

**Spring 2017
Health & Wellness
Seminar Series**

Seminar 1: April 25th, 2017

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Breakthroughs in Screening & Treatment of Liver Disease: *From Hepatitis C and Fatty Liver Disease to Liver Cancer*

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Liver Disease Health: *Drinks, drugs, and excess fat*

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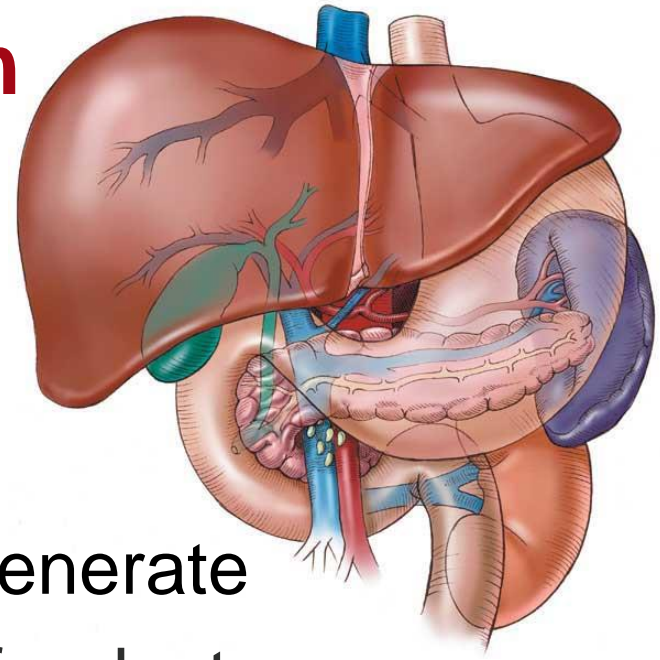


Prometheus



The Liver is Central to Digestion and Detoxification

- Largest gland in the body
- 3-4 pounds
- Two lobes
- Only internal organ that can regenerate
- The liver helps the body digest food, store energy, makes proteins, protects against foreign invaders and remove toxins



Liver Disease: A Growing Epidemic

- Liver disease is a leading cause of mortality in the US
 - More than 36,000 deaths annually – and rates are increasing
- Cancers of the liver have low survival without transplantation or surgery
 - One of few cancers increasing in frequency in US and worldwide

Common Causes of Liver Disease/Liver Failure



- Infection (hepatitis B, C)
- Alcohol abuse
- Fatty liver disease (obesity)
- Drugs (Acetaminophen, others)
- Autoimmune
- Cancer



General Liver Health

- Vaccinate for Hepatitis A and B if not immune
- All baby boomers (born 1945-1965) should have one-time testing for Hepatitis C (no vaccine)
- Keep alcohol at safe limits (1 for women, 2 for men)
- Avoid unnecessary medications and know drug interactions (liver disease most common reason drugs pulled from the market)
- Keep acetaminophen at therapeutic doses
- Eat healthy diet



Hepatitis C

- Most common blood borne disease in the US
- Causes more deaths than HIV or all other liver disease
- No or rare symptoms
- Leads to cirrhosis and liver cancer
- Leading reason for liver transplantation
- Screening for all baby boomers, anyone with blood borne exposure, other blood borne illness or transfusion before 1991
- No vaccine



Hepatitis C therapy

- Curable virus—only one that can be cured with medicine
- 1992—Interferon for 12 months with cure rate 9%
- Most people couldn't wouldn't take the medicine due to side effects
- 2017—oral therapy for 12 weeks with cure rate >95%
- Virtually all patients can take therapy major barrier cost and access
- We could eliminate this virus with better screening and universal treatment



Drugs and the Liver

- More than 900 drugs have been implicated in causing liver injury
- Drugs often cause subclinical injury to liver which manifests only as abnormal liver enzyme tests.
- DILI is responsible for 5% of all hospital admissions and 50% of all acute liver failures
- Single most common reason for FDA non-approval or post-marketing removal of drugs from the market
- Increasing reports of DILI with complementary and alternative medicines (CAM) and supplements

