

VIRAL HEPATITIS 2017

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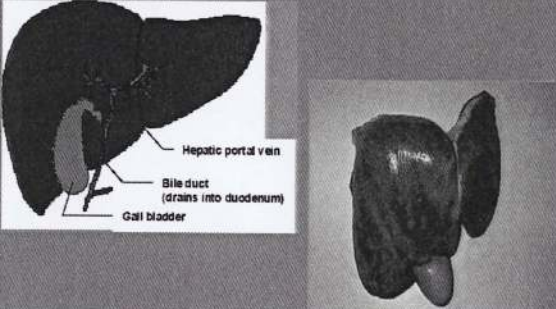
Hepatitis

Diagnose based on **LFT** result

Example 1	Example 2
<ul style="list-style-type: none"> • Albumin 36 • Bilirubin 14 • AST 120 • ALT 140 • Alk Phos 105 	<ul style="list-style-type: none"> • Albumin 30 • Bilirubin 63 • AST 1400 • ALT 2000 • Alk Phos 360
• 'Mild' hepatitis	• 'Severe' hepatitis

An inflammatory condition of the liver leading to degeneration/ destruction of liver cells

the Liver & Gall Bladder position – right upper abdomen



Liver Functions

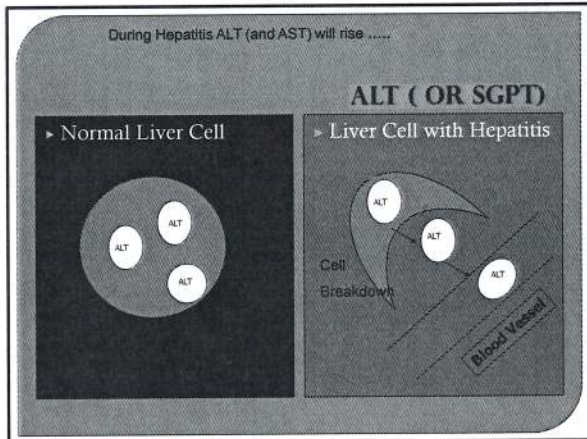
- ▶ Synthesis
- ▶ Glucose regulation
- ▶ Storage
- ▶ Excretion and detoxification

Liver Functions - Excretion

- ▶ Excretion
 - ▶ Bilirubin
 - ▶ Bile acids
 - ▶ Ammonia
 - ▶ Cholesterol
 - ▶ Hormones

Liver Function test- BLOOD test

- ▶ Total proteins
- ▶ Albumin
- ▶ Bilirubin
- ▶ Alkaline Phosphatase
- ▶ Alanine transaminase (ALT or SGPT)
- ▶ Aspartate transaminase (AST or SGOT)



Causes of Hepatitis

- ▶ Many causes, including:
 - ▶ viruses
 - ▶ drugs
 - ▶ alcohol
 - ▶ auto-immune

How do we diagnose hepatitis ?
Do a liver function test (LFT)

WHAT HAPPENS TO BLOOD TESTS IN HEPATITIS

- ▶ Liver cell damage (Immediate)
 - ▶ ALT levels rise
 - ▶ AST levels rise
- ▶ If significant number of liver cells damaged
 - ▶ Bilirubin (yellow toxin) levels rise
- ▶ If liver decompensates / failure occurs (over time)
 - ▶ Albumin levels fall
 - ▶ Prothrombin (PT) time increases
 - ▶ Glucose levels drop

What Is Viral Hepatitis ?

- ▶ Hepatitis due to Virus infection

TYPES OF VIRAL HEPATITIS ?

