

HEPATITIS B INFECTION and Pregnancy

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HEPATITIS B



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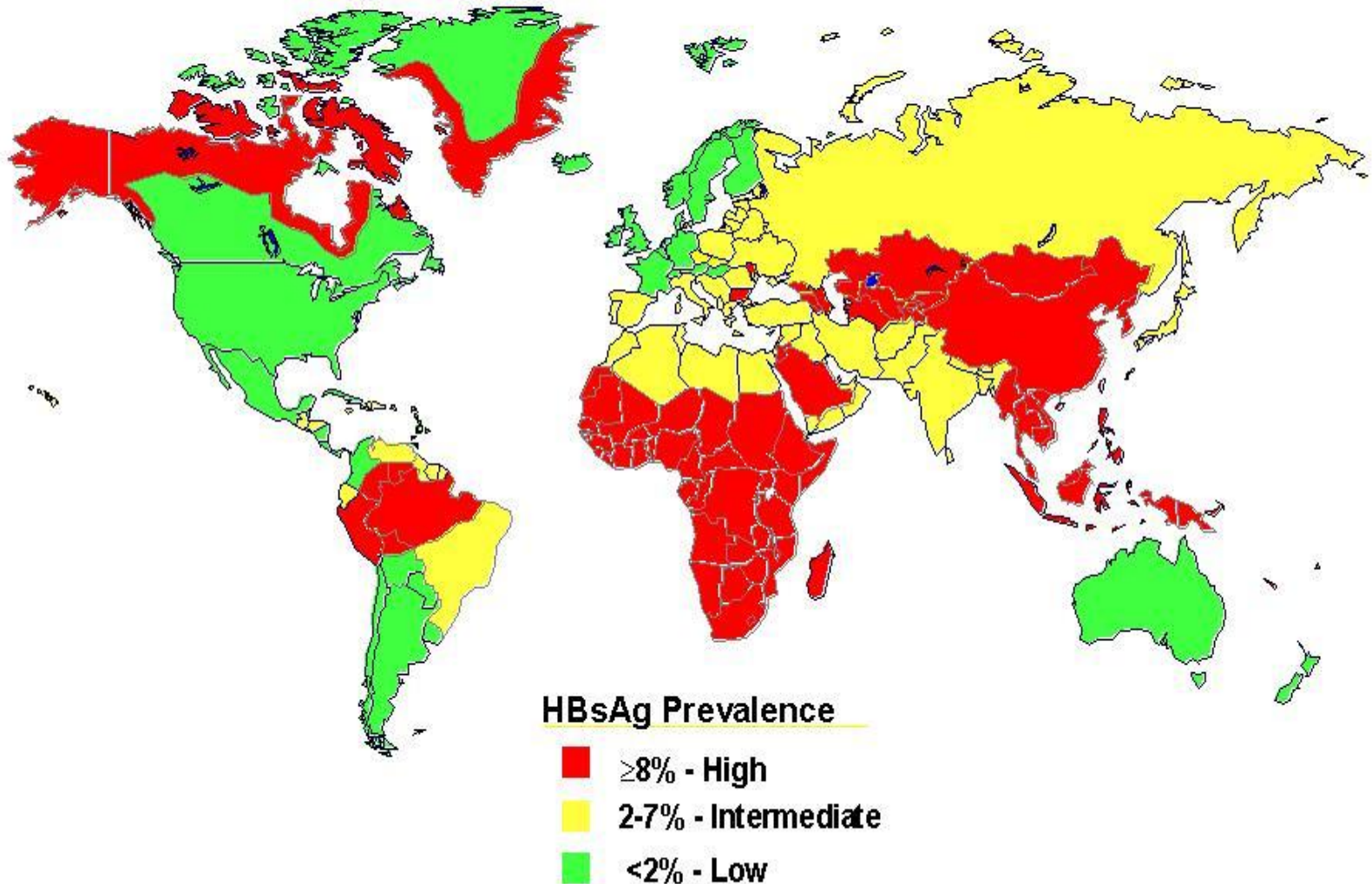
What is Hepatitis B?

- It is inflammation (infection) of the liver caused by Hepatitis B virus
- The incubation period ranges from 40 to 160 days
- Extremely infectious (x 100 more infectious than HIV)
- World-wide, about 1 million people die from acute and chronic HB infection, making it one of the major causes of morbidity and mortality in humans

Distribution

- Worldwide second only to tobacco as an identified cause of human liver cancers
- About 1 in 4 of those with chronic infection may die of serious liver disease
- The prevalence of chronic infection is 10-20% in China and sub-Saharan Africa
- The prevalence in W Europe and N America is 0.2-0.5%

Geographic Distribution of Chronic HBV Infection



Hepatitis B transmission

- In Western populations mainly by sexual contact
- In Asian and African populations mainly from mother to child during delivery and breastfeeding
- Many other routes of infection - sharing needles amongst drug abusers, sharps injuries, surgery and blood transfusion etc