Drug Induced Liver Injury (DILI) is rare but common

- Almost all medications can cause DILI
- Rate is low: one in 10^4 to 10^5
- Prognosis overall good
- FDA approval only capture 2000-5000 highly selected patients
- Data from passive surveillance programs like MEDWATCH only uncover 5-10%
- Widely estimated that the risk of hepatotoxicity is Troglitazone toxicity - 1/50,000



Complementary Therapies Myths

- Herbal therapies and other natural treatments have no adverse effects
- “But doctor, they are natural”





CAM-associated Liver Toxicity

- Wt loss agents
- Lipokinetix “Fat burners”
- Germander
- Ma Huang
- Herbal preparations
- Mate tea
- Heliotropium
- Comfrey
- Chapparal leaf
- Ephedra
- Pennyroyal oil
- Mistletoe
- Chinese herbs
 - Jin Bu Huan
- Anxiolytics
 - Kava Kava

Silymarin, co-Q10, SAMe frequently used for liver “health”—probably safe

But general rule, don’t put things in your body you don’t need



Diet and the Liver

- No real “Liver Diet”
- Eat healthy—everything goes through the liver
- Mediterranean diet likely beneficial
- Most important is to maintain good weight, lipids and avoid diabetes
- Vitamins OK—hyper-vitaminosis is not (Vitamin A toxicity is to the liver)
- Once again safe alcohol limits
- Probiotics can’t hurt, not sure they help

Breakthroughs in Screening & Treatment of Liver Disease: *Fatty Liver Disease and Liver Cancer*

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Non-Alcoholic Fatty Liver Disease



Fatty Liver Disease

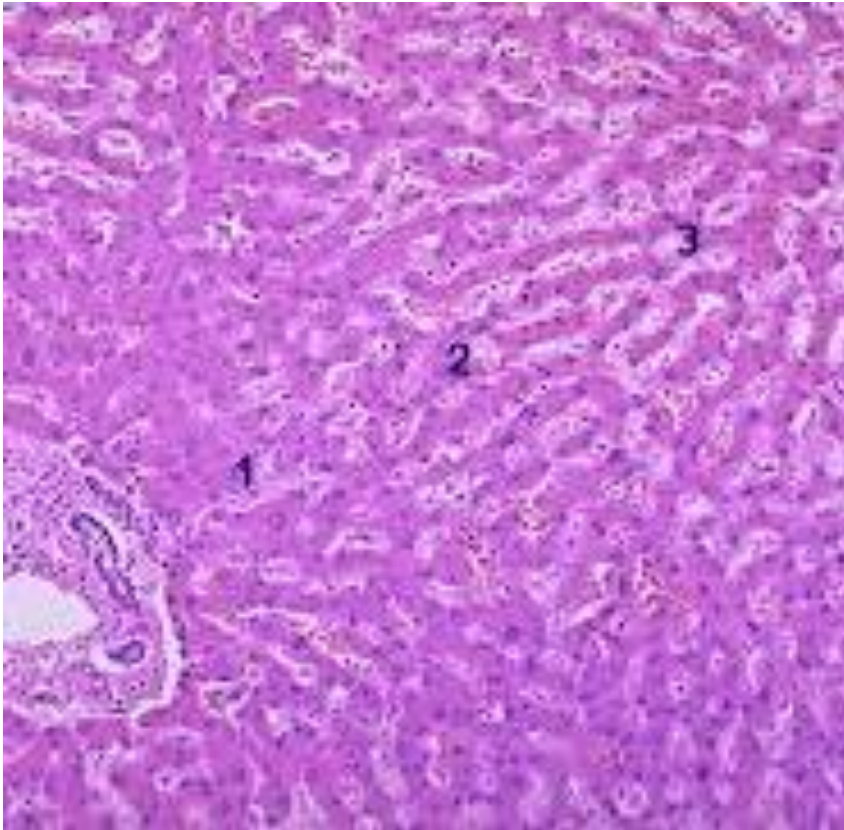
- The liver is the primary place of cholesterol and fat metabolism
- Many 'stressors' of the liver lead to fatty changes
 - Alcohol
 - Non-alcoholic fatty liver (NAFLD)