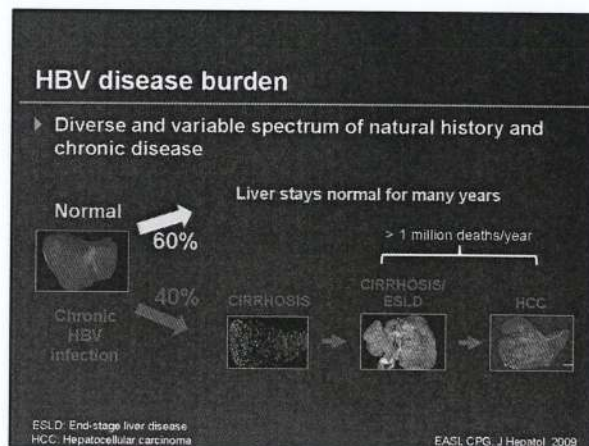
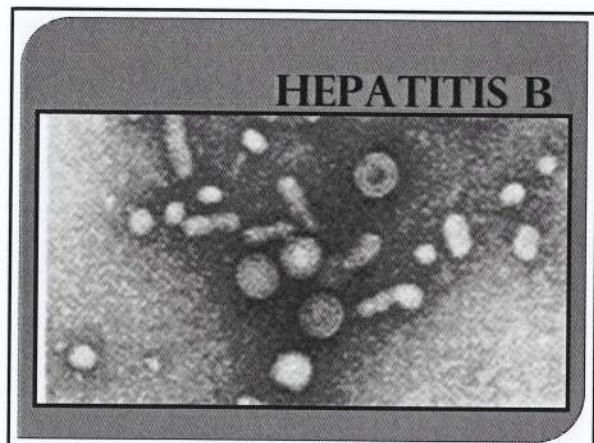
There are at least 6 types of viral hepatitis specific to Liver
Hepatitis A, B, C, D, E, G !

Hepatitis due to non-liver specific viruses:
◆ Dengue
◆ Leptospirosis

Hepatitis	How Do You Get It?
A	Oral via contaminated food or water
B	Blood/body fluids & mother-to-child
C	Blood/body fluids & mother-to-child
D	Blood/body fluids (only found with hepatitis B virus)
E	Oral via contaminated water
G	Blood

Hoolmagt JH. Adv Intern Med. 1994;39:241-275. Linnen J, et al. Science. 1990;271(5248):505-508.

A-E Food handless - acute
B C D - all liver.
G



Hepatitis B – Key Statistics

- More than **2 million deaths a year** are directly related to hepatitis B infection
- Hepatitis B is **100 times more infectious** than the human immunodeficiency virus (HIV)
- **75%** cases of Hepatitis B are in Asia
- **1-2 million die** each year from HBV infection

Is HBV a serious disease ?

- **YES**
- **Why ?**
- **Main complications**
 - **Cirrhosis**
 - **End stage liver disease**
 - **Cancer**

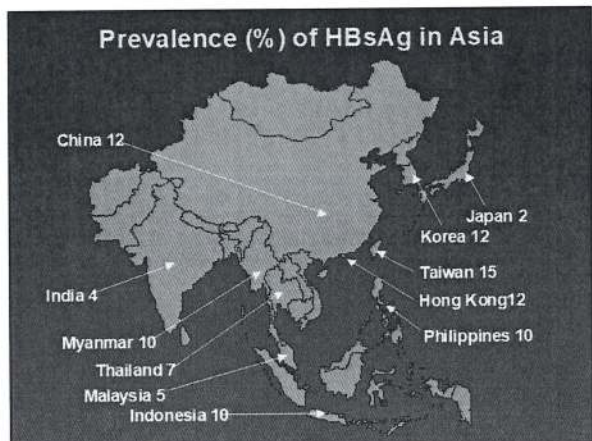
Advanced Liver Disease

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

ASCITES

VARICES

HCC (liver cancer) with Cirrhosis

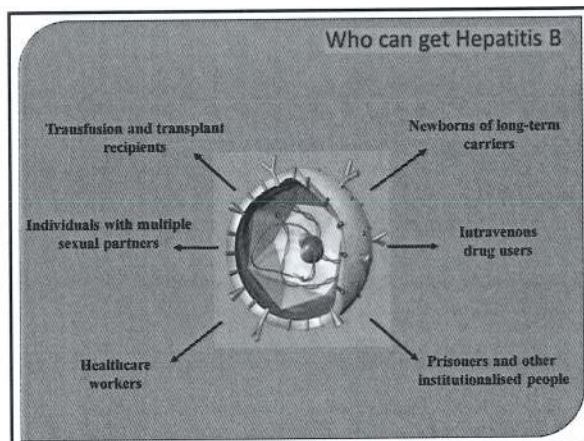


HOW DO PATIENTS PRESENT ?

