Hepatitis and pregnancy

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Liver disease and pregnancy: three possible etiologic relationship

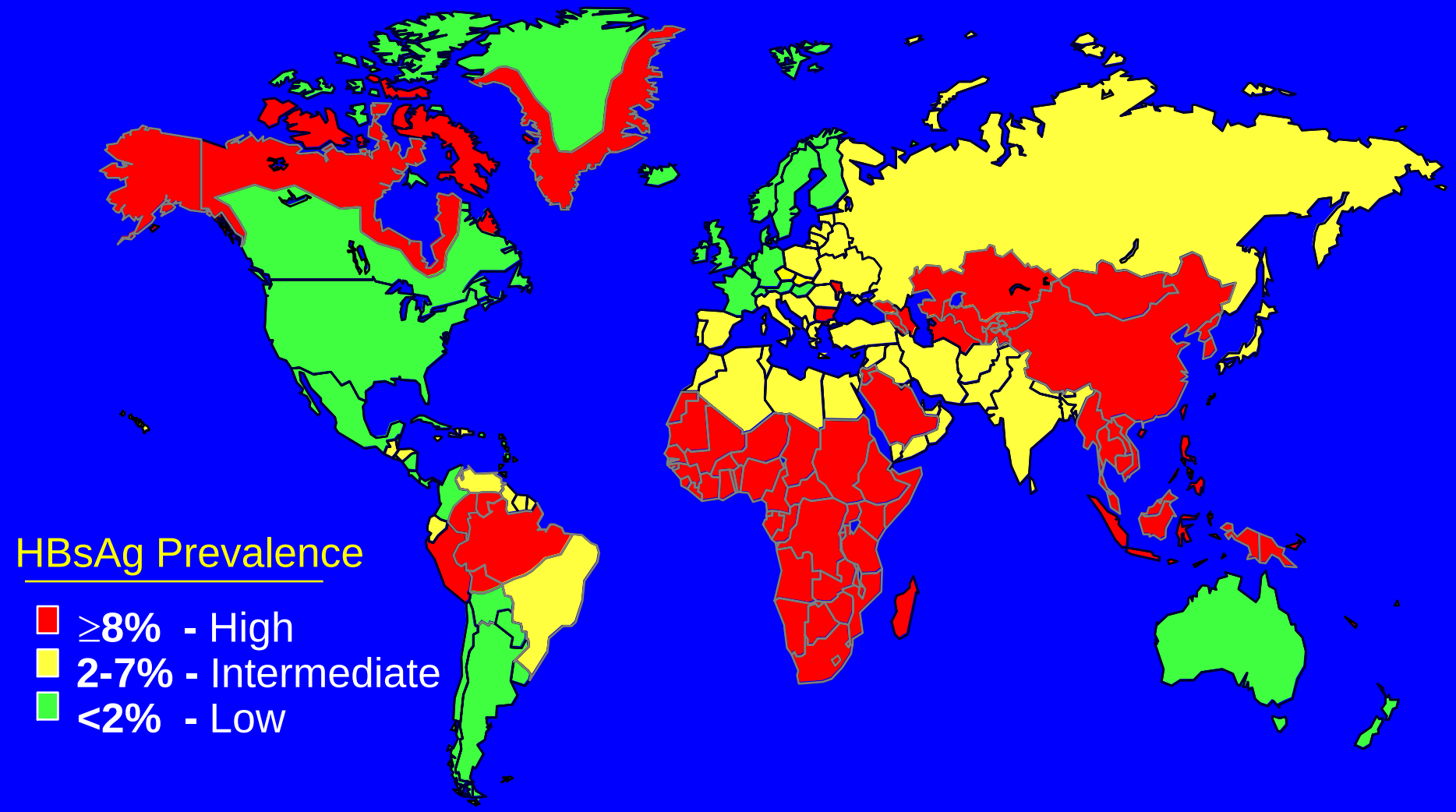
- *the patient has a liver disease induced by pregnancy : acute fatty liver disease of pregnancy, intrahepatic cholestasis of pregnancy, hyperemesis gravidarum, preeclampsia or HELLP syndrome*
- *the patient has developed a new liver disease during pregnancy mainly hepatobiliary disease*

Liver disease and pregnancy: three possible etiologic relationship

- *the patient has preexisting chronic liver disease, mainly chronic hepatitis B and C*

