



430

MEDICINE
NOTES

ACUTE VIRAL HEPATITIS

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Acute Viral Hepatitis

- There are five types of viral hepatitis
- There are two type of transmissions
 - Fecal-oral → A and E
 - Blood → B, C and D
- The most common type is Hepatitis. A (Because it's transmitted through the fecal-oral rout)
- The source of infection determines the natural history of the disease
- A and E never become chronic
- B, C, D can become chronic

Viral Hepatitis - Overview

	Type of Hepatitis				
	A	B	C	D	E
Source of virus	feces	blood/ blood-derived body fluids	blood/ blood-derived body fluids	blood/ blood-derived body fluids	feces
Route of transmission	fecal-oral	percutaneous permucosal	percutaneous permucosal	percutaneous permucosal	fecal-oral
Chronic infection	no	yes	yes	yes	no
Prevention	pre/post- exposure immunization	pre/post- exposure immunization	blood donor screening; risk behavior modification	pre/post- exposure immunization; risk behavior modification	ensure safe drinking water



- Markers are important in the diagnosis of Hepatitis
- There are no specific symptoms for Hepatitis, similar to the flu
- The only symptom that can rule out “the flu” and indicate guide you more towards “Hepatitis” is asking about Urine Color (Becomes darker in Hepatitis) Due to Urobilinogen
- Hepatomegaly is the second indication for Hepatitis.

Case Report:

- Abdulhamed a 26 years old single came on 28/1/12, complaining of abdominal pain, nausea, sore throat for 3 days, fever, and changing the urine color.
- Labs (28/1/12)
 - ALT:** 2757 U/L(21-72)
 - AST:** 1397 U/L (17-59)
 - ALP:** 89.0 U/L.
 - GGT:** 263,0U/L
 - Total BIL.:** 5.4MG/DL (0.0-1.4)
 - ALB.:** 3.7 g/l(3.5-5.0)
 - PT:** 18.6 (10-14)
 - PLT:** 88000 (150000-400000)
- Doctor suspected **Acute Viral Hepatitis**
- Labs (7/2/12)(10 days later)
 - ALT:** 671 U/L(21-72)
 - AST:** 120 U/L (17-59)
 - ALP:** 109 U/L.
 - GGT:** 77 U/L
 - Total BIL.:** 17 MG/DL (0.0-1.4)
 - ALB.:** 4 g/l (3.5-5.0)
 - PT:** 15 (10-14)
 - PLT:** 150000 (150000-400000)
- Labs (22/2/12)
 - ALT:** 176 U/L(21-72)
 - AST:** 61 U/L (17-59)
 - ALP:** 47 U/L.
 - GGT:** 64U/L(15.0-73)
 - Total BIL.:** 2.4MG/DL (0.0-1.4) – (Bilirubin has decreased)
 - ALB.:** 3.7 g/l(3.5-5.0)

Everything decreased but the total Bilirubin got higher → Patient's disease might be taking a Fulminant course

- (Hepatic Failure within 8 Weeks Of Onset Of Illness.)
- Manifestation: Encephalopathy and Prolonged PT
- Histopathology: Massive Hepatic Necrosis.

The patient was asked to check himself for abdominal swelling, edema... etc. (Indicators of deterioration)

- Patient most probably has Hepatitis A (Fecal-Oral Rout)
- No treatment was given – Patient only needed to wait till the course of the virus was over (Self limiting)