- ◆ **No signs or symptoms**
 - ◆ Went for blood test/donation and found to be positive
- ◆ Doctor, I feel tired (rasa letih)
 - ◆ Maybe I am overworked
 - ◆ Over stressed

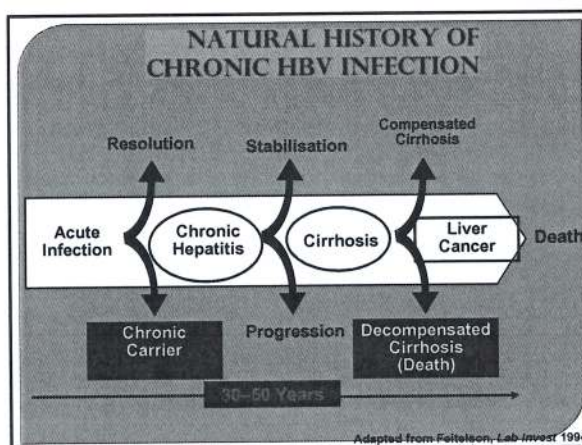
Vague symptoms & signs

- ⊙ **Lethargy**
- ⊙ **Nausea**
- ⊙ **Fever**
- ⊙ **Tea-like color urine**
- ⊙ **Yellowing of the skin and eyes**
- ⊙ **Loss of appetite**



Tests to order

- ⊙ Liver function test
- ⊙ HBsAg, anti HBs
- ⊙ HBeAg, anti Hbe
- ⊙ HBV DNA
- ⊙ Ultrasound abdomen
- ⊙ Alpha fetoprotein
- ⊙ If drug addict should test for co-infection for HCV and HIV



TREATMENT OPTIONS AVAILABLE

- ▶ Lamivudine
- ▶ Pegylated Interferon-sometimes used
- ▶ Entecavir (BARACLUDE)
- ▶ Tenofovir (TENVIR)

Vaccination

- ▶ Prepared from non – infectious outer surface of virus HBsAg.
- ▶ Plasma derived and recombinant equally effective
- ▶ Dose 10-20ug (1 ml) I/M at 0, 1 and 6 months
- ▶ Sufficient Ab response in 94% healthy individuals
- ▶ Anti – HBs measured 1-3 months after last dose
- ▶ Non responders – peak anti-HBs < 10 iu/l and lack protection
- ▶ Low responders – peak anti-HBs levels of 10-100 iu/l and lack detectable anti-HBs in 5 to 7 years. Respond to further booster of double dose (20ug)
- ▶ Good responders – peak anti-HBs > 100 iu/l and have long
- ▶ Poor responders – immunocompromised, HIV. Give 20 ug doses.
- ▶ 5-10% of normal persons, have absent or poor response. May respond to second doses of vaccination

IF YOU ARE A HEPATITIS B CARRIER:

- ▶ Do not donate blood, organs
- ▶ Do not share toothbrushes, nail-clippers, and shaving equipment
- ▶ *Separate utensils NOT necessary*
- ▶ Healthy normal diet, regular exercise


points to ponder ...

