# Liver Disease in Pregnency
# ( Jaundice in Pregnancy)

**Table 6.8.1** Normal ranges for liver enzymes in non-pregnant and pregnant populations

| Liver enzyme | Non-pregnant | Trimester | | |
|---|---|---|---|---|
| | | 1st | 2nd | 3rd |
| AST (IU/L) | 7–40 | 10–28 | 10–29 | 11–30 |
| ALT (IU/L) | 0–40 | 6–32 | 6–32 | 6–32 |
| Bilirubin (μmol/L) | 0–17 | 4–16 | 3–13 | 3–14 |
| Gamma GT (IU/L) | 11–50 | 5–37 | 5–43 | 3–41 |
| Alkaline phosphatase (IU/L) | 30–130 | 32–100 | 43–135 | 133–418 |

- ALT, alanine transaminase; AST, aspartamine transaminase; GT, glutamyl transpeptidase.

# Obstetric Cholestasis:

- Cholestasis is an impairment of bile flow which may clinically present with fatigue, pruritus and, in its most overt form, jaundice.
- Obstetric cholestasis is uncommon condition, specific to pregnancy

- Aetiology relate to genetic predisposition to the cholestatic effect of estrogen.
- The importance of this condition is its association with sudden IUD, mostly at term.

## Presentation

- It is most commonly present in the third trimester at around 32 weeks
- Itching can vary from mild to intense and persistent, affecting the whole body particularly the palms & soles.
- There is no rash.
- Hepatic transaminases are only mildly elevated. Bile acids may be elevated.
- There may be associated dark urine, pale stool, steatorrhea & malaise.

- differential diagnosis include:
- extrahepatic obstruction with gall stones
- acute & chronic viral hepatitis
- primary biliary cirrhosis
- chronic active hepatitis.
- Pre-eclampsia
- HELLP syndrome
- Acute fatty liver of pregnancy
- Sepsis
- Drug-induced hepatitis

- Investigations should include:
- LFT
- Bile acids
- Full blood count
- Clotting profile
- Renal function
- serology for hepatitis A, B, C, Ebstien-Bar virus & cytomegalovirus
- liver autoantibodies (anti- mitochondrial antibodies, & anti-smooth muscle antibody).
- liver ultrasound & ultrasound for fetal growth & amniotic fluid

Complications:

- postpartum haemorrhage
- premature labour
- meconium-stained liquor
- fetal distress in labour
- intra-uterine death.

## Management:

- Pruritus may be troublesome and is thought to result from elevated serum bile salts.
- Control of pruritis: a combination of antihistamines & emollients , if no response ursodeoxycholic acid used.
- Vitamin K (water soluble form) should be given to the mother from the time of diagnosis to reduce the risk of postpartum haemorrhage.