Hepatitis Markers

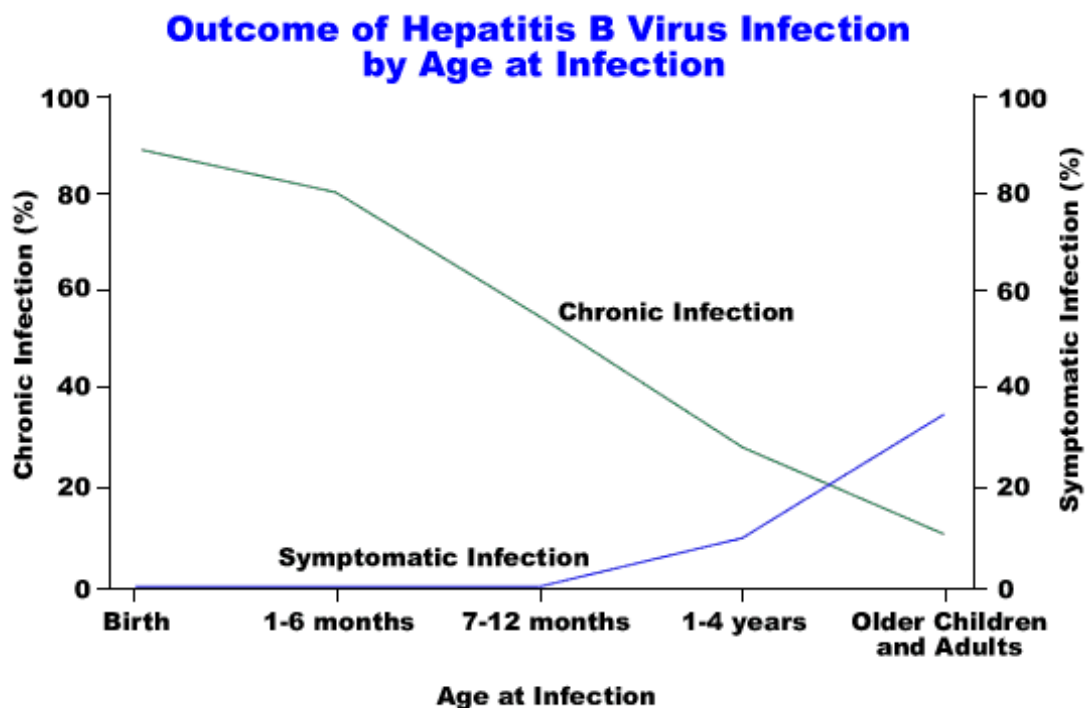
- Hepatitis B
 - HBsAg** → infection (carrier) – First Marker
 - anti-HBc** → exposure (IgM=acute) - (Anti-core) – Second Marker
 - anti-HBs** → immunity – (We check for this marker if the first one turns out negative)
 - HBeAg** → viral replication (Indicates how infectious the patient might be) – (Most important marker)
 - anti-HBe** → seroconversion
 - HBV-DNA** → viral replication (To confirm that the virus he has is actually Hepatitis B)
- Hepatitis C
 - ANTI –HCV** - (There's no surface antigen, only Antibodies) – (If this is positive we can't say for sure that the patient has HCV, therefore we always have to check for the next marker if the first one's positive)
 - PCR-RNA HCV** - (This marker confirms presence of HCV)
- Hepatitis A
 - HAV igM** – (Acute exposure) – (Current infection)
 - HAV igG** – (Indicates previous exposure to HAV) – (Previous infection)

Differential Diagnoses:

- Infectious Mononucleosis
- Drug Induced Hepatitis – (Ask about herbs as they are widely used in our country)
- Chronic Hepatitis – (You can check for it via a liver biopsy)
- Alcohol Hepatitis
- Cholecystitis, Cholelithiasis
- Auto-immune hepatitis – (Has specific markers)