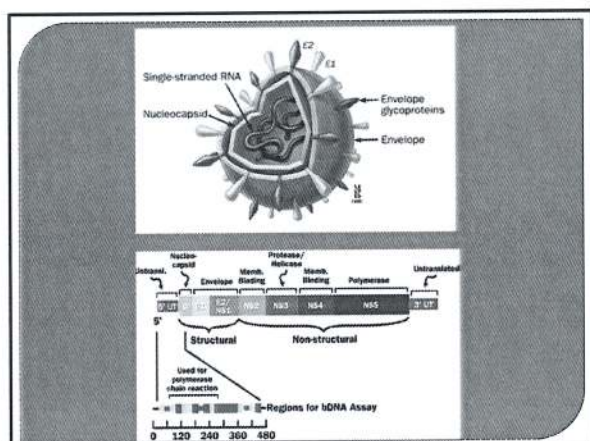
- Person/s who has previously been infected with HBV is immune to reinfection and do not require Post Exposure Prophylaxis.
- A responder is a person with adequate levels of serum antibody to HBsAg (i.e., anti-HBs U/mL).
- A non-responder is a person with inadequate response to vaccination (i.e., serum anti-HBs <10mIU/mL).

Vaccination Against Hepatitis B Cannot Protect You Against Hepatitis A

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





How Do People Become Infected With Hepa

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



Hepatitis C is NOT Spread By:

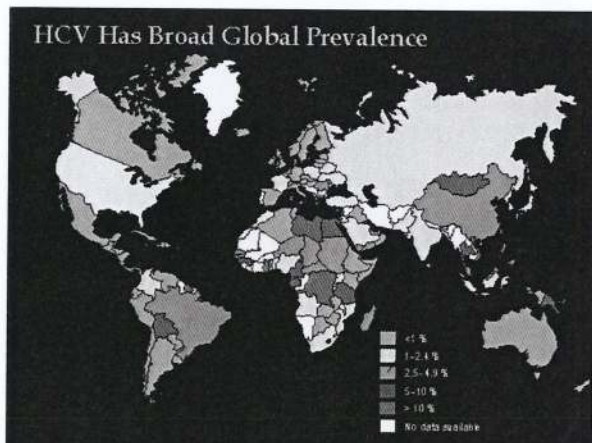
- Sneezing
- Coughing
- Food or water
- Sharing drinking glasses or eating utensils
- Handshakes
- Holding hands
- Hugging
- Kissing on the cheek
- Playing with children

Hepatitis C

- ▶ Estimated prevalence worldwide: 22-90 million (0.5-2%)
- ▶ Average seroprevalence of anti-HCV in Asia: 1% in healthy adults
- ▶ 80% will develop chronic infection
- ▶ 20% progress to cirrhosis over 10-20 year period
- ▶ 1-5% develop HCC over 10-20 year period
- ▶ HCC invariably follows cirrhosis

Hepatitis C

- ◆ -2nd most common cause for end stage liver disease in USA (what is 1st ?)
- ◆ -blood-borne illness
- ◆ -usually persists to chronic state
- ◆ -no vaccine currently available



How do I know that I am infected ?

- ▶ **No symptoms in most patients**
- ▶ **Acute symptoms :**
 - ▶ jaundice, fever, muscular aches, dark urine, nausea
- ▶ **Chronic symptoms :**
 - ▶ Fatigue, muscle wasting, fluid retention, abdominal pain, weight loss)

How is Hepatitis C Diagnosed?

- Blood testing
 1. Hepatitis C antibody test
 2. Hepatitis C PCR test to find virus in blood
 3. HCV Genotype
- Liver function tests
 - US abdomen
 - Alpha fetoprotein

is ?