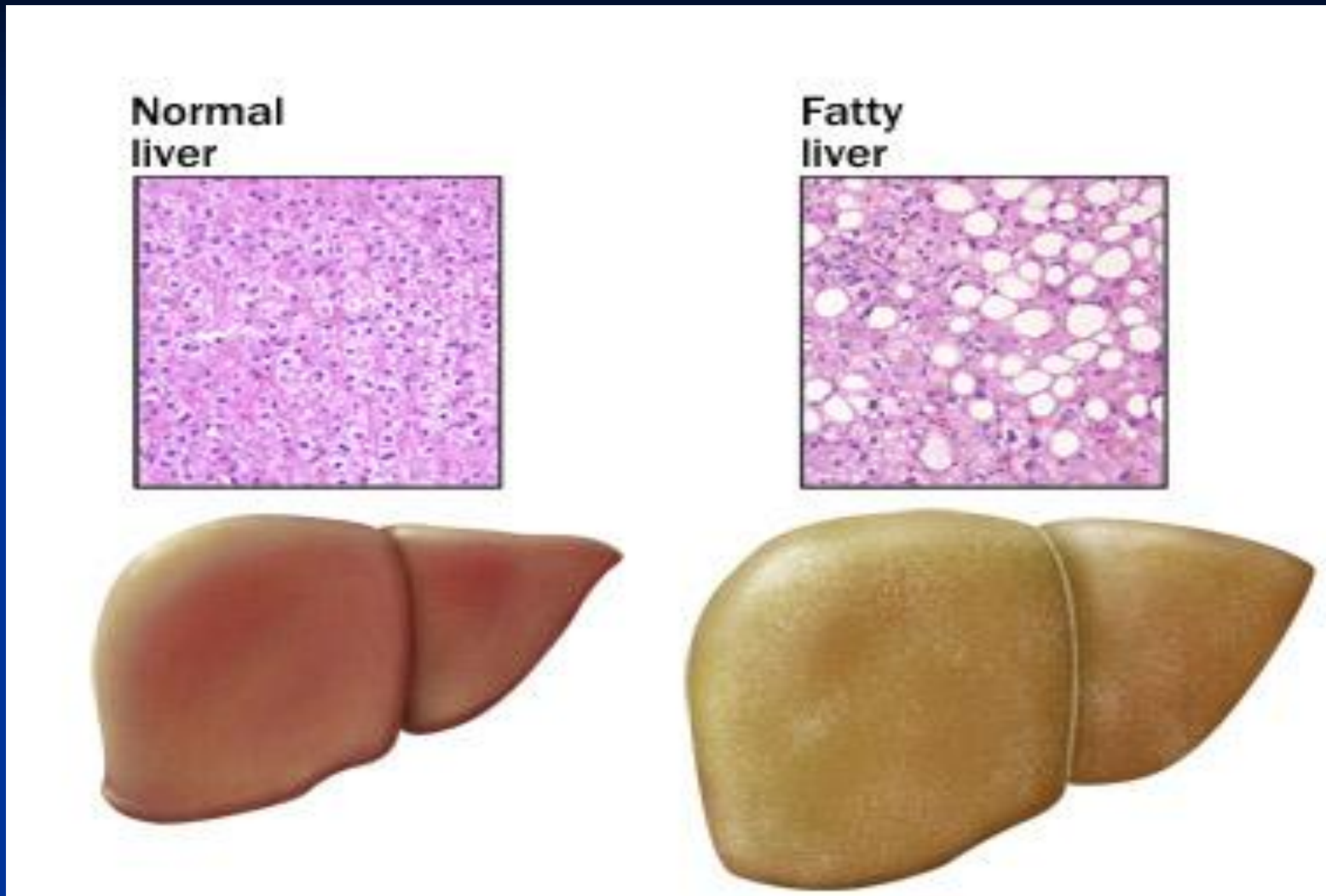
- LFT & clotting time should be monitored regularly.
- Fetal surveillance with CTG & ultrasound.
- delivery should be induced at 37-38 weeks.

- Following delivery, LFT returns to normal. Should be monitored at 6 weeks postpartum
- Symptoms may recur with estrogen containing oral contraceptives which should be avoided.
- Recurrence in subsequent pregnancy is very high

# Acute Fatty Liver of pregnancy:

- AFLP is closely related to pre-eclampsia (genetic defect in fatty acid oxidation).
- presents in the third trimester with abdominal pain, nausea, vomiting, anorexia & jaundice.

- aetiology is unknown but histologically perilobular fatty infiltration of liver cells is noted.