Fatty Liver Disease

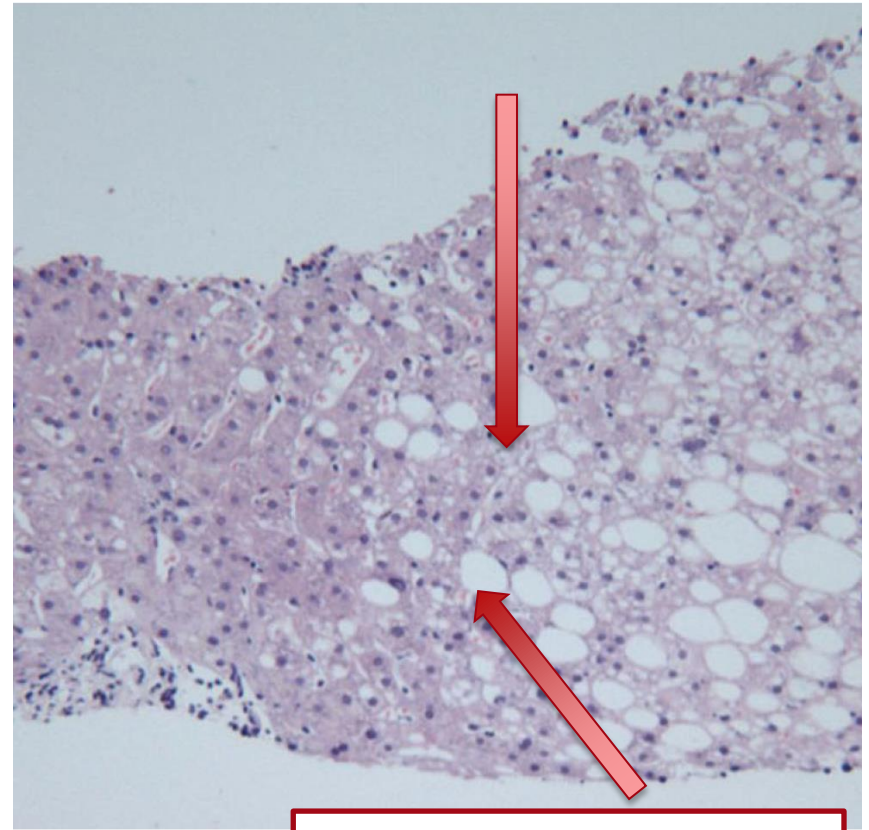
- Non-alcoholic causes
 - Overnutrition (obesity, metabolic syndrome), starvation, drugs, infections (HIV, hepatitis C), celiac disease, and genetic causes
 - Two types: benign steatosis (fat) and nonalcoholic steatohepatitis (inflammation/ NASH)
- NASH is a leading cause of cirrhosis (liver damage)

Fatty Liver Seen on Liver Biopsy

Normal



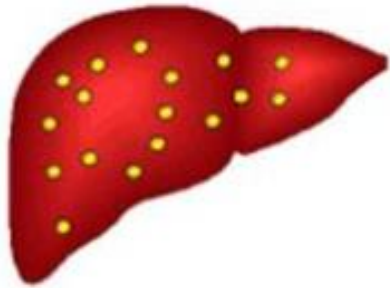
Fatty Liver



Fat= white globules

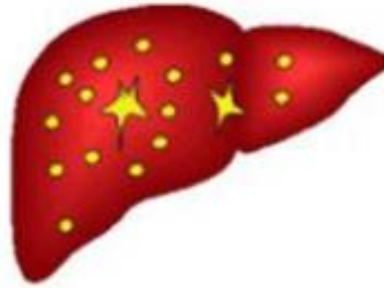
Progression of Liver Damage to Cirrhosis

