



HEPATITIS AND PREGNANCY

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Liver disease in pregnancy

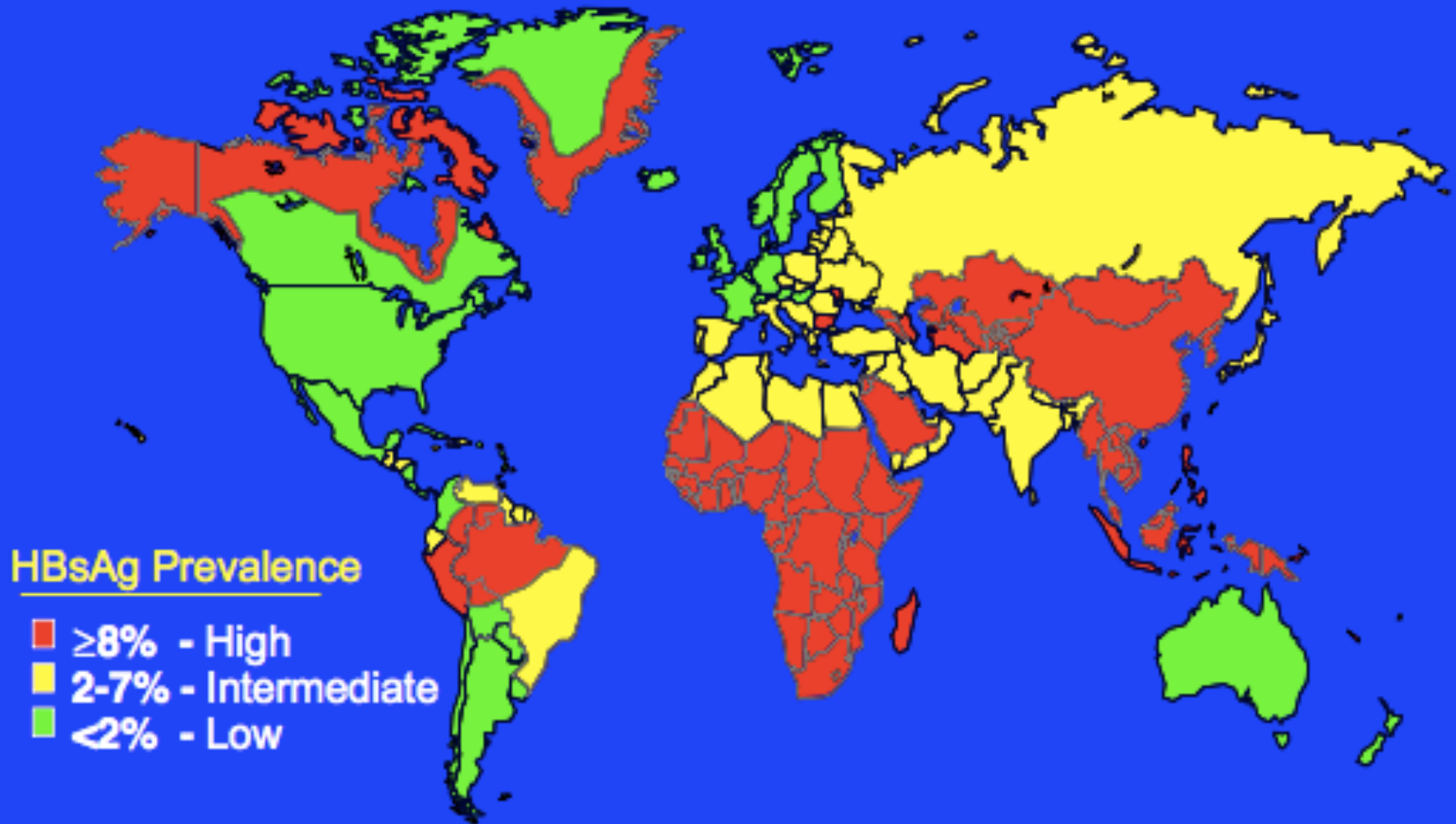
- **Three possible etiologic relationship:**
 1. The patient has a liver disease induced by pregnancy; acute fatty liver disease of pregnancy, intrahepatic cholestasis of pregnancy, hyperemesis gravidarum, preeclampsia or HELLP syndrome