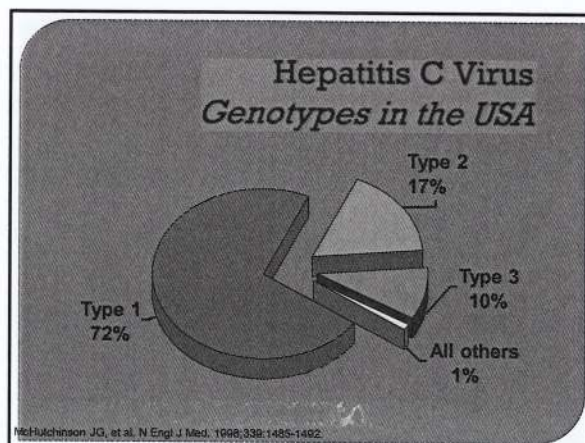
- ▶ **18 year old drug addict**
- ▶ **Jaundice**
- ▶ **Albumin 43**
- ▶ **Bilirubin 199**
- ▶ **Alkaline phosphatase 119**
- ▶ **AST 900**
- ▶ **ALT 3000**
- ▶ **Anti HCV Ab reactive**
- ▶ **HCV RNA detected**

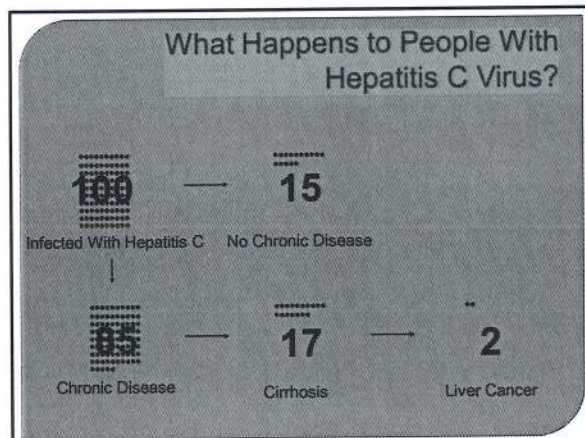
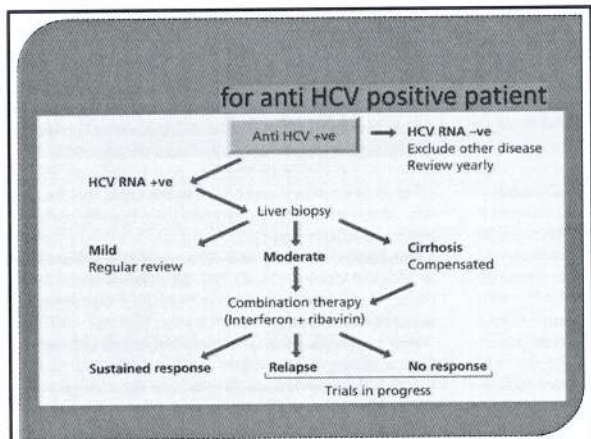
▶ *What other test to do ?*

What is Your Hepatitis C Genotype?

8 different genotypes of hepatitis C

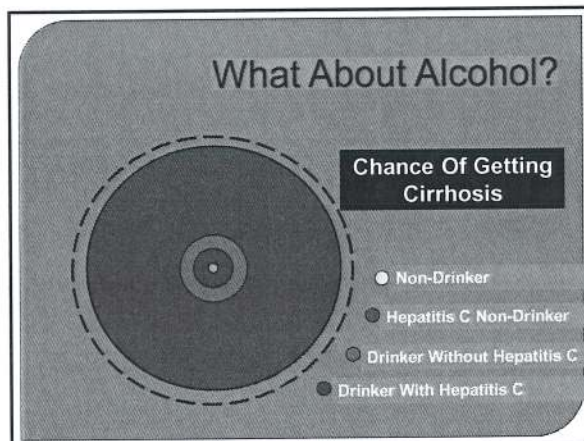
- Genotype 1:
 - Most common in U.S.
- Genotypes 3:
 - Most common in Malaysia





Will you recover from Acute Hepatitis C ?

