



- **Important types of hepatitis are: A, B, C and E.**
 - Notice that hepatitis B & C are considered to be more important because they can result in a chronic condition associated with damage to hepatocytes and subsequent hepatocellular carcinoma (more common with hepatitis C).
- **Physiological changes of biliary system in pregnancy:**
 - Liver weight does not change in pregnancy. Therefore, when the liver is enlarged (hepatomegaly) → this will be considered as a pathological event.
 - Hepatic blood flow does not change (constant) in pregnancy while both cardiac blood flow and blood volume increase in pregnancy.
 - **Serum proteins decrease in pregnancy (why?)** → due to decline in serum albumin.
 - Bile acids, bilirubin and liver enzymes (ALT and AST) do not change in pregnancy.
 - **Serum fibrinogen and coagulation factors will increase in pregnancy** (e.g. hypercoagulable state).
 - **Increased alkaline phosphatase in pregnancy** due to increased secretion of alkaline phosphatase from the placenta and increased bone turnover.
- **Spectrum of liver diseases in pregnancy:**
 - **Pre-existent liver diseases (patient has them before getting pregnant):**
 - ✓ Portal hypertension.
 - ✓ Cirrhosis.
 - ✓ Primary Biliary Cirrhosis (PBC).
 - ✓ Wilson's disease.
 - ✓ Chronic hepatitis (which can develop from hepatitis B or C).
 - **Liver diseases which occur with pregnancy but not induced by it.**
 - **Liver diseases which are induced by pregnancy:**
 - ✓ 1st trimester:
 - ❖ Hyperemesis gravidarum.
 - ✓ 2nd and 3rd trimesters:
 - ❖ Intrahepatic cholestasis.
 - ❖ Pre-eclampsia.
 - ❖ Eclampsia.
 - ❖ HELP syndrome.
 - ❖ Acute fatty liver of pregnancy.
- **Vertical transmission of hepatitis from a mother to her fetus is more common with hepatitis B than hepatitis C (notice that vertical transmission is not seen with hepatitis A!).**
- **How to detect hepatitis A, B and C?**
 - **Hepatitis A:**
 - ✓ Fecal hepatitis A virus (HAV).
 - ✓ IgM anti-HAV: acute disease.
 - ✓ IgG anti-HAV: recovery (development of antibodies).
 - **Hepatitis B:**
 - ✓ HBsAg (Hepatitis B Surface Antigen): current infection (acute or chronic).
 - ✓ Anti-HBs (Hepatitis B Surface Antibody): immunity (vaccination or infection).
 - ✓ Anti-HBc (Hepatitis B Core Antibody): infection (past or current).
 - **Hepatitis C:**
 - ✓ Anti-HCV.
 - ✓ PCR for HCV RNA.



- **Chronicity which results from HBV or HCV can in the form of:**
 - Chronic active hepatitis.
 - Chronic persistent hepatitis.
 - Liver cirrhosis.
- **HAV (Hepatitis A Virus):**
 - It does not affect the fetus (e.g. there is no vertical transmission from the mother to the fetus), but if a female present to the hospital with severe symptoms of hepatitis in her 3rd trimester → serum immunoglobulin should be given.
 - **Symptoms of HAV:** flu-like symptoms, weakness and fatigue, jaundice and extrahepatic symptoms (such as: arthralgia, myalgia and arthritis).
- **HBV (Hepatitis B Virus):**
 - There is increased incidence among drug abusers.
 - **Vertical transmission is highest with:**
 - ✓ Chronic carrier of the virus.
 - ✓ There is acute infection in the 3rd trimester.
 - If lamivudine (interferon) was taken before pregnancy, it shall be continued because it will aid in lowering the viral load.
 - Hepatitis B vaccine is safe to be given in pregnancy.
- **HCV (Hepatitis C Virus):**
 - The incidence of vertical transmission is: 10-15%.
 - **Highest infectivity of the fetus through vertical transmission when the mother:**
 - ✓ Infected with HIV.
 - ✓ Viremic at time of delivery.
 - ✓ Viral load is > 1 million copies/ ml.
 - ✓ The time between rupture of membranes to delivery is > 6 hours.
 - Notice that a mother who is infected with HCV can breast-feed her baby.
 - The newborn is checked after 18 months to know if he is infected with HCV.
 - Interferon and ribavirin are contraindicated and must be stopped if a female is planning to conceive.
- **HEV (Hepatitis E Virus):**
 - During pregnancy, HEV can result in fulminant hepatitis (in 15% of cases) with increased mortality.
 - Vertical transmission of HEV is reaching 50%.
- **Management of hepatitis in pregnancy:**
 - You must figure out which type of hepatitis is the patient infected with?
 - Isolate the patient because hepatitis is an infectious disease.
 - Contact prophylaxis.
 - Immunoprophylaxis of the infant: if the mother is infected with HBV.