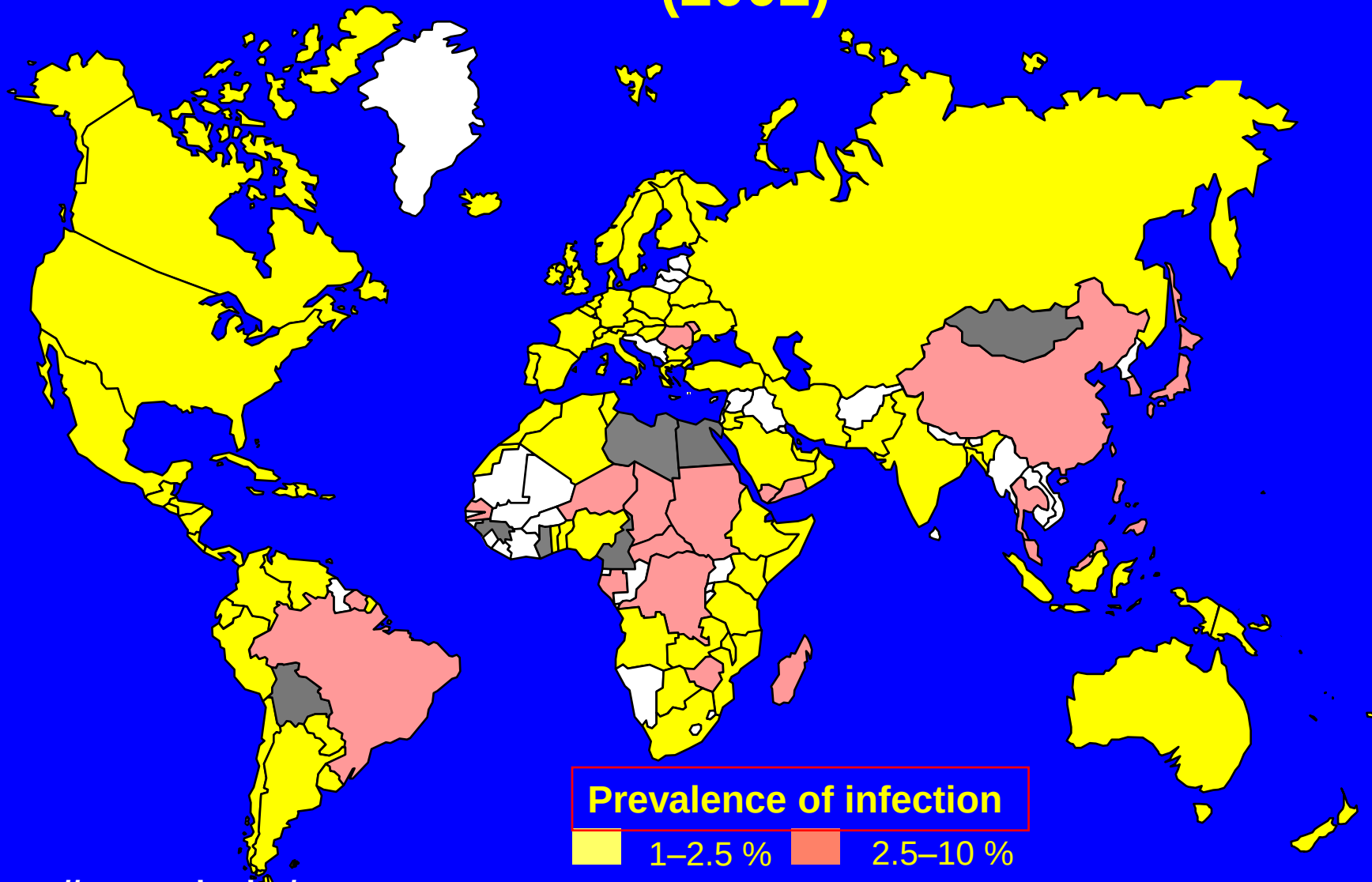
- *- this topic review will discuss this last issue*

Geographic Distribution of Chronic HBV Infection



CDC

Prevalence of Chronic Hepatitis C (2002)



http://www.who.int/

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 women is cirrhosis and portal hypertension:

- worsening jaundice with progressive liver failure

- ascites

- hepatic coma

Cirrhosis and portal hypertension

The increase in total blood volume associated with pregnancy may worsen preexisting 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, albumines, HBV-DNA, HCV-RNA*
- *if you suspect a cirrhosis, perform an upper GI endoscopy to look for 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 :

HBeAg positive B

or

has high circulating levels of HBV-DNA

Chronic hepatitis B and pregnancy

Active (vaccine) and passive (HBIG) immunisation interrupts transmission in over 90 %

What could be proposed to try to reach 100 % ?

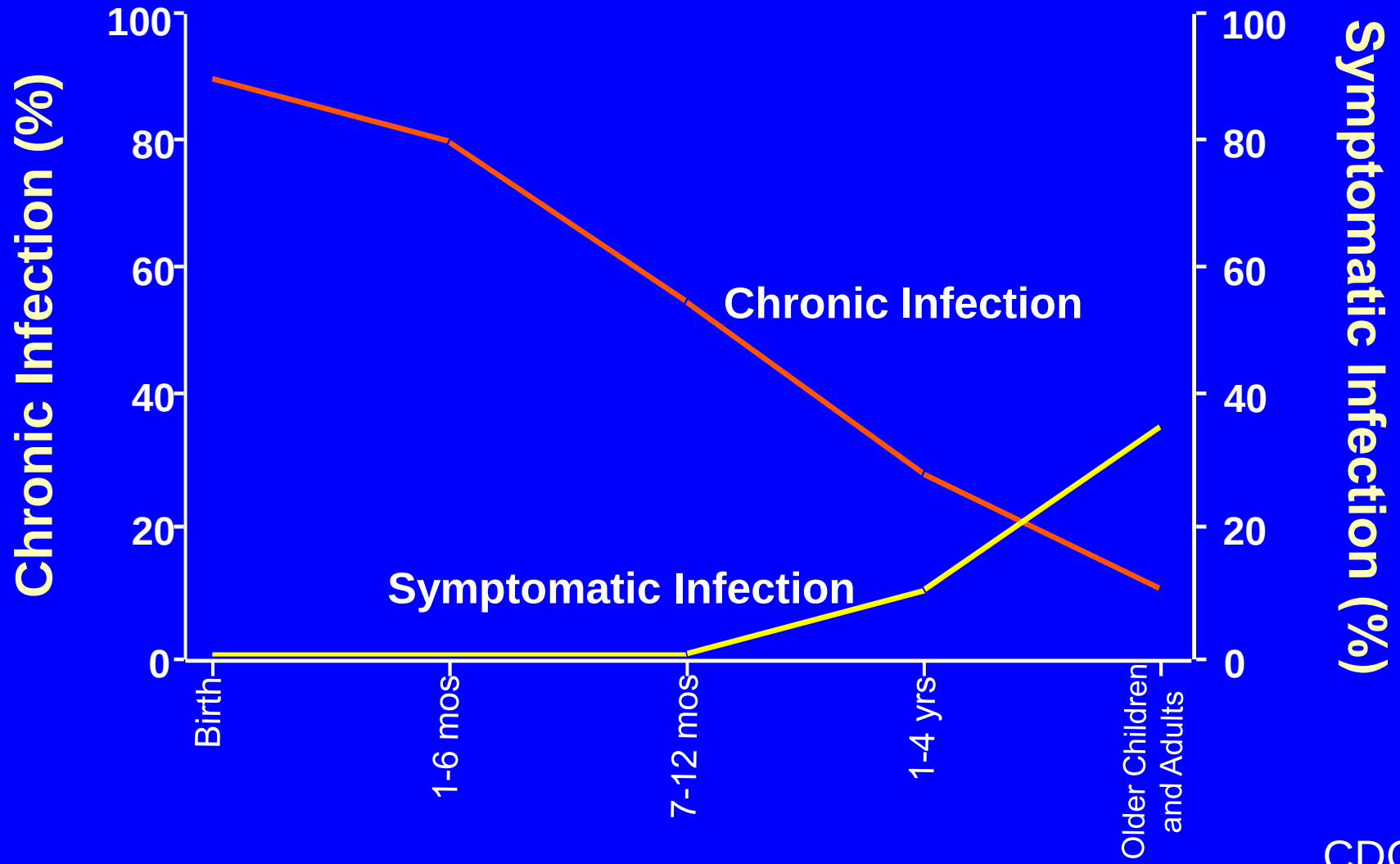
Lamivudine during pregnancy

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



CDC

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

- USA 1%
- Switzerland 0.7%
- Burkina Faso 1.5% *
- Ivory Coast 1.0% *
- Pakistan 3.2%
- Egypt 15.8%

* higher prevalence 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
study of mother to child transmission

- 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: MTCT mother to child transmission

- 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
mother to child transmission (MTCT)

- *Expert opinion*

- Risk of transmission is not different according to
  - Mode of delivery
  - Viral load of mother
  - Feeding type of child
  - Do consider avoiding forceps

MTCT Cesarean versus vaginal delivery

- 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

Rate of MTCT of hepatitis C

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

- on average 5 %
- CDC 3.8 % in HIV- and 25 % in HIV+

Predictive Value of HCV PCR Test

- Children with low proportion of positive PCR results (≤ 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 positive 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.

Key Conclusions

- Among children with vertically acquired HCV:
  - ~ 20% clear the virus
  - ~ 50% develop chronic asymptomatic infection
  - ~ 30% develop chronic active infection
- Low viral activity within first year of life associated with subsequent viral clearance
- Hepatomegaly most common clinical symptom observed
- Hepatomegaly, persistant viremia common in HCV/HIV-coinfected children

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