platelets < 25,000
- Blood clotting factor
- Usually in cirrhosis
- No treatment at this time to assist rebuilding
- IFN and ribavirin must be stopped and cannot be restarted.
- More likely if Plts are < 100,000 at the time of starting treatment.
Disadvantages of Treatment

- Side effects
- Other medical conditions can be made worse
- Patients with severe mental health problems cannot be safely treated
- Ribavirin can cause severe birth defects if either parent is taking the medication
  - Two forms of reliable birth control required
Plan & Commit to Your Therapy

- Treatment can disrupt your life !!!!
  - Some patients have to stop working or makes changes in their work schedule or hours
  - Have a financial plan and a social support network in place
  - Consider putting off major life events during treatment
How Can You Prevent the Spread of Hepatitis C?

- Cover open wounds
- Tell people not to touch your blood
- Clean blood spills yourself or inform others to use latex gloves
- Dispose of needles/materials properly
- Do not inject drugs
How Can You Prevent the Spread of Hepatitis C?

- Avoid sharing contaminated articles
  - Razors, toothbrushes, or other personal care items
- Inform healthcare professionals/others
- Do not donate blood, body organs, tissues or semen
- Practice safe sex
When do I know if I am cured?

- One year after finishing treatment

- Qualitative viral load or PCR should be measured and be negative at 6 mos and 1 year after finishing treatment