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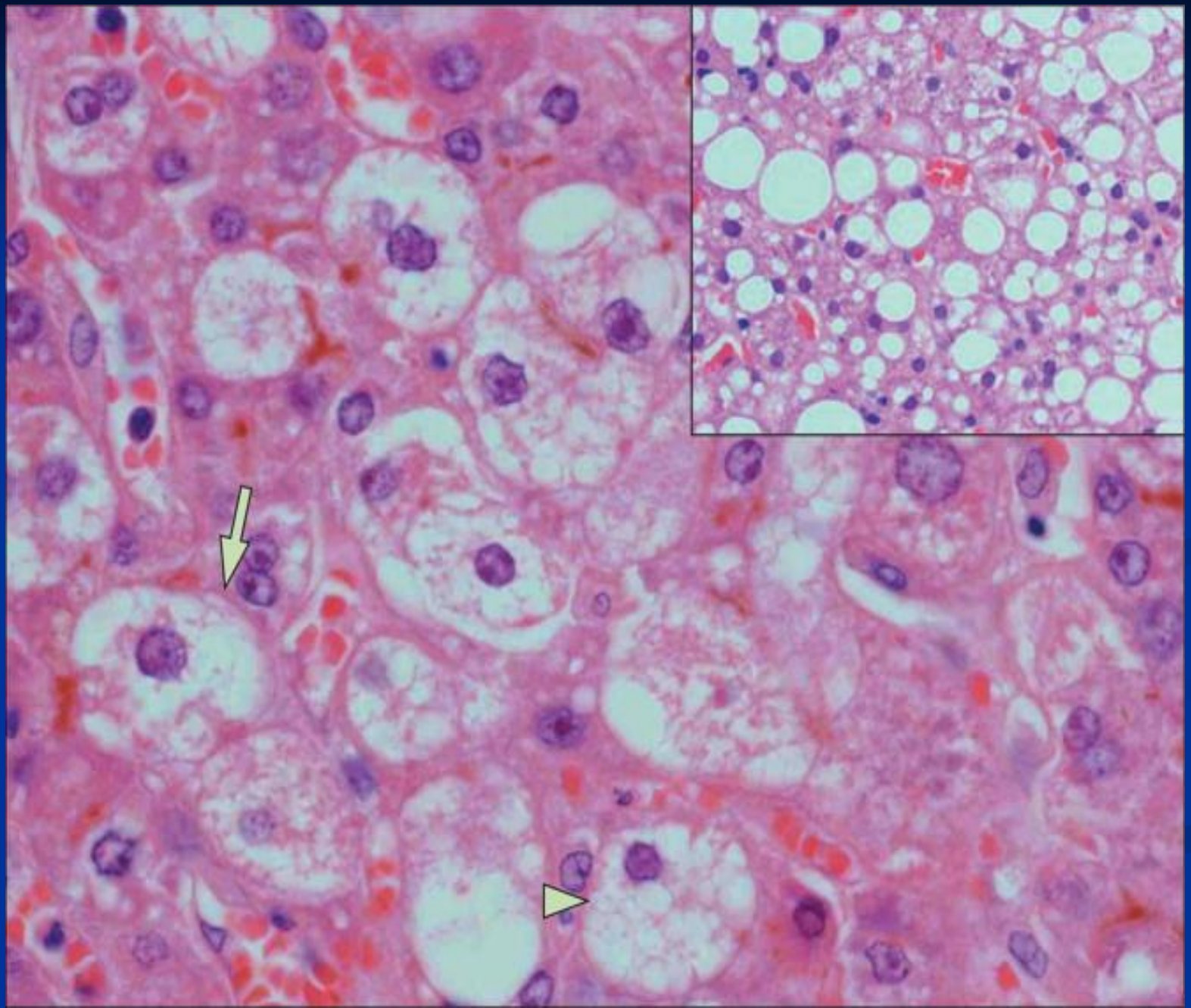