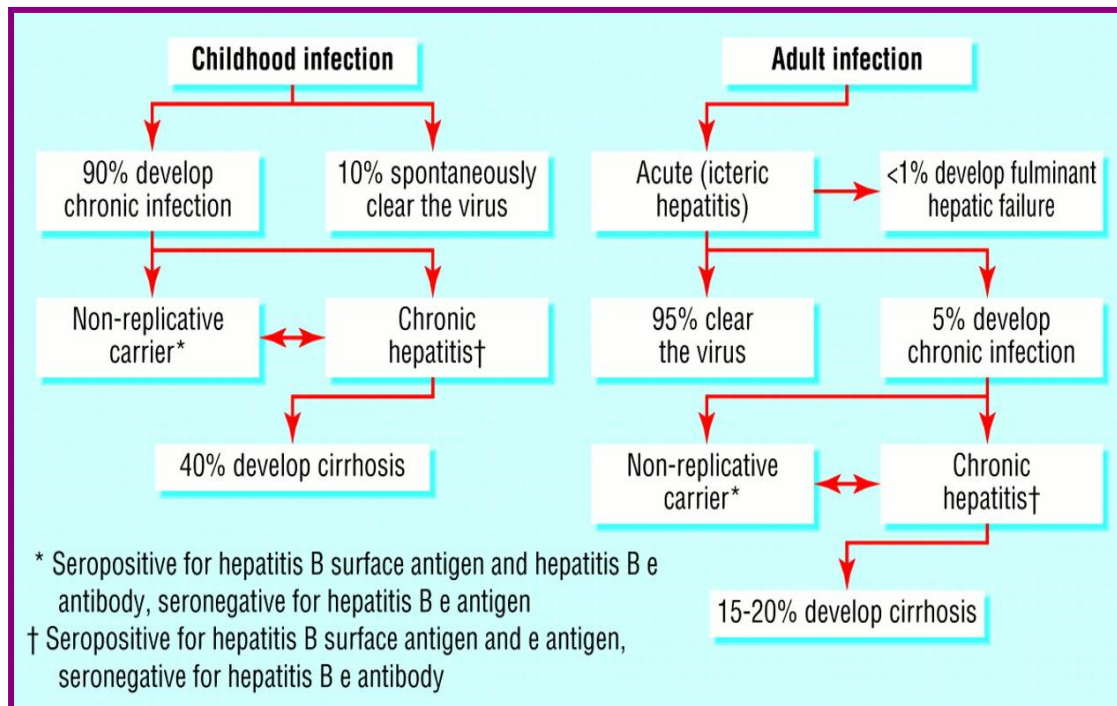
Complications:

- Chronic hepatitis → Cirrhosis- HCC
- Fulminant hepatitis



The outcome of acute HBV infection varies substantially depending on the age at which infection occurs. In children less than 5 years of age, <5% of acute HBV infections are symptomatic; however, chronic infection occurs in about 80%-90% of infants infected during the first year of life and in about 30%-50% of children infected between 1-4 years of age. In comparison, 30%-50% of adults with acute HBV infection are symptomatic, but only 2%-10% develop chronic infection.

The Natural History of Hepatitis B



- Early infections → 90% go to chronicity
- Adult infections → 5 % go for chronicity

Concentration of Hepatitis B Virus in Various Body Fluids

High	Moderate	Low/Not Detectable
blood serum wound exudates	semen vaginal fluid saliva	urine feces sweat tears breastmilk



