Viral Hepatitis A,B,C)

Learning Objectives:

1-concept of viral hepatitis

2-Determine the risk factors for developing Viral hepatitis

3-Explain the epidemiology of viral hepatitis

4-Identify the common viruses affecting the liver

5-DESCRIBE THE CLINICAL PRESENTATION OF VIRAL HEPATITIS

6-MENTION THE COMPLICATIONS OF VIRAL HEPATITIS

7-Describe the lab. Investigations used to diagnose the etiology of viral hepatitis .

8-Outline treatment .

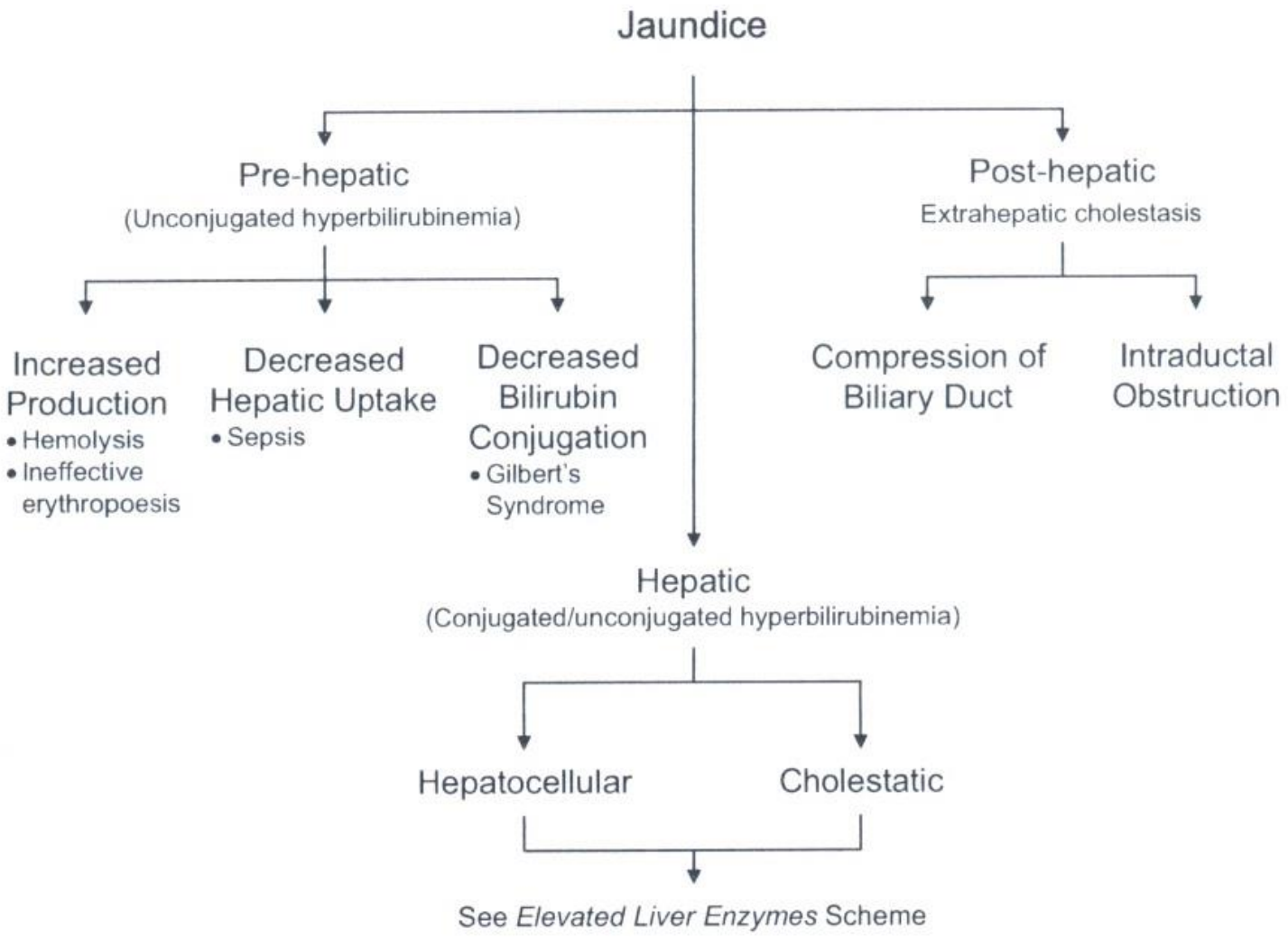
9-MENTION methods of prevention.