Fatty Liver



Fat accumulates in the liver

NASH

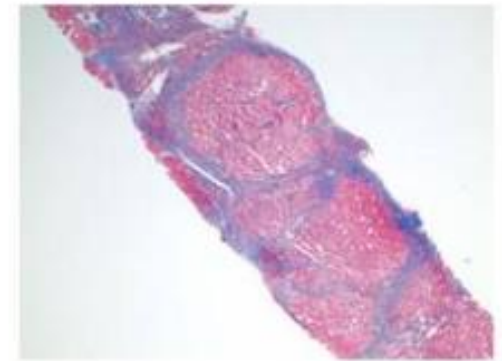
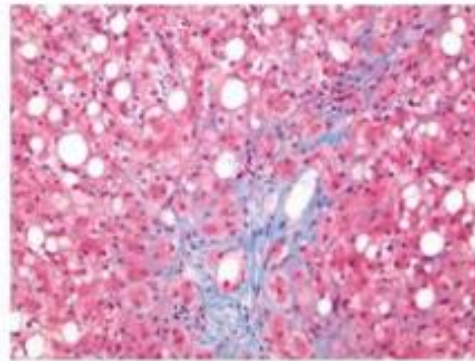
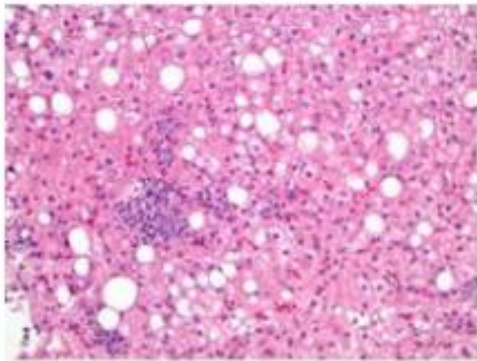


Fat plus inflammation and scarring

Cirrhosis

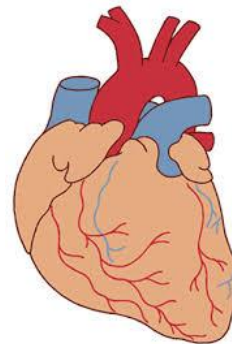


Scar tissue replaces liver cells



Fatty Liver Disease in the United States

- Present in 30% adults and 10-15% of children
- Up to 5% of adults have hepatitis related to fatty liver disease (NASH)
- Most common cause of elevated liver tests
- Versus general population
 - 1.5 times more likely to die
 - 2 times more likely to have a heart attack or stroke



Screening for Non-Alcoholic Fatty Liver Disease

- Assessment for being overweight or obese should be done at primary care visits
- Blood tests
 - Assess for inflammation of liver
 - Evaluate how liver is functioning
- Imaging
 - Look for fat in the liver or signs of cirrhosis (liver damage)



Treatment for Non-Alcoholic Liver Disease

- Weight loss and exercise
 - Loss of 2-3% of body weight can reverse fat in liver
 - Loss of 10% of body weight can reverse inflammation from fat in the liver
- Bariatric surgery
- No FDA approved treatments
- Numerous clinical trials in progress



Alcoholic Fatty Liver Disease



Effects of Alcohol in the United States

- 136 million Americans age > 18 drink alcohol
 - 17 million have alcohol abuse or dependence
- Excessive alcohol consumption
 - 3rd leading cause of preventable death
 - Kills 75,000 people per year
- Alcoholic cirrhosis: 35,000 deaths per year
 - 2nd most common indication for liver transplantation

Standard Drink in the United States

Recommended Amount from Centers for Disease Control and Prevention

Women: No more than **1 drink per day**, no more than 7 drinks per week

Men: No more than **2 drinks per day**, no more than 14 drinks per week



12 oz. Beer
5% Alcohol



8 oz. Malt
7% Alcohol



5 oz. Wine
12% Alcohol



1.5 oz. Spirits
40% Alcohol

One Glass of Wine with Meals...



Screening for Alcoholic Liver Disease

- Alcohol intake should be discussed at primary care visits
- Blood tests
 - Assess for inflammation of liver
 - Evaluate how liver is functioning
- Imaging
 - Look for fat in the liver or signs of cirrhosis (liver damage)

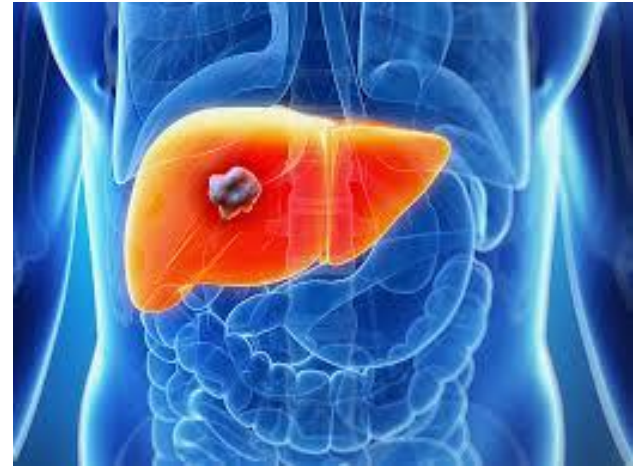


Treatment of Alcoholic Liver Disease

- Abstinence- stopping alcohol intake completely
- Engaging in an alcohol relapse prevention program
- Steroids in severe cases
 - Limited efficacy