Liver disease in pregnancy

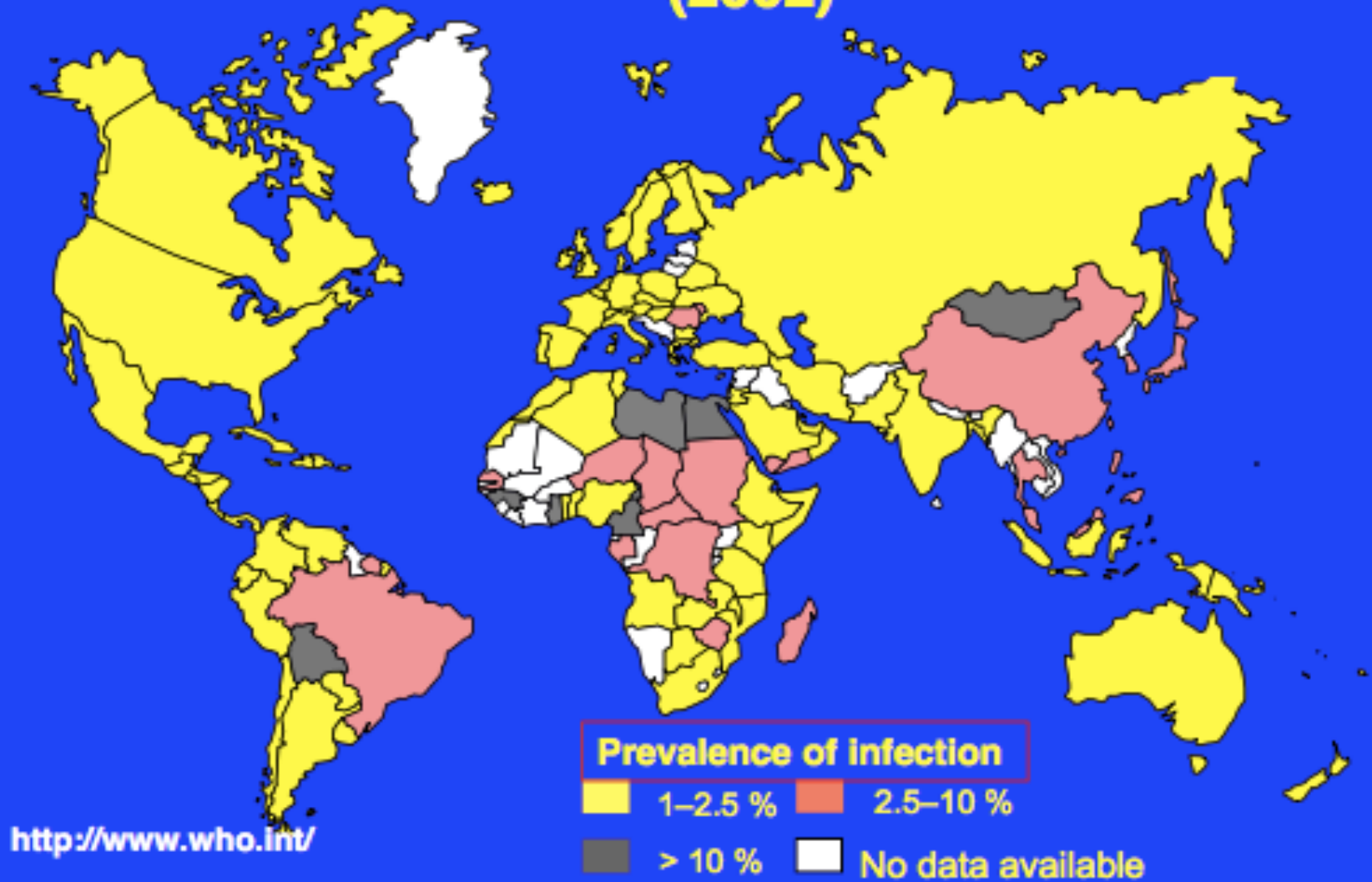
- *Three possible etiologic relationship:*
 2. The patient has developed a new liver disease during pregnancy mainly hepatobiliary disease.
 3. The patient has preexisting chronic liver disease, mainly chronic hepatitis B and C

Our topic will discuss this last issue

Geographic Distribution of Chronic HBV Infection



Prevalence of Chronic Hepatitis C (2002)



Hepatitis and pregnancy

- In women with severe chronic liver disease, pregnancy is **unusual**
- ☑ Most such women are not of child-bearing age
- ☑ the chronic liver disease is associated with anovulatory state.