Modes of transmission

- The virus is transmitted by exposure to infected blood or body fluids through:
 - Perinatal transmission : Mother to child
 - Horizontal transmission: non-sexual contact with an infected person
 - Parenteral transmission: exposure to blood/other infective fluids (including human bites)
 - Sexual transmission: by contact with an infected person

Modes of transmission

- Hep B transmission occurs by percutaneous (Skin) and permucosal exposure to infected body fluids by:
 - Intravenous
 - Intramuscular
 - Subcutaneous
 - Intra-dermal
 - Mucus membrane

Fluids that can transmit Hep B

- Blood and blood products
- Saliva
- CSF
- Pleural fluid
- Amniotic fluid
- Semen
- Vaginal secretions
- Peritoneal fluid
- Pericardial fluid
- Synovial fluid
- Any other body fluid containing blood
- Body Organs

Symptoms of Hepatitis B Infection

Acute infection:

- Many new infections are subclinical or have flu like illness
- Anorexia, nausea, ache in the right upper abdomen, mild fever, malaise, disinclination to smoke or drink
- Jaundice occurs in 10% of younger children and 30-50% of adults

Chronic infection complications include:

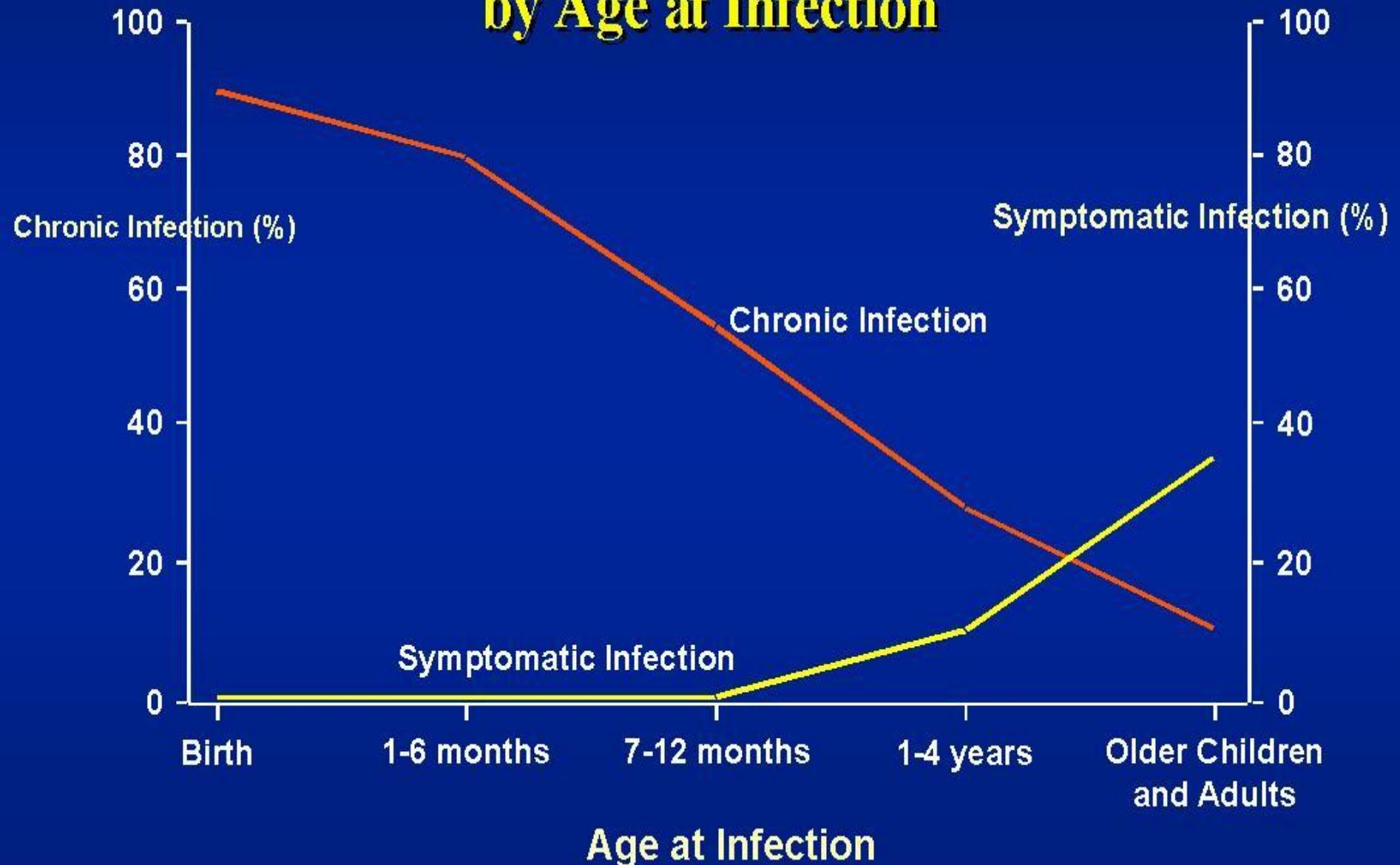
Hepatic cirrhosis

Necrosis

Chronic active hepatitis

Hepatocellular carcinoma

Outcome of Hepatitis B Virus Infection by Age at Infection



Pre-exposure vaccine

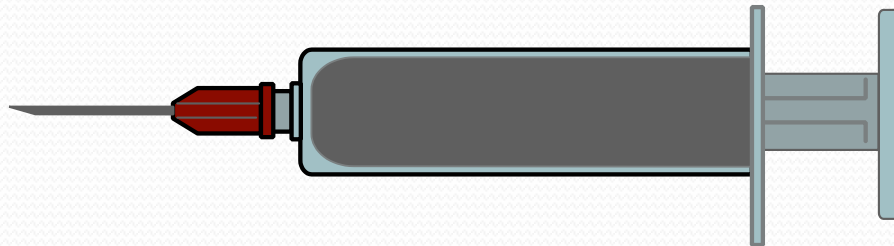
- Babies born to Hep B carrier mothers
- Injecting drug users
- Individuals who change sex partners frequently
- Close family contacts of case or carrier
- Families adopting children from countries with high or intermediate prevalence of Hepatitis B
- Foster carers
- Blood/blood product recipients and their carers
- Patients with chronic renal failure
- Patients with chronic liver disease
- Prisoners or inmates of custodial institutions
- Staff and clients in residential accommodation for those with learning difficulties
- Travellers to high-risk areas
- Individuals at occupational risk
- Healthcare workers, students and trainees, lab staff

Occupational Groups requiring Hepatitis B vaccine

- Risk assessment should be done by occupational health e.g.
 - Health care workers
 - Some emergency services personnel
 - Morticians and Embalmers
 - Tattooists and Body Piercers

Preventing Hepatitis B Infection

- Testing all pregnant women for infection
- Vaccinating babies of infected women at birth
- Follow up vaccinations of the baby at 1, 2 and 12 months of age
- Checking the baby's immunity at 12 months



Neonates

- Hepatitis B vaccine for:
- Babies born to mothers who are chronic carriers of hepatitis B virus or to mothers who have had acute hepatitis B during pregnancy
- HepB Immunoglobulin (HBIG) also given to babies whose mothers are:
 - HBsAg+ve and HBeAg+ve
 - HBeAg+ve without e markers (or where these have not been determined)
 - or if mother had acute hepatitis B during pregnancy

Vaccination at Birth

According to Hepatitis Status of Mother

Hep.B status Of mother	HBIG For Baby	Hep.B Vaccine For Baby
HBsAG- Positive HBeAG- Positive	YES	YES
HBsAG- Positive HBeAG- Negative HBeAB- Negative (anti HBe neg)	YES	YES
HBsAG- Positive e-markers not determined	YES	YES
Mother had acute Hepatitis B in pregnancy	YES	YES
HBsAG- Positive HBeAB – Positive (anti HBe pos)	NO	YES

All LBW babies born to Hep B mothers with birth weight \leq 1500g should receive HBIG regardless of e-antigen status of mother as response to vaccine in LBW is not very good

Preventing Hep B Infection

- Checking for infection in the partner and other members of the household of an infected person
- Vaccinating those who are uninfected
- Advice and possibly treatment of those who have chronic infection
- Good management of occupational risks

Post-exposure Prophylaxis

- Healthcare workers
- Sexual partners
- Babies born to mothers who are chronic carriers of hepatitis B virus or to mothers who have had acute hepatitis B during pregnancy
- HBIG may also be indicated depending on the situation

Hep B Vaccine Schedules

- Routine - 3 doses 0, 1 and 6 months
- Accelerated 4 doses 0, 1, 2 and 12 months
- Hyper-accelerated 4 doses 0,7, 21 days and 12 months
(licensed for patients aged 18+ as a travel vaccine)

Immunisation Schedule			
Time After Initial Dose	0,1,6 months	0,1,2 months	0,7,21 days**
28 days	44.0%	15.0%*	65.2%
56 days	88.0%		76.4%
3 months		89.0%	88.6%
7 months	99.0%		
12 months		Booster dose	Booster dose
13 months		95.8%	98.6%

* Seroprotection prior to second dose

** For adults aged 18 years and over

Hep B Vaccine

- Should test for vaccine response by taking blood sample 2 months after last dose
- Good response is defined as $> 100 \text{ mIU/ml}$ HbS antibody
- Poor response is defined as $10\text{-}100 \text{ mIU/ml}$
- Non-response defined as level $< 10 \text{ mIU/ml}$

Response to Hep B Vaccine

- Vaccine response generally lower with age, overweight, female sex
- Reason for non-response could also be that person has already been infected with Hep B

If no response/poor response:

- Test for Hepatitis B markers (to exclude Hep B carriage)
- If carriage excluded offer up to 2 booster doses then retest
- If still $<100\text{miu/ml}$ offer one more course of Hep B vaccine
- If still no response not worth giving further courses of vaccine but that need to advise that is non-responder and may need to receive immunoglobulin in the event of a needle stick accident

**Note that Hepatitis is
preventable**

- **THANK YOU.**
- **Any Questions?**