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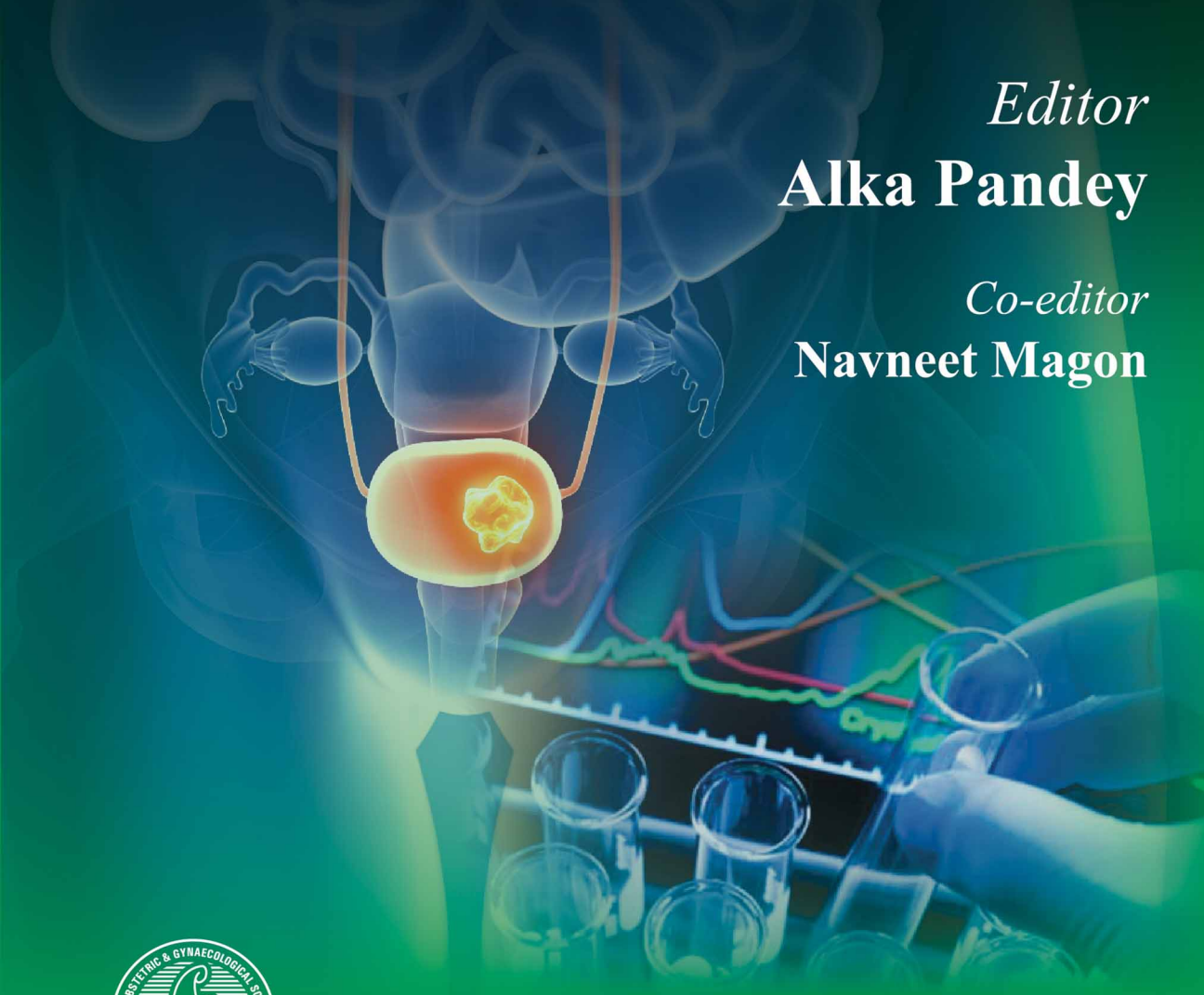

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4 Chapter

Screening for Hepatitis A, B, C and E during Pregnancy

Vijay Prakash, Ameet Kumar Banka

INTRODUCTION

Viral hepatitis is a life-threatening liver disease and frequently affects women of childbearing age, either as an acute infection or as a chronic disease. It is caused by hepatitis A, B, C and E virus, and is a major public health problem, particularly in developing countries. Hepatitis A does not appear to alter the normal course of pregnancy, nor does pregnancy appear to influence the natural history of hepatitis A. Acute and chronic viral hepatitis of other types, however, may have implications for maternal well-being as well as the outcome of gestation.