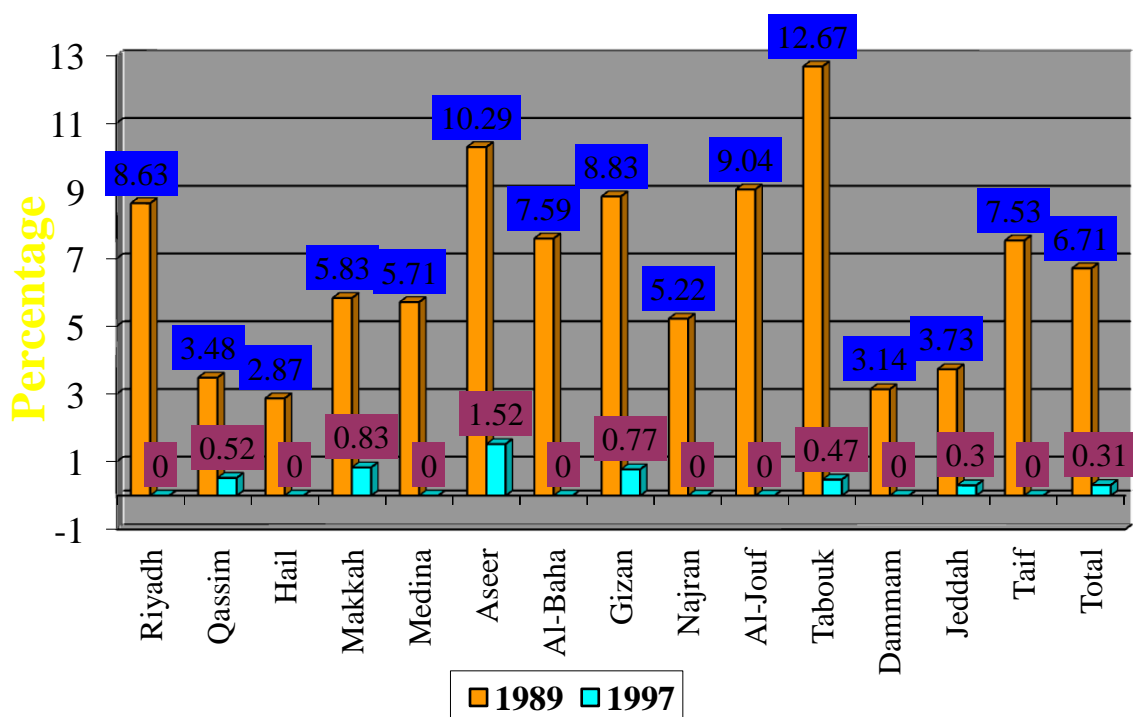
Mode of transmission

- High → Blood, Blood transfusions
- Moderate → Saliva, Semen
- Low → Urine “blood in the urine” → You need daily exposure in order to contract the disease via Urine → This can explain the “Intra-familial Hepatitis” entity

Possible transmission route of HBV in KSA:

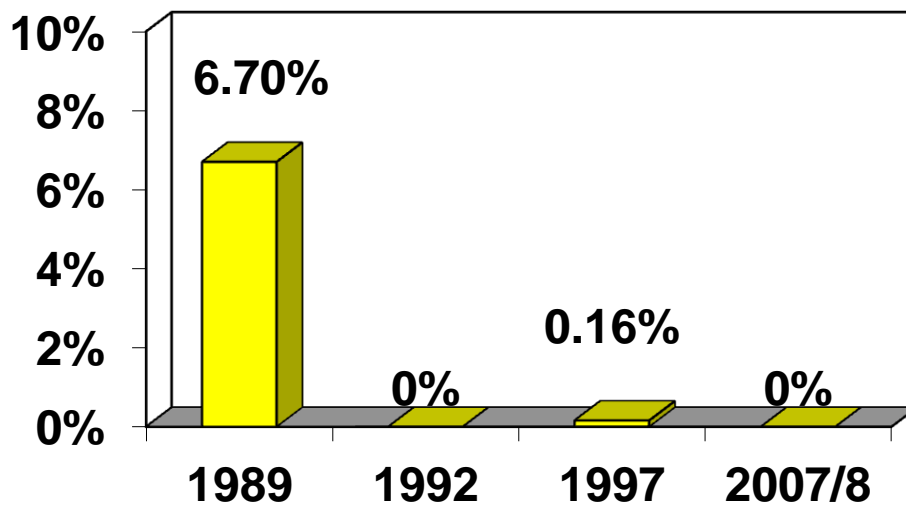
- Horizontal transmission (person to person) is the main transmission route. (Main mode of transmission in KSA)
- Intra-family transmission.
- Perinatal transmission (positive HBSAG mothers) especially if they are HBEAG positive.
- Heterosexual transmission.
- Illegal injection drug use.
- Contaminated equipment used for therapeutic injections and other health care related procedures
- Folk medicine practice