Cirrhosis and portal hypertension

- The main problem for a pregnant woman with cirrhosis and portal hypertension include *worsening jaundice with progressive liver failure, ascites, and hepatic coma.*
- The increase in total *blood volume* associated with pregnancy may worsen pre-existing *portal hypertension and variceal hemorrhage* during pregnancy and labor has been described, but is a rare situation

Cirrhosis and portal hypertension

- Women with known cirrhosis who desire pregnancy should be endoscoped to look for varices before pregnancy.
- If present, patients should be informed of the increased risk with pregnancy

Cirrhosis and portal hypertension

- Patients at high risk for variceal bleeding should be considered for primary prophylaxis with non-selective beta blockers (eg [propranolol](#) or [nadolol](#))
- Newborns should be monitored during the first days of life because of risks of hypoglycemia and bradycardia.

Chronic hepatitis B or C and pregnancy

Complete evaluation of the patient:

- clinical examination, liver tests, prothrombine time, albumine, HBV-DNA, HCV-RNA
- if you suspect a cirrhosis, perform an upper GI endoscopy to look for esophageal varices.

Chronic hepatitis B and pregnancy

- Pregnancy is well tolerated by women who are chronic **carriers** of hepatitis B
- The placenta forms an excellent **barrier** against transmission of this large virus and intrauterine infection is **rare**.

Chronic hepatitis B and pregnancy

- The major problem for women who are chronic carriers of HBV *is the risk of maternal to infant (vertical) transmission at delivery due to exposure to maternal blood in the birth canal.*
- Routine prenatal screening of all pregnant women for HBsAg and universal hepatitis B vaccination of all newborns at birth is the standard of care.

Chronic hepatitis B and pregnancy

- Transmission at birth is more likely if the mother is : *Hbe Ag positive B or has high circulating levels of HBV-DNA.*
- Active (vaccine) and passive (HBIG):
immunization interrupts transmission in over 90 %
What could be proposed to try to reach 100 % ?