Hepatitis B and C transmission is predominantly parenteral, thus the prevalence of HBV and HCV in a population can be predicted by risk factors associated with the transmission of infection, such as injections, blood products transfusion, surgical procedures, body tattooing, occupational injury, sexual and vertical transmission. But many infected individuals deny history of any of these risk factors so that the likely source remains unidentified in some subjects. Both these infections lead to severe morbidity and mortality.

Measures, such as general health education, proper screening of blood and blood products, adoption of universal precautions and screening for hepatitis B and C can help in arresting the vertical as well as horizontal spread of infection. Currently, there is an ongoing debate regarding the benefits of universal or selective screening for hepatitis B and C in pregnancy.

HEPATITIS B VIRUS

Between 30 and 40 percent of all chronic HBV infections result from perinatal transmission. Chronic HBV infections increase long-term morbidity and mortality by predisposing infected persons to cirrhosis of the liver and liver cancer.

There are many who agree to offer all pregnant women screening for hepatitis B virus, mainly because uninfected women can be vaccinated during pregnancy, thus, availing this opportunity; those found to be infected can reduce their babies' risk of vertical transmission by post-delivery administration of immunoglobulins and hepatitis B vaccine, while vaccinating their family members can help preventing the horizontal spread.

The principal screening test for detecting maternal HBV infection is the serologic identification of hepatitis B surface antigen (HBsAg). Immunoassays for detecting HBsAg have a reported sensitivity and specificity of greater than 98 percent. The USPSTF (US Preventive Services Task Force) and AASLD (American Association of Study of Liver Diseases)[1] found convincing evidence that universal prenatal screening for HBV infection substantially reduces perinatal transmission of HBV and the subsequent development of

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chronic HBV infection. The current practice of vaccinating all infants against HBV infection and providing postexposure prophylaxis with hepatitis B immune globulin administered at birth to infants of mothers infected with HBV substantially reduces the risk of acquiring HBV infection.

Thus there is high certainty that the net benefit of screening pregnant women for HBV infection is substantial (Table 4.1).

HEPATITIS C VIRUS

The lack of any therapeutic option in pregnancy for hepatitis C infected pregnant women make many obstetricians feel that it may not be the right time to offer it as it may lead to significant psychological morbidity for mothers with nothing to be done during pregnancy. It is considered unjustifiable by some as there is no intervention to prevent mother-to-child transmission. Keeping in view the risk these infections pose to health care professionals, many feel that prior knowledge of the carrier status of the women alerts them to adopt pertinent precautions to prevent accidental injury.

Table 4.1: Screening for HBV Infection in Pregnancy: Clinical Summary of the USPSTF Recommendation

Population	All pregnant women
Recommendation	Screen at the first antenatal visit
	Grade: A
Screening tests	Serologic identification of HBsAg
	Reported sensitivity and specificity are >98%
Timing of screening	Order HBsAg testing at the first antenatal visit
	Rescreen women with unknown HBs Ag status or new or continuing risk factors at admission to hospital, birth center, or other delivery setting
Interventions	Administer hepatitis B vaccine and hepatitis B immune globulin to HBV-exposed infants within 12 hours of birth
	Refer women with positive test results for counseling and medical management
	Counseling should include information about how to prevent transmission to sex partners and household contacts
	Reassure patients that breastfeeding is safe for infants who receive appropriate prophylaxis.