COMPARISON OF PREVALENCE OF HBsAg AMONG SAUDI CHILDREN IN 1989 (n=4575) AND 1997 (n=5355) – ACCORDING TO REGION



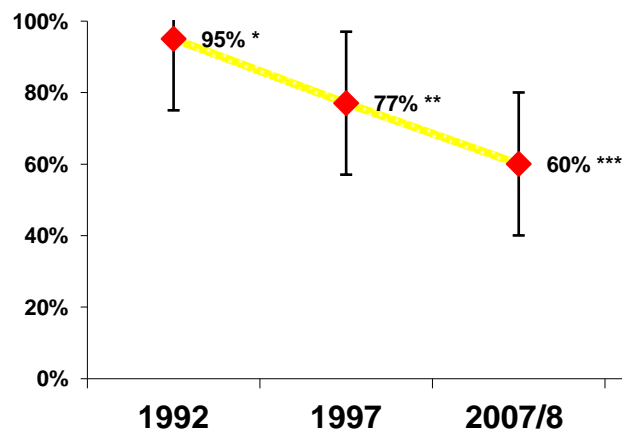
The data from Riyadh in the 80s (8.63%) lead to the ministry of health's decision to permit vaccine introduction. (1989)

Prevalence of HBsAg among Saudi Population



Notice the prevalence before and after vaccination (Before= 6.70%)
18 years later prevalence shifted from almost 7 % to almost 0% after the
introduction of the vaccine

Long Term Seroconversion Rate Over 18 Years (Anti-HBS)



* Al Faleh et al Annals of Saudi meds 1993

** Al Faleh et al Journal of infection 1999

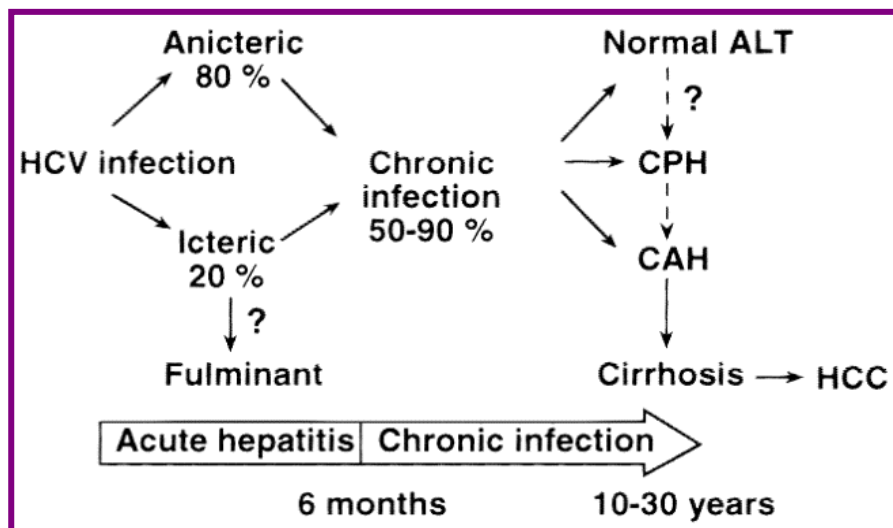
*** AlFaleh et al journal of infection2008

- What test do you do to check your immunity against Hepatitis B? Anti-HBS
- 1992 (3 years after the introduction of the vaccine) → 95% are positive for HBV protection
- 1992 → 77%
- 2007/8 → 60%
- Being positive does not insure protection
- You need to reach a "Protective Level" of 10 IU
- Only 38% of people "our age = 20s" have that protection level
- You don't need to get revaccinated → your immunity's "memory" will act against any new found infection. (If you've been previously vaccinated)

Level of protection from HBV in blood donors has decreased (From about 5% to .7%)

HCV

- Household transmission is rare
- Sexual transmission is rare
- No vaccine for HCV because it is able to mutate.
- HCV is more prone to turn chronic than HBV
- The natural history of HCV takes a long time
- It takes years for it to develop into a chronic disease
- There are more chronic cases of HCV than HBV
- In 1989 → Prevalence was 0.8%
- In 1997 → Prevalence was .04%
- Overall, prevalence of HCV in KSA is rare



HAV

- Oral-Fecal route
- More in the southern region
- This is due to their low socioeconomic status
- 18% of people "our age = 20s" only have the HAV IgG → this means that the rest are prone to infection → this is why the HAV vaccine was introduced.