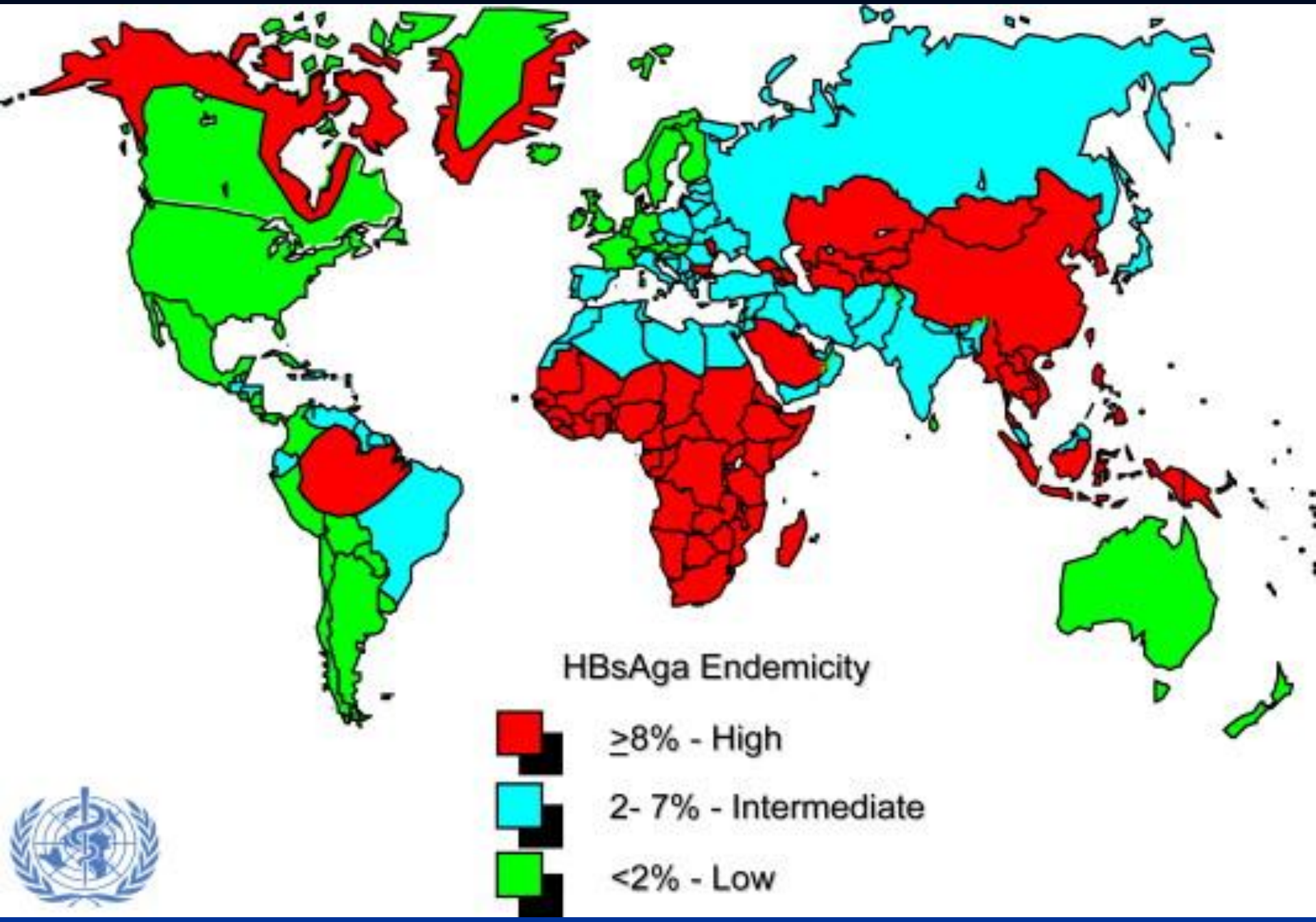
- Following the onset, there is a rapidly worsening cascade of problems.
- markedly deranged LFT, renal impairment, raised uric acid, raised white blood cells, hypoglycaemia & coagulopathy.
- Perinatal & maternal mortality & morbidity are increased. Maternal death result from hepatic encephalopathy or overwhelming haemorrhage.

# Management:

- Relies on early diagnosis.
- intensive care unit & multidisciplinary team.
- Delivery should be expedited, this will be by CS under GA, following correction of hypoglycaemia or coagulopathy with 50% dextrose, vitamin K , fresh frozen plasma & platelets.
- Management after delivery is conservative. Referral to liver unit is indicated if liver function still abnormal or there are features of hepatic encephalopathy.

## Viral Hepatitis & Pregnancy:

- most common cause of jaundice in pregnancy .
- None of the hepatitis viruses are known to be teratogenic .
- The course of most viral hepatitis infections is unaltered by pregnancy except with hepatitis E which exhibit markedly increased fatality rates.