Abbreviation: USPSTF, US Preventive Services Task Force; HBsAg, Hepatitis B Surface antigen

In developing countries like India, because of poverty and lack of health care facilities, pregnancy is usually the only time for many women to contact a health care facility. Antenatal HCV testing provides an opportunity to identify asymptomatic women with chronic disease, who may benefit from antiviral therapy following pregnancy, at a time when they are more receptive to medical intervention.

On the basis of a 1% to 2%[2] estimated prevalence of HCV, and an average vertical transmission rate of 5%, even if effective preventive measures were available, it would be necessary to screen a minimum of 5, 000 to 10,000 unselected pregnant women to prevent a single case of vertical HCV transmission. To the extent that preventive measures would not be completely effective, an even greater number of women would need to be screened. Thus, given the lack of measures to prevent transmission and to treat the infection efficiently, universal screening in pregnancy cannot be justified in geographic areas with low HCV prevalence. However, women with certain risks should be offered anti-HCV testing during pregnancy.

Indications for HCV Screening in Pregnancy

- Women with history of exposure to blood products, especially before 1992. In 2001. The Government of India mandates testing all donated blood for Hepatitis C.

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- Women with a history of intravenous drug use
- Patients and staff members involved in chronic dialysis programs
- Women with HIV or HBV infection
- Sexual partners of people with HIV, HBV, or HCV infection
- Women with a history of body piercing and tattooing
- Recipients of organ transplants before 1992
- Women with unexplained elevated transaminases
- Participants in vitro fertilization programs from anonymous donors.

HEPATITIS E VIRUS

Acute hepatitis E during the third trimester of pregnancy is a cause of fulminant hepatic failure and has a mortality rate of up to 20%. Maternal hepatitis E virus infection also has been associated with intrauterine fetal death. The risks of intrauterine death and abortion in any trimester are greater in pregnant women with hepatitis E than they are in their uninfected counterparts. Maternal-fetal transmission of hepatitis E resulting in symptomatic neonatal hepatitis has occurred; no known therapy prevents vertical transmission of this virus. Pregnant women should avoid traveling to endemic areas during monsoon season and outbreaks of the disease. Hepatitis E virus (HEV) is a major public health problem in the developing countries like India.[3] The prevalence of HEV infection in second and third trimesters of pregnancy (19.4 and 18.4%) was found to be much higher than in the first trimester (8.8%) or in non-pregnant females (2.1%) or males (2.8%). The fatality rate in pregnant women with fulminant hepatic failure has also been reported to be very high, i.e. 22.2% with maximum severity reported in the third trimester (44.4%).

Vertical transmission was described up to 78.9% with infant mortality of 40%. The level of viremia appears to be associated with the severity of the disease during pregnancy. Despite such high mortality, current treatment remains supportive. Pregnant woman seeking travel to endemic areas should be counseled about the risk of hepatitis E, and be advised to avoid unpurified water, uncooked fruit, vegetables, and shellfish. Hepatitis E vaccines has been developed and evaluated in trials but has not been approved for commercial use yet. Their utility is yet to be determined. At present there are no recommended screening tests for HEV infection in asymptomatic individuals.

HEPATITIS A VIRUS

Hepatitis A does not appear to alter the normal course of pregnancy, nor does pregnancy appear to influence the natural history of hepatitis A.[4] Hepatitis A virus (HAV) is an RNA virus that transmits through fecal-oral route, usually through contaminated water or food. Generally, HAV does not result in chronic infection.

Inactivated HAV vaccine and immunoglobulin prophylaxis are safe in pregnancy.

Although vertical transmission has been reported, intrauterine transmission is rare. Fecal-oral transmission during birth is possible. No cases of teratogenicity were reported, but maternal complications, such as preterm labor were described. Susceptible woman should receive vaccination. Breastfeeding is not contraindicated in acute hepatitis A.

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Salient Features

- An excellent and unique text on the subject
- Focuses on important roles of screening method in obstetrics and gynecology
- Provides an insight of screening procedures: whom to screen, when to screen and why to screen, or should it be universal or selective?
- Aims to reduce morbidity and mortality in the women and the fetuses
- Useful for students and teachers of obstetrics and gynecology as well as practicing obstetricians and gynecologists.

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