Chronic hepatitis B and pregnancy

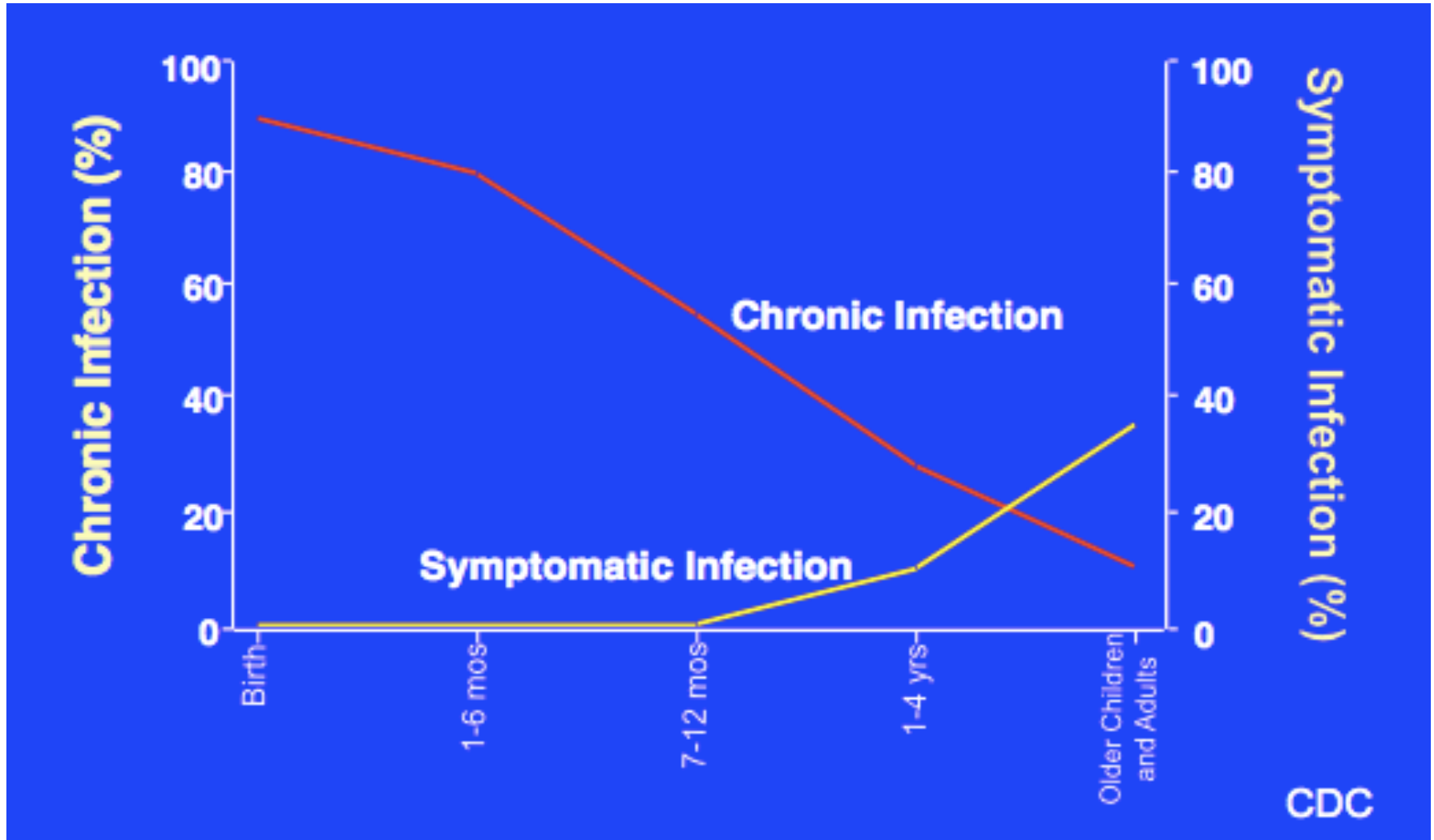
Lamivudine during pregnancy

A small study has been performed in Taiwan in women becoming pregnant during a treatment with lamivudine: some agreed to continue the treatment during the pregnancy: → → →

🍏 the treatment was safe for the baby: no increase of stillbirths or premature delivery

🍏 the protection reached 100 %

Outcome of Hepatitis B Virus Infection by Age at Infection



Prevalence of Hepatitis C in pregnant women (anti-HCV +)

Serial	Country	%
1	Egypt	15.8
2	Pakistan	3.2
3	Burkina Faso	1.5*
4	Ivory Coast	1*
5	USA	1
6	Switzerland	0.7
*	Higher incidence in HIV + pregnant women	

Hepatitis C and pregnancy

- 56 % of 266 women with elevated ALAT at the beginning of pregnancy,
- 7% at third trimester and again
- 55% 6 months after delivery (*Conte D, Hepatology 2000*)
- • Viral load increased in third trimester (*Gervais A, J Hepatol 2000*)

Hepatitis C- vertical transmission

(Mother To Child Transmission MTCT)

- 442 / 25 654 (1.7 %) pregnant women with positive anti-HCV antibodies
- 403 children followed for 28 months
- All children had **positive anti-HCV** antibodies at birth
- All children **HCV-RNA negative** lost anti-HCV antibodies in 20 months

(Resti M. BMJ 1998; 317:437-441)

Hepatitis C- vertical transmission

(Mother To Child Transmission MTCT)

- 0 / 128 children born of HCV-RNA negative mother acquired infection
- 13 / 275 children of HCV-RNA positive mother acquired infection
- 6 were HCV-RNA positive at birth
- transmission rate : 5 % (3 to 7 %)
- 2.5 % before birth
- 2.5 % during first 6 months

(Resti M. BMJ 1998; 317:437-441)

Hepatitis C- vertical transmission

(Mother To Child Transmission MTCT)

Risk of transmission is not different according to:

- Mode of delivery
- Viral load of mother
- Feeding type of child
- Do consider avoiding forceps

(expert opinion)

Hepatitis C- vertical transmission

(Mother To Child Transmission MTCT)

- *Cesarean versus Vaginal*

-  **Cochrane Database of Systematic Reviews 2006 :**

- No RC trials , only observational studies
- Cesarean cannot be recommended (in HIV-)

