Examination

1. **Hepatitis B**
   a. is a circular RNA virus.
   b. is unique in that it is single stranded for two-thirds of its length
   c. contains its own DNA polymerase enzyme.
   d. has eighteen distinct serotypes.
   e. is a single stranded DNA virus

2. **Patients who are at increased risk for being a chronic carrier of Hepatitis B include all of the following EXCEPT**
   a. Asians, Eskimos, and Sub-Saharan Africans
   b. individuals who work in the shellfish industry
   c. homosexual activity and prostitution
   d. patients with multiple tattoos
   e. hemodialysis patients

3. **At the present time, there are**
   a. 100 to 200 million carriers worldwide with a carrier rate in the United States ranging between 0.5% and 5% depending upon the population tested.
   b. 1 to 2 billion carriers worldwide with a carrier rate in the United States ranging between 1% and 2% depending upon the population tested.
   c. 200 to 250 thousand carriers worldwide with a carrier rate in the United States ranging between 0.1% and 1% depending upon the population tested.
   d. 350 to 400 million carriers worldwide with a carrier rate in the United States ranging between 0.1% and 1% depending upon the population tested.
   e. 2 to 2.5 billion carriers worldwide with a carrier rate in the United States ranging between 1% and 10% depending upon the population tested.

4. **Individuals who become chronically infected with HBV have a**
   a. 1% to 2% chance of progressing to cirrhosis and a 100 fold increased risk for developing hepatocellular carcinoma.
   b. 5% to 10% chance of progressing to cirrhosis and a 500 fold increased risk for developing hepatocellular carcinoma.
   c. 50% to 65% chance of progressing to cirrhosis and a 300 fold increased risk for developing hepatocellular carcinoma.
   d. 25% to 50% chance of progressing to cirrhosis and a 600 fold increased risk for developing hepatocellular carcinoma.
   e. 10% to 25% chance of progressing to cirrhosis and a 200 fold increased risk for developing hepatocellular carcinoma.

5. **If an adult becomes acutely infected with Hepatitis B, there is about a _____ of becoming a chronic carrier.**
   a. 10% chance
   b. 40% chance
   c. 50% chance
   d. 70% chance
   e. 90% chance
6. The laboratory testing involved with Hepatitis B is one of the more difficult areas in understanding this infection. In the general laboratory evaluation, all of the following are available as blood tests EXCEPT
a. anti-HBsAg
b. HBCAg
c. anti-HBcAg
d. HBsAg
e. anti-HBeAg

7. The presence of the e antigen signifies
a. that the patient has become immune.
b. that the patient has become a chronic carrier.
c. active viral replication and a more infectious state.
d. that the patient has a lower infectivity capability.
e. that the patient will respond better to the vaccine.

8. A patient who becomes immune to a hepatitis B infection will be
a. positive for both anti-HBcAg and anti-HBsAg.
b. negative for both anti-HBcAg and anti-HBsAg.
c. negative for anti-HBcAg but positive for HBeAg.
d. positive for both anti-HBeAg and HBsAg.
e. positive for both anti-HBcAg and HBsAg.

9. A positive IgG anti-HBcAg denotes
a. that the killer antibody has developed.
b. that the individual is now protected against future infection.
c. that the patient is highly infectious.
d. that the patient has a lower infectivity capability.
e. that an HBV infection occurred sometime in the past.

10. The spread of Hepatitis B between individuals primarily occurs in all of the following ways EXCEPT
a. through blood or blood products
b. sexually
c. through IV drug abuse
d. contaminated shellfish
e. from mother to baby

11. The current estimated risk of transmitting an HBV infection per unit of blood transfused from units that are negative in laboratory testing is
a. 1 in 50,000
b. 1 in 3,000
c. 1 in 300,000
d. 1 in 200,000
e. 1 in 700,000

12. Sexual transmission is also significant when compared to other viral infections. Up to _____ of spouses will become infected after contact with a partner who has an acute infection.
a. 90%
b. 74%
c. 10%
d. 5%
e. 40%
13. **Vertical transmission of the hepatitis B virus from the mother to the neonate is a major concern.**

   Studies have shown:
   a. that up to 70% to 90% of neonates can become chronic carriers of the disease if they do not receive appropriate immunoprophylaxis following delivery.
   b. that up to 30% to 40% of neonates can become chronic carriers of the disease despite receiving appropriate immunoprophylaxis following delivery.
   c. that up to 70% to 90% of neonates can become immune from the disease if they just receive HBIG following delivery.
   d. that up to 30% to 40% of neonates can become immune from the disease if they receive both HBIG and vaccine following delivery.
   e. that up to 70% to 90% of neonates can become chronic carriers of the disease if they are delivered by cesarean section.

14. **The transmission of HBV from an infected mother to the infant primarily occurs**

   a. in utero early on in gestation.
   b. in utero late in gestation.
   c. at the time of delivery.
   d. after delivery through breastfeeding.
   e. around the time of conception.

15. **Which of the following statements regarding breastfeeding is TRUE?**

   a. Breastfeeding in a patient who is HBsAg positive should not be allowed.
   b. If HBsAg is found in breast milk, this will result in a neonatal infection.
   c. It is of utmost importance, that these infants are adequately treated with both HBIG and the full vaccine protocol.
   d. HBsAg has not been detected in breast milk.
   e. Breastfeeding in a patient who is anti-HBcAg positive should be allowed, but not if she is anti-HBeAg positive.

16. **Which of the following statements is TRUE?**

   a. Since the development of the hepatitis B vaccine in 1982, the rate of acute hepatitis B viral infections in the United States has decreased by 95%.
   b. Epidemiology studies reveal that only 2,000 acute HBV infections occur in the United States each year.
   c. Perinatal hepatitis B infections account for the majority of annual infections at 200,000 cases per year.
   d. Research has shown that there is a significant incidence of child-to-child transmission of this virus.
   e. The American Academy of Pediatrics and the Centers for Disease Control now recommend that all children receive the hepatitis B vaccine series in a hope that this will prevent future transmission from shellfish.

17. **The best treatment approach for HBV is**

   a. the use of interferon alpha-2b.
   b. to prevent infection through the use of immunization.
   c. the use of prednisone.
   d. the use of Zidovudine.
   e. the use of Lamivudine.

18. **The immunogenicity of the hepatitis B vaccine is excellent with over _____ of the vaccinated population developing antibody to the hepatitis B surface antigen following the third injection.**

   a. 90% to 95%
   b. 80% to 83%
   c. 70% to 78%
   d. 60% to 67%
   e. 55% to 61%

19. **It is important to note that the site of vaccine injection is important. Adults should receive**

   a. an intramuscular injection (IM) in the anterolateral thigh
   b. an intramuscular injection (IM) in the deltoid region
c. an intradermal injection
d. an intramuscular injection (IM) in the gluteal region
e. an intramuscular injection (IM) in the posterolateral thigh

20. **One of the current Hepatitis B vaccines made through recombinant DNA in yeast is?**
   a. Heptavax
   b. MMR
   c. HyperRHO
   d. Tdap
   e. Engerix-B