HBsAga Endemicity
≥8% - High
2- 7% - Intermediate
<2% - Low

**Treatment:**

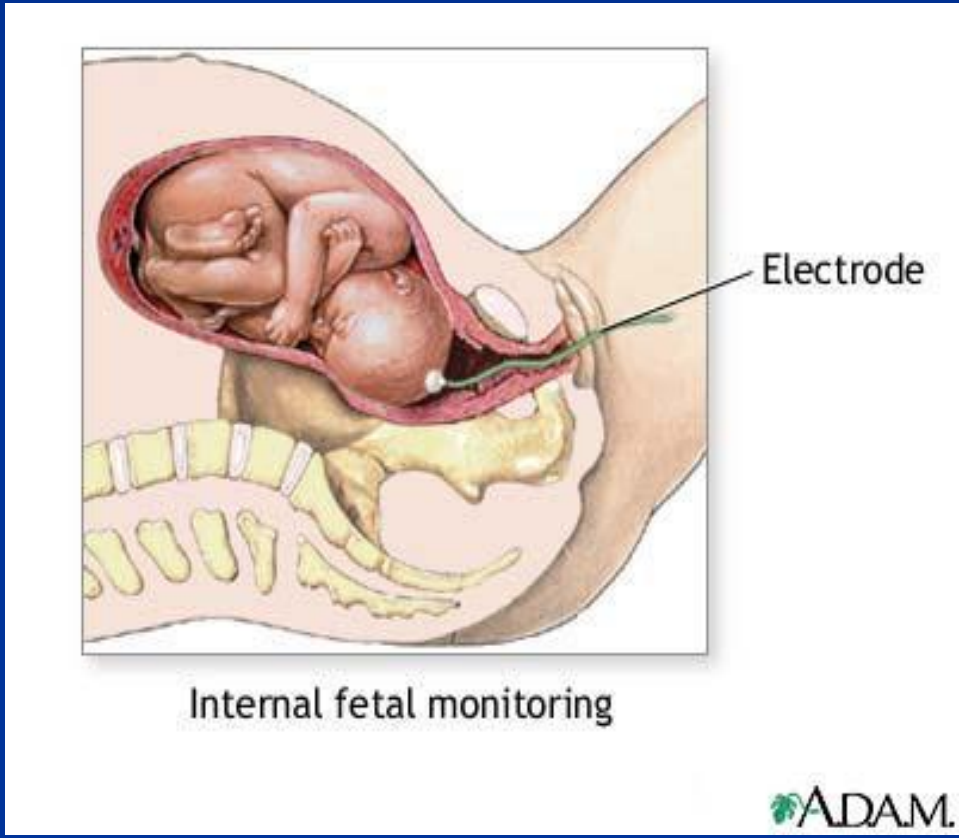
- may benefit from pharmacologic therapy for chronic HBV and chronic HCV infections.
- Interferon does not have an adverse effect on the embryo or fetus while the use of ribavirin during pregnancy is contraindicated.
- Post-exposure Prophylaxis for Susceptible Pregnant Women: HBV immunoglobulin, HAV vaccine, and HBV vaccine are approved for use during pregnancy.

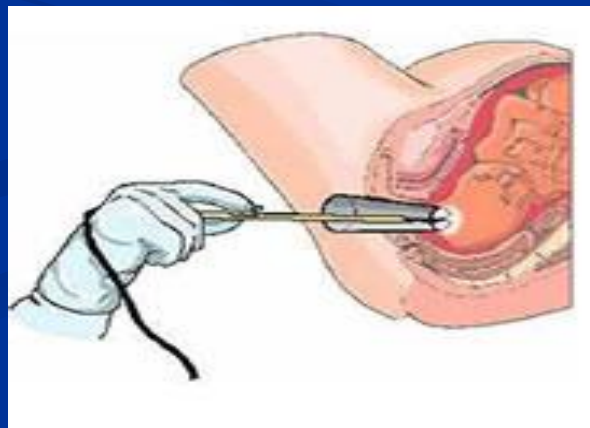
Vertical Transmition:

- HAV is not transmitted to the fetus in utero but may be transmitted to the neonate during delivery or during the postpartum period (fecal-oral route .
- The risk of HBV vertical transmission is 10 % in mothers with negative HBeAg and positive HBsAb while it is 90% in those with positive HBeAg. Neonatal HBV infection increase with increasing gestation.
- Universal screening of pregnant women for HBsAg is performed to reduce perinatal transmission of hepatitis B virus.