- ▶ Only 15% will recover after 6 months
- ▶ 85% will have their infections continue without symptoms
- ▶ Chronic Hepatitis C and complications



Goals of Treatment

- Clear all the hepatitis C virus from the body (“sustained response”)
- Slow or stop damage to the liver
- Help decrease symptoms

Treatment of HCV

- ▶ Two regimens approved
 - ▶ Combination therapy: Peg-interferon + ribavirin
 - ▶ Directly acting Antivirals (DAA) – Best treatment

NIDDK. Chronic hepatitis C: Current disease management. Available at: <http://www.niddk.nih.gov/health/digest/pts/chrnhepc/chrnhepc.htm>. Accessed February 11, 2012. 00

Interferon (IFN)

- ▶ Given subcutaneously, self administered
- ▶ Pegylated IFN once a week injection
- ▶ Treatment can be 6 months to 1 year
- ▶ Interferon – side effects, need a fridge

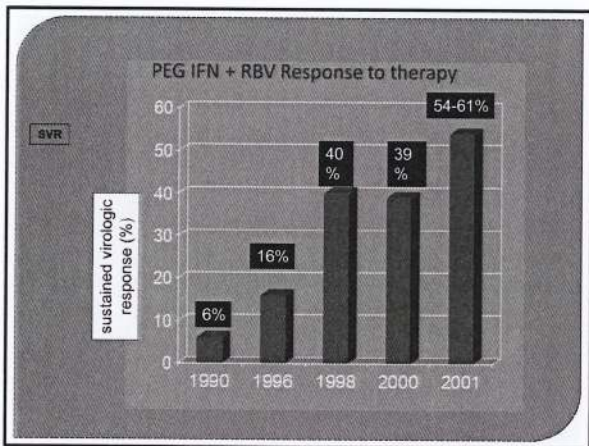
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Ribavirin

- ▶ Daily oral tablets, causes anaemia

Does Treatment Work?

- ⊕ Interferon alone:
 - 10 – 15% chance of clearing the virus from the blood
- ⊕ Interferon & ribavirin:
 - Up to 40% chance of clearing the virus
- ⊕ Pegylated interferon alone:
 - About the same as interferon & ribavirin 40%
- ⊕ Pegylated interferon & ribavirin:
 - Up to 50% chance of clearing the virus



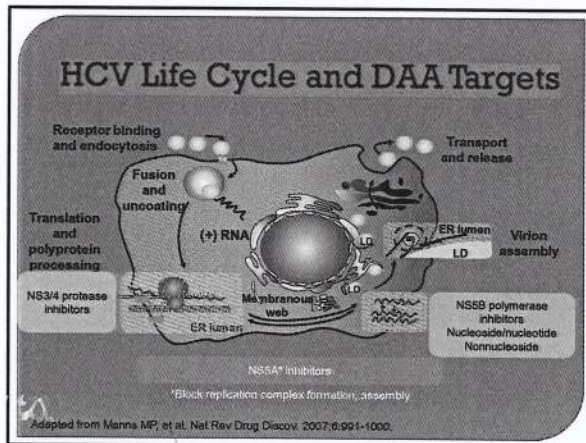
Side Effects of Interferon & Ribavirin

Common Side Effects:

- ⊕ Flu-like symptoms
 - Headache
 - Fatigue
 - Muscle & joint aches
 - Fever, chills
- ⊕ Psychiatric symptoms
 - Depression
 - Difficulty sleeping
 - Difficulty concentrating
 - Irritability

New DAA therapy (Directly acting antiviral)

- ⊕ Best therapy
- ⊕ Oral once or twice per day
- ⊕ 2-3 types of tablets
- ⊕ Minimal side effects
- ⊕ 3 months course
- ⊕ No need to check blood
- ⊕ Rm \$ 180,000 last year



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*

Needlestick Injury and HCV

- ▶ Immediately test blood for patient for - anti-HCV Ab (and HCV RNA – cost/availability)
- ▶ HCW – test for anti HCV Ab
- ▶ After 10-14 days consider testing for HCV RNA

- ▶ Treatment with interferon may achieve up to 90% eradication if early, now oral drugs (DAA) even better

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



To recap we briefly talked about

- ▶ Liver basics
- ▶ HBV
- ▶ HCV

Thank You