-  **Factors that may increase risk of MTCT**


- Viral load > 10⁵ copies
- ALT > 110 u/l
- Blood loss at delivery > 500 g

(Hayashida A. J Obst & Gynecol Research 33(4):417,2007)

Hepatitis C- vertical transmission

(Mother To Child Transmission MTCT)

- **Rate of MTCT:**

 **Detection** : at 2 months VHC-RNA
at 18 months anti-VHC

→ → on average 5 %

 **CDC** 3.8 % in **HIV- ve** and 25 % in **HIV +ve**

HCV - PCR testing

- Predictive value

🍏 Children with low proportion of **+ve PCR** results ($\leq 75\%$ of time) more likely to clear HCV than those with high proportion of positive PCR results ($P < .0001$)

36.5% vs 5.6%; OR, 9.77 (95% CI, 2.92-32.67)

🍏 Children with high proportion of **+ve PCR** results more likely to have positive results in:

- Years 2 and 3: adjusted OR, 3.59 ($P < .01$)

- Year 2 and older: adjusted OR, 2.92 ($P < .03$)

(European Paediatric Hepatitis C Virus Network. Clin Infect Dis. 2005;41:45-51.)

Conclusion

- **Among children with vertically acquired HCV:**

-  ~ 20% clear the virus

-  ~ 50% develop chronic asymptomatic infection

-  ~ 30% develop chronic active infection

European Paediatric Hepatitis C Virus Network. Clin Infect Dis.
2005;41:45-51.

Conclusion

- 🍏 Low viral activity within first year of life associated with subsequent viral clearance
- 🍏 Hepatomegaly most common clinical symptom observed
- 🍏 Hepatomegaly, persistent viremia are common in HCV/HIV- co-infected children


(European Paediatric Hepatitis C Virus Network. Clin Infect Dis. 2005;41:45-51).


ACOG RECOMMENDATIONS

(2007refined 2012)


- **Levels of Recommendation**
- **Level A** — Recommendations are based on good and consistent scientific evidence.
- **Level B** — Recommendations are based on limited or inconsistent scientific evidence.
- **Level C** — Recommendations are based primarily on consensus and expert opinion.


ACOG- Level A recommendations

 Routine prenatal screening of all pregnant women by hepatitis B surface antigen (HBsAg) testing is recommended.

 Newborns born to hepatitis B carriers should receive combined immunoprophylaxis consisting of hepatitis B immune globulin (HBIG) and hepatitis B vaccine within 12 hours of birth.

ACOG- Level A recommendations

 Hepatitis B infection is a preventable disease, and all at-risk individuals, particularly health care workers, should be vaccinated.

 All infants should receive the hepatitis B vaccine series as part of the recommended childhood immunization schedule.


ACOG- Level A recommendations




Breastfeeding is **not** contraindicated in:



- women with hepatitis A virus (HAV) infection with appropriate hygienic precautions,
- in those chronically infected with hepatitis B if the infant receives HBIG passive prophylaxis and vaccine active prophylaxis,
- or in women with hepatitis C virus (HCV) infection.

ACOG- Level B recommendations

 Routine prenatal HCV screening is **not** recommended; however, women with significant risk factors for infection should be offered antibody screening.

 Route of delivery has **not** been shown to influence the risk of vertical HCV transmission, and cesarean delivery should be reserved for **obstetric indications** in women with HCV infection.

ACOG- Level C recommendations

-  The risk of transmission of hepatitis B associated with amniocentesis is **low**.
-  Susceptible pregnant women who are at risk for hepatitis B infections should be specifically targeted for **vaccination**.

APPENDIX

- **Levels of Recommendation**
- Level A — Recommendations are based on good and consistent scientific evidence.
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- Level C — Recommendations are based primarily on consensus and expert opinion.

APPENDIX-2

Grades of Evidence

- I** Evidence obtained from at least one properly designed randomized controlled trial.
- II-1** Evidence obtained from well-designed controlled trials without randomization.
- II-2** Evidence obtained from well-designed cohort or case–control analytic studies, preferably from more than one center or research group.
- II-3** Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments also could be regarded as this type of evidence.
- III** Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees.

THANKS