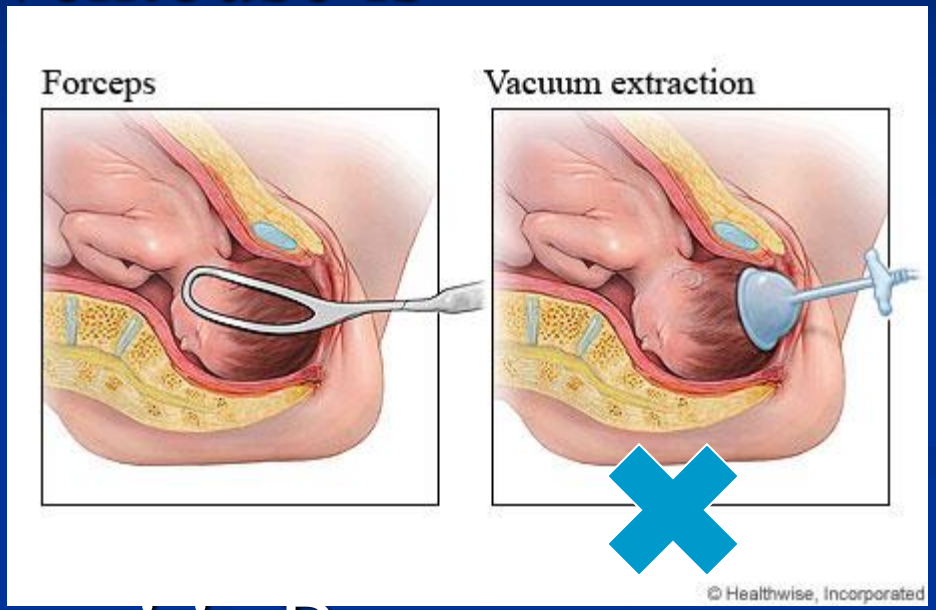
- Neonatal prophylaxis: Infants of HBsAg-positive mothers should receive hepatitis B immune globulin immunoprophylaxis at birth and hepatitis B vaccine at one week, one month and six months after birth .
- This regimen reduces the incidence of hepatitis B virus vertical transmission to zero to 3%.

- Delivery by cesarean section is not recommended.
- Intrapartum fetal scalp electrode & fetal blood sampling should be avoided.



- If instrumental delivery is needed, forceps rather than ventouse is appropriate.



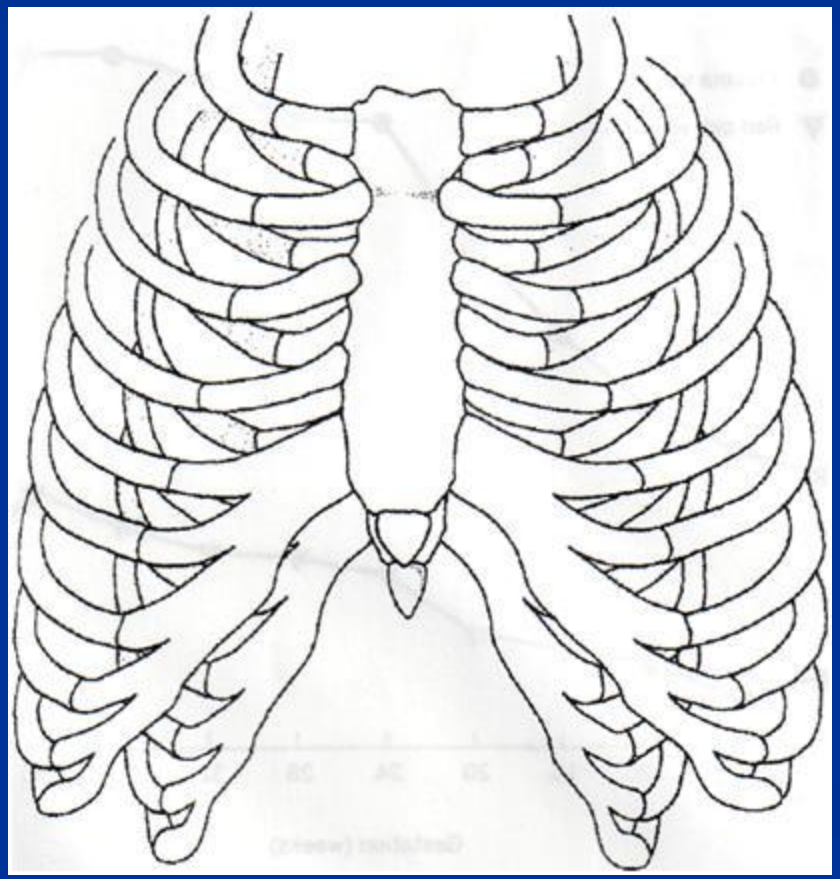

- With appropriate hepatitis B immunoprophylaxis, breast-feeding poses no additional risk for maternal to child transmission

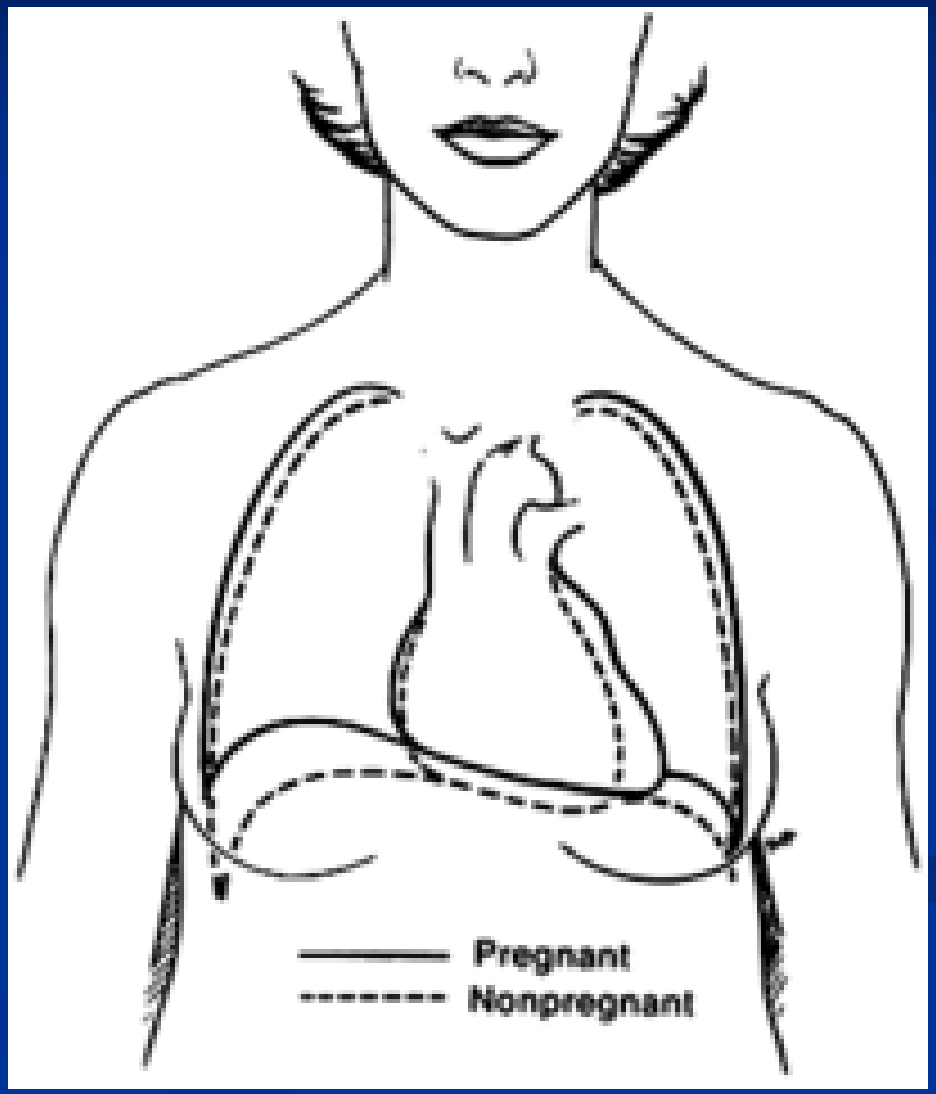
# Asthma in Pregnancy

# Physiological changes in pregnancy

- Dyspnea is experienced by approximately half of all pregnant women by 20 weeks gestation because of high progesterone levels which acts via the Hypothalamus to increase respiratory drive.

- Anatomically, the lower chest wall circumference increases by 5-7 cm, the diaphragm is elevated 4-5 cm by term & the costal angle widens. These changes occur due to the pressure from the expanding uterus & the relaxation of thoracic ligaments.




Pregnant
Nonpregnant

# Asthma in Pregnancy

- The prevalence of asthma in pregnancy is about 3 –12 per cent.

Effect of pregnancy on asthma severity:

- asthma remains stable in one-third of women, worsens in another third and improves in the remaining third.
- most episodes occur between 24 and 36 weeks of pregnancy

- The potential benefit of pregnancy-induced immune system modulation & progesterone-mediated bronchodilatation may be opposed by the reluctance of patient & physician to teat asthma for the fear of harming the fetus through drug exposure.

# The effect of asthma on pregnancy:

- Severe & poorly controlled asthma have a detrimental effect on pregnancy including:
- intrauterine growth restriction
- hypertensive disorders
- preterm labour
- intrauterine fetal death.

- Labour and delivery : are not usually affected by asthma and attacks are uncommon in labour.

- Postpartum, there is no increased risk of exacerbations and those whose asthma deteriorated during pregnancy have usually returned to pre-pregnancy levels by three months after birth.

# Management of asthma in pregnancy:

- Same as in non-pregnant patient. Prevention is the key & known triggers of exacerbations should be avoided .
- Short-acting & long-acting beta2-agonists, inhaled steroids & theophylline can be used in pregnancy. These drugs will suffice for mild to moderate asthmatics
- Epinephrine should be avoided in the pregnant patient. it can lead to possible congenital malformations, fetal tachycardia, and vasoconstriction of the uteroplacental circulation

- Women with more severe asthma who have stabilized on leukotriene receptor antagonist may continue them through out pregnancy.

- Prednisolone is the oral steroid of choice in pregnancy, as 88 % of it is metabolized by the placenta, limiting fetal exposure.

The teratogenic risk & possible harmful fetal effects of maternal steroid treatment remain an area of controversy.

## Managing pregnancy in asthmatic patients:

- Well-controlled mild to moderate asthmatics will have a normal out come with standard antenatal care. For those with poorly controlled or severe asthma , care should be multidisciplinary.
- Baseline investigations, such as peak flow measurements should be obtained at booking.
- Medical treatment should be optimized, with repeated reassurance about the use of necessary drugs in pregnancy.
- Women taking Prednisolone should be screened for glucose intolerance

Labour & delivery:

- Parenteral steroid cover may be needed for those who are on regular steroids
- regular medications should be continued throughout labour .
- bronchoconstrictors, such as ergometrine or prostaglandin F2α, should be avoided.
- Adequate hydration is important.
- regional anaesthesia favoured over general, to decrease the risk of bronchospasm, provide adequate pain relief and to reduce oxygen consumption and minute ventilation.

- Breast feeding is not contraindicated with any of the medications used although high-dose oral steroid use ( $\geq$ 40 mg per day )carries a risk of neonatal adrenal suppression