Liver Cancer

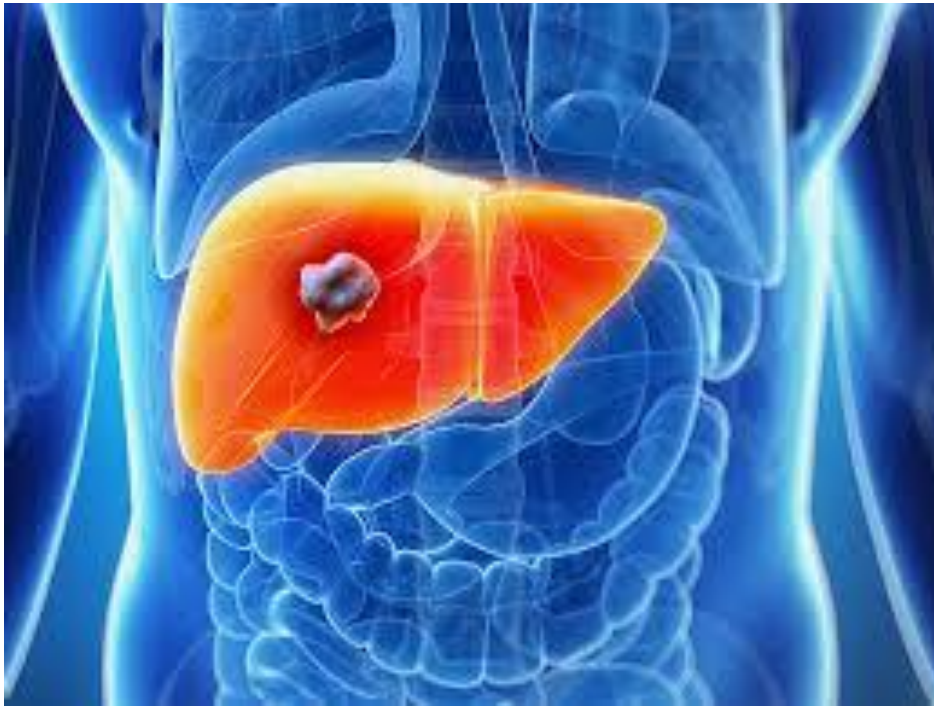


Hepatocellular (Liver) Carcinoma

- Sixth most common cancer worldwide
- Third leading cause of cancer related death
- Leading cause of death in patients with cirrhosis
- In the United States 21,000 men and 8,000 women diagnosed with liver cancer
 - Number expected to rise over next decade

Liver Cancer

Who Should Be Screened (Ultrasound)



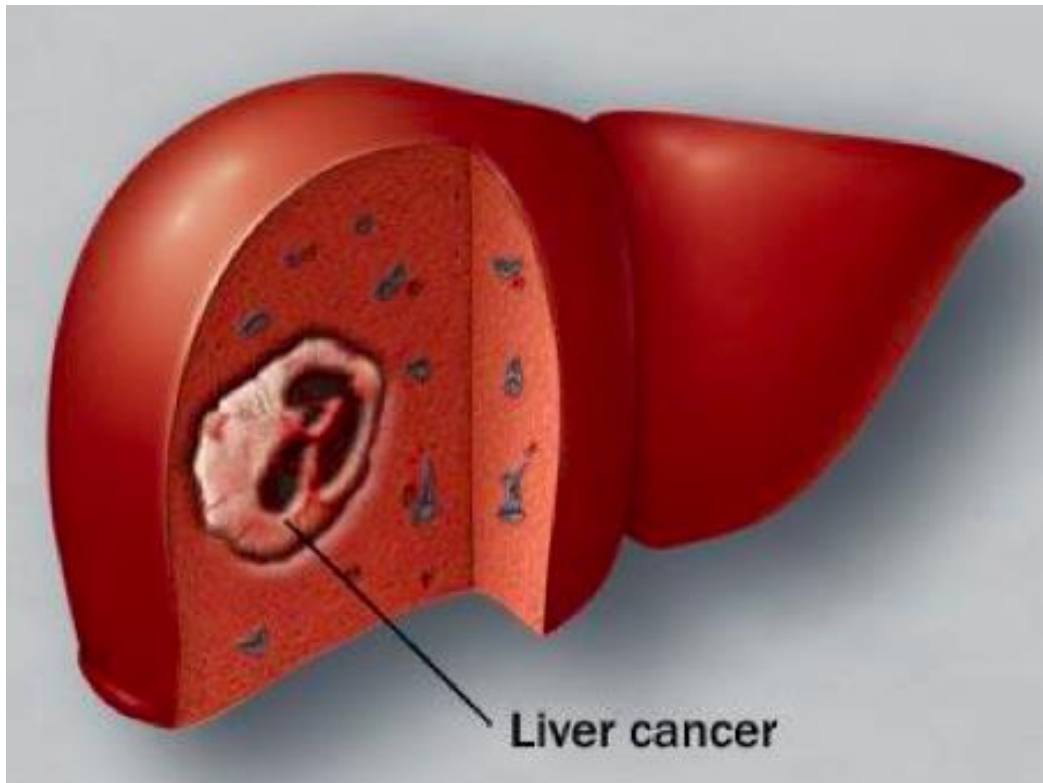
Patients with:

- Hepatitis B
 - Patients from Asia
 - Men >40
 - Women >50
 - Patients from Africa
 - At diagnosis
 - Family history of liver cancer
- Cirrhosis



Liver Cancer Treatment

Requires Multiple Disciplines Approach:
Oncology, Surgery, Radiology, Hepatology

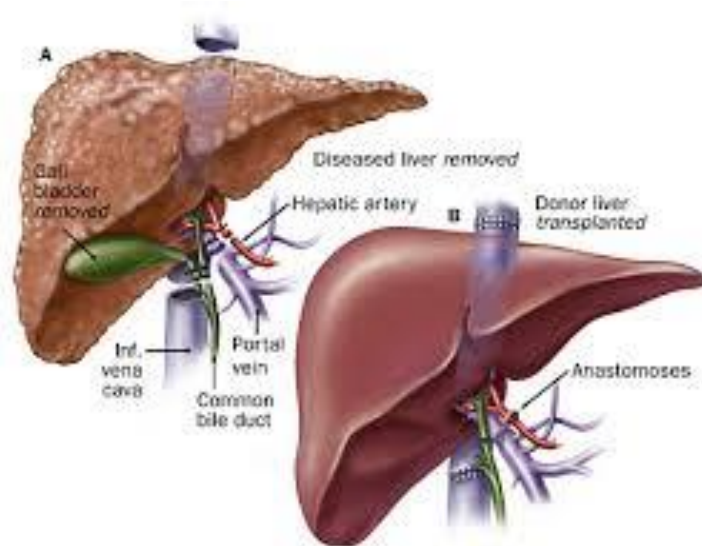


- Surgical removal
- Microwave ablation
- Targeted and non-targeted chemotherapy
- Radiation therapy
- Liver transplant



Liver Transplantation

- Surgical removal of a healthy liver from one person for placement into another person to replace a sick liver
- The new organ can come from a brain dead donor or from a living donor (relative or friend)



Liver Transplantation

- Indications
 - Cirrhosis with complication of disease
 - Acute Liver Failure
 - Liver Cancer
 - Rare conditions
- Survival
 - 90% at one year
 - 75-80% at five years



Growth in the Liver Program at Weill Cornell

- Liver Transplant Program started April 2015
 - 11 Transplants
 - 84 % Transplant Rate
- Received Medicare approval in first year
- 53 total transplants performed to date
- Over 200 liver surgeries performed
- 2000+ Transplants performed at the Center for Liver Disease and Transplantation

Thanks!

Center for Liver Disease and Transplantation
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