Six years old child presented with low grade fever &abdominal pain for three days duration ,the condition is associated with loss of appetite & attacks of vomiting ,with dark colored urine the child had Hx of food ingestion at a takeaway restaurant three wks earlier .

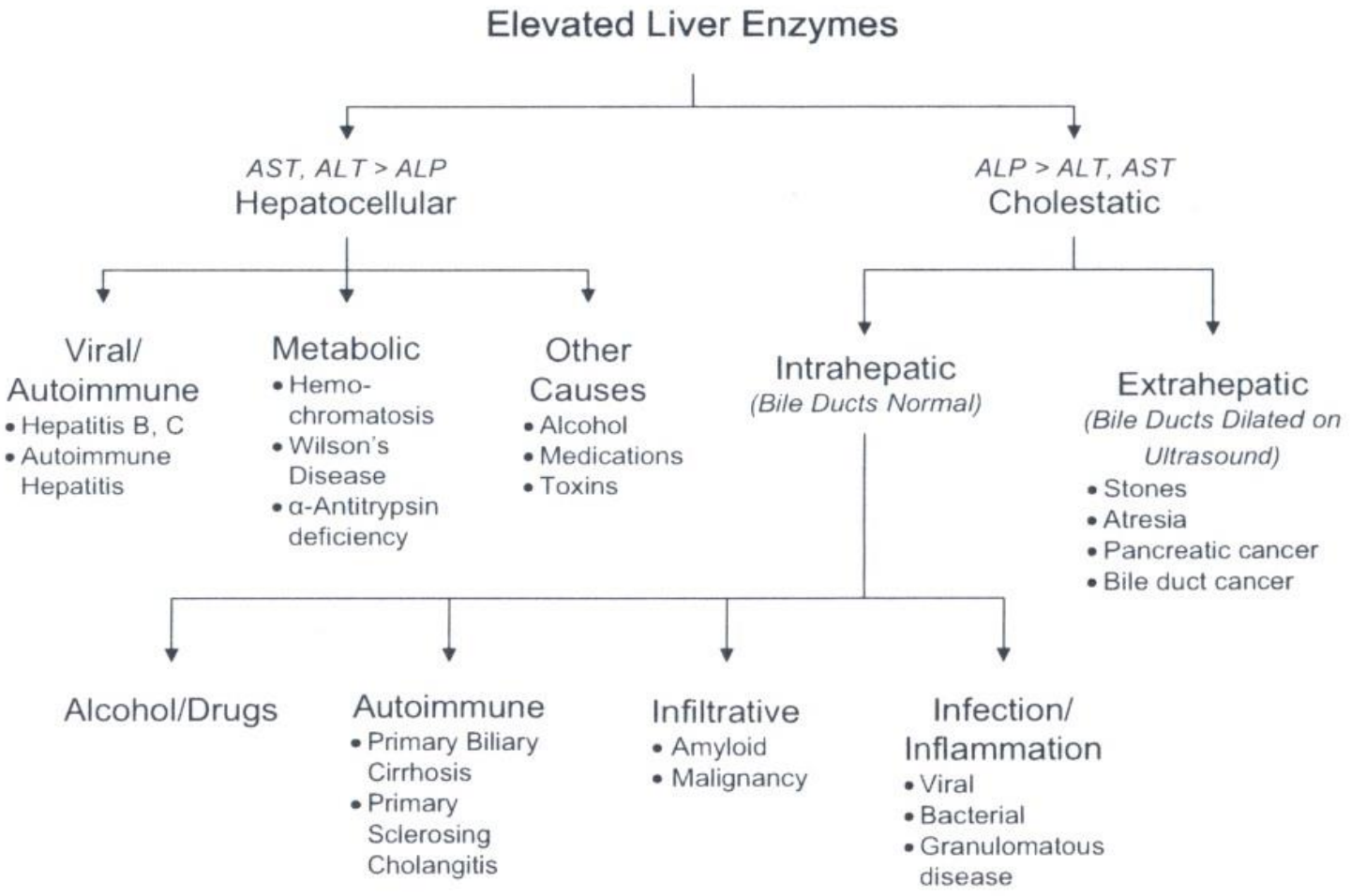
On exam he looks dehydrated , slightly pale , there is tender hepatomegaly 4.5cm BCM .

With some abdominal distension but no ascites .

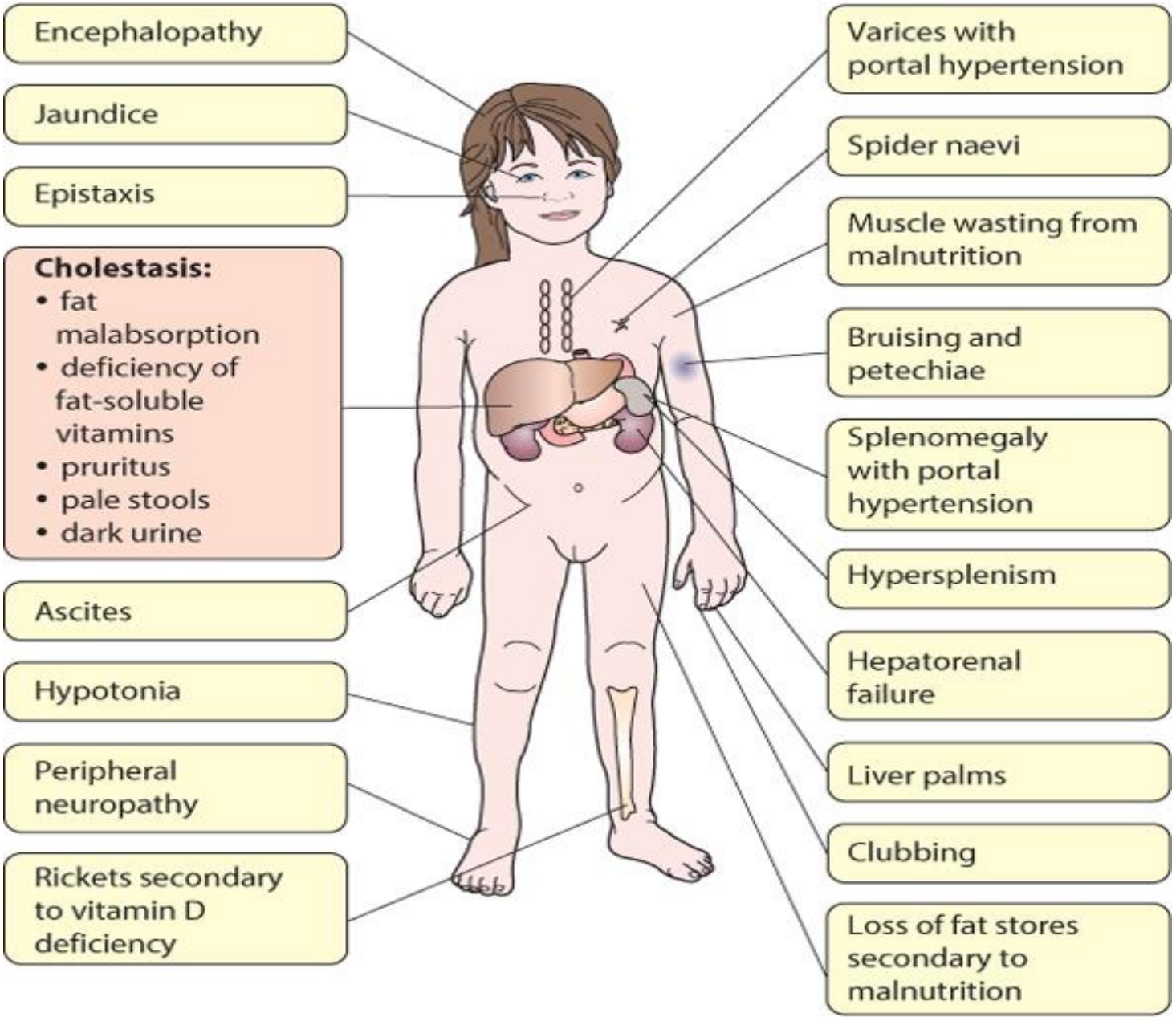
JAUNDICE


Jaundice
Pre-hepatic
(Unconjugated hyperbilirubinemia)
Increased Production
• Hemolysis
• Ineffective erythropoesis
Decreased Hepatic Uptake
• Sepsis
Decreased Bilirubin Conjugation
• Gilbert's Syndrome
Post-hepatic
Extrahepatic cholestasis
Compression of Biliary Duct
Intraductal Obstruction
Hepatic
(Conjugated/unconjugated hyperbilirubinemia)
Hepatocellular
Cholestatic
See *Elevated Liver Enzymes* Scheme

ELEVATED LIVER ENZYMES



Hepatic dysfunction



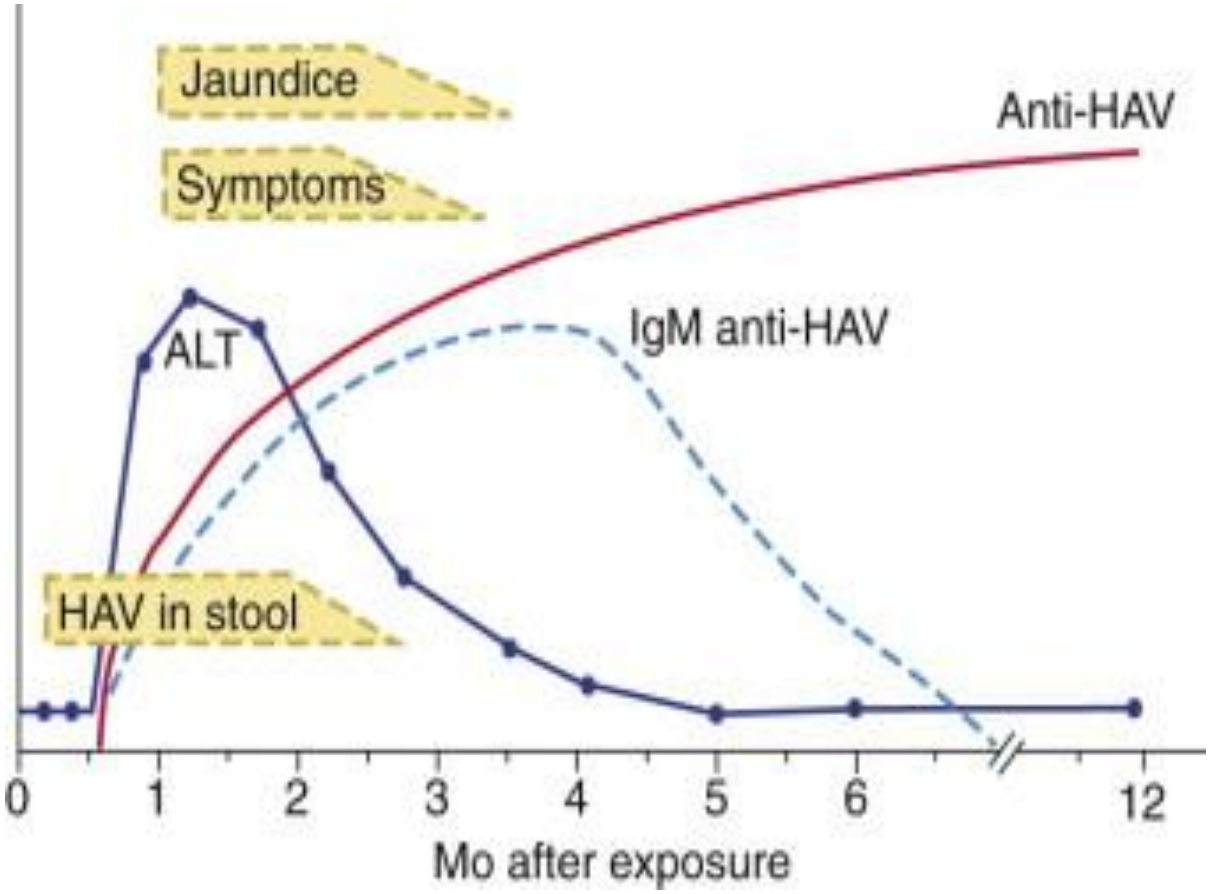
FEATURES OF THE HEPATOTROPIC VIRUSES

VIROLOGY	HAV RNA	HBV DNA	HCV RNA	HDV RNA	HEV RNA
Incubation (days)	١٩-١٥	١٨٠-٦٠	١٦٠-١٤	٤٢-٢١	٦٣-٢١
Transmission					
• Parenteral	Rare	Yes	Yes	Yes	No
• Fecal-oral	Yes	No	No	No	Yes
• Sexual	No	Yes	Yes	Yes	No
• Perinatal	No	Yes	Rare	Yes	No
Chronic infection	No	Yes	Yes	Yes	No
Fulminant disease	Rare	Yes	Rare	Yes	Yes

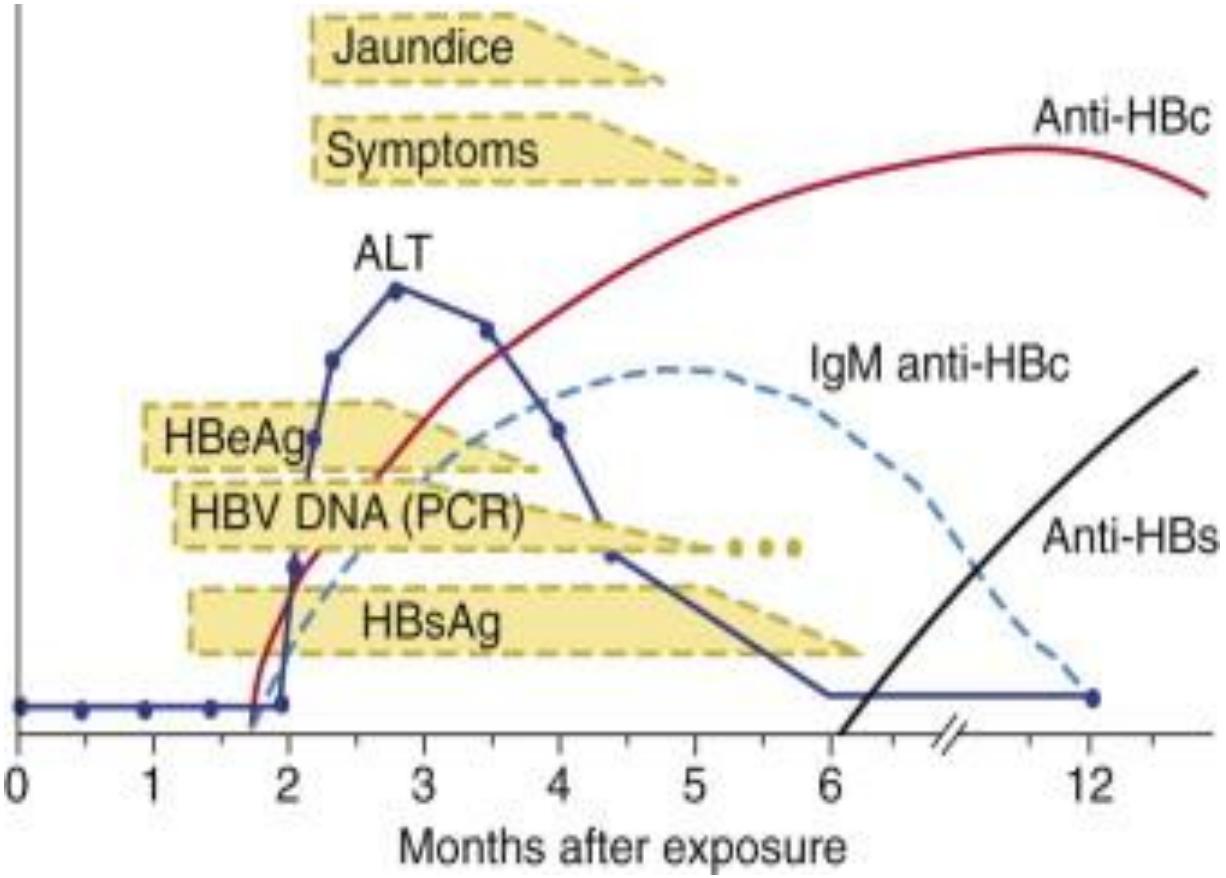
DIAGNOSTIC BLOOD TESTS: SEROLOGY AND VIRAL PCR

HAV	HBV	HCV	HDV	HEV
ACUTE INFECTION				
Anti-HAV IgM	Anti-HBc IgM	Anti-HCV	Anti-HDV IgM	Anti-HEV IgM
Blood PCR positive	HBsAg Anti-HBs HBV DNA (PCR)	HCV RNA (PCR)	Blood PCR positive HBsAg Anti-HBs	Blood PCR positive
PAST INFECTION (RECOVERED)				
Anti-HAV IgG	Anti-HBs Anti-HBc IgG	Anti-HCV Blood PCR negative	Anti-HDV IgG Blood PCR negative	Anti-HEV IgG Blood PCR negative
CHRONIC INFECTION				
N/A	Anti-HBc IgG HBsAg+ Anti-HBs PCR positive or negative	Anti-HCV Blood PCR positive	Anti-HDV IgG Blood PCR negative $HBsAg^{+}$	N/A
VACCINE RESPONSE				
Anti-HAV IgG	Anti-HBs Anti-HBc	N/A	N/A	N/A

Rises in serum levels of ALT, AST, bilirubin, ALP, 5'-nucleotidase, and GGT are almost universally found and do not help to differentiate the cause of hepatitis

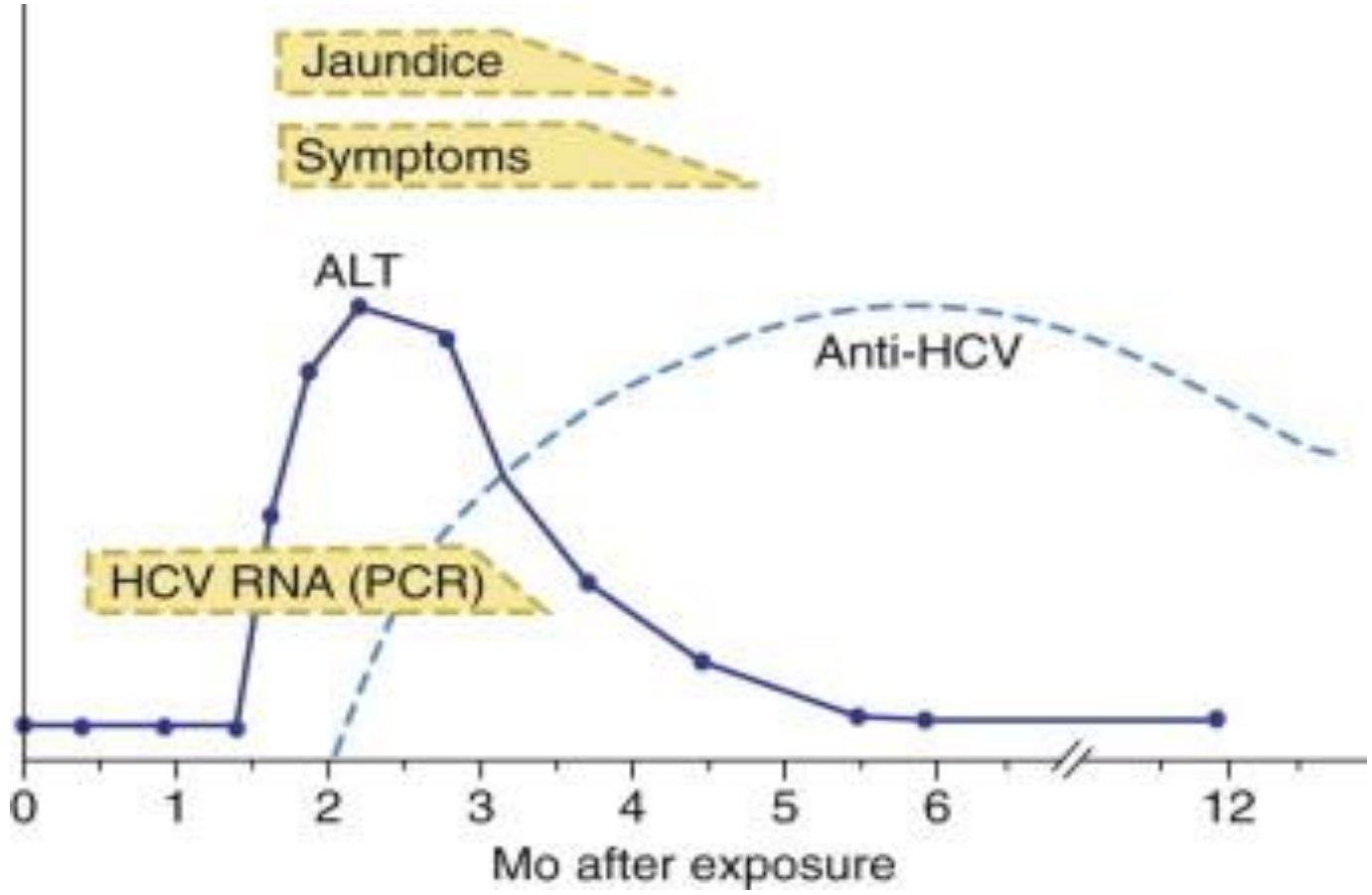


The serologic course of acute hepatitis A. ALT, alanine aminotransferase; HAV, hepatitis A virus. ***(From Goldman L, Ausiello D: Cecil textbook of medicine, ed 22, Philadelphia, 2004, Saunders, p 913.)***



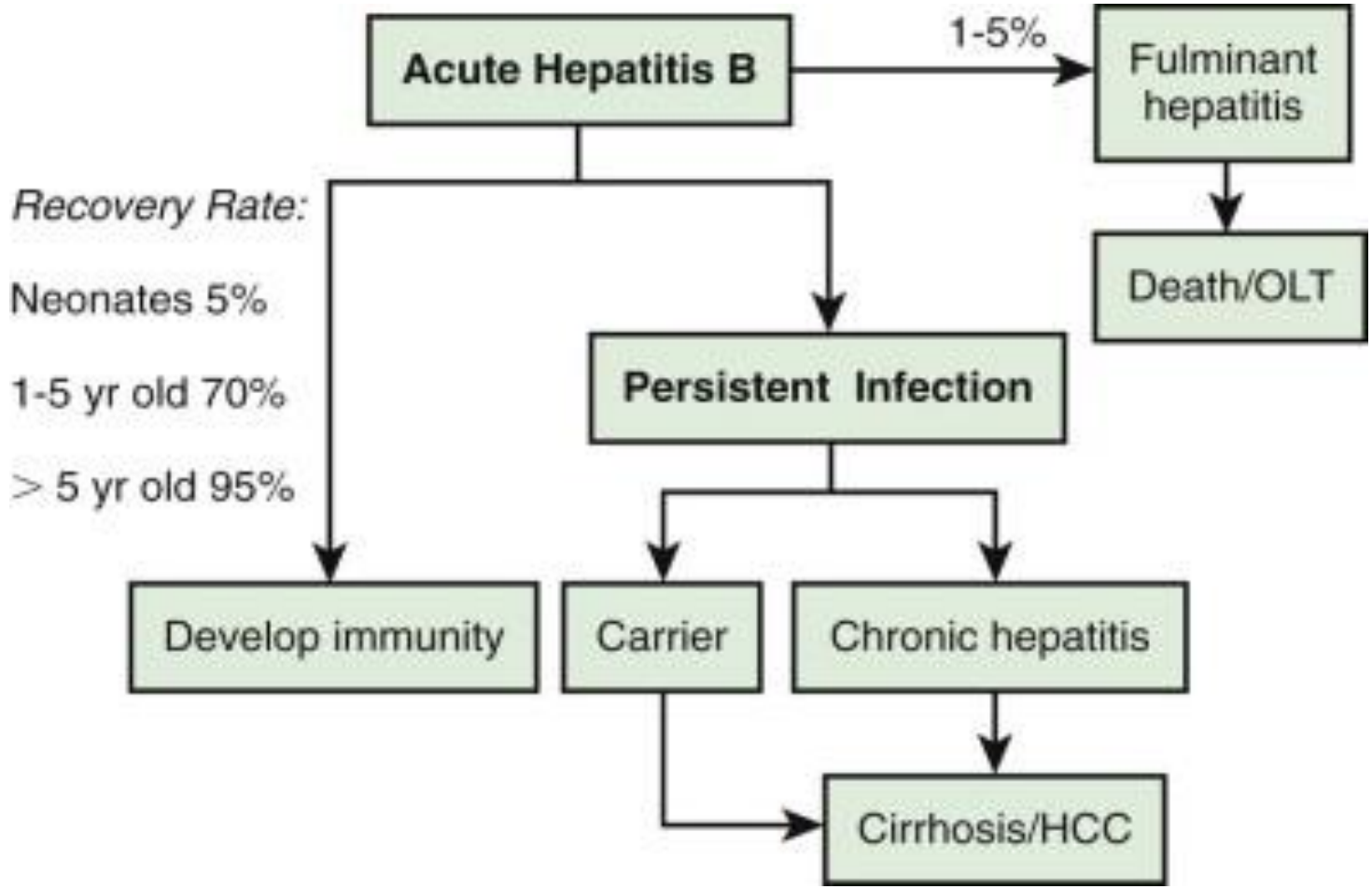
The serologic course of acute hepatitis B. HBc, hepatitis B core; HBeAg, hepatitis B e antigen; HBs, hepatitis B surface; HBsAg, hepatitis B surface antigen; HBV, hepatitis B virus; PCR, polymerase chain reaction.

(From Goldman L, Ausiello D: Cecil textbook of medicine, ed 22, Philadelphia, 2004, Saunders, p 914.)



The serologic course of acute hepatitis C. ALT, alanine aminotransferase; HCV, hepatitis C virus; PCR, polymerase chain reaction.

(From Goldman L, Ausiello D: Cecil textbook of medicine, ed 22, Philadelphia, 2004, Saunders, p 915.)



Natural history of hepatitis B virus infection. HCC, hepatocellular carcinoma; OLT, orthotopic liver transplant

Nelson Textbook of pediatric 20th ed.

INDICATIONS AND DOSING SCHEDULE FOR HEPATITIS B VACCINE AND HEPATITIS B IMMUNOGLOBULIN

	VACCINE DOSE		SCHEDULE
	Recombivax HB (µg)	Engerix-B (µg)	
UNIVERSAL PROPHYLAXIS			
Infants of $HBsAg^-$ women	٥	١٠	Birth, 1-2, 6-18 mo
Children & adolescents (11-19 yr)	٥	١٠	0, 1, and 6 mo
POSTEXPOSURE PROPHYLAXIS IN SUSCEPTIBLE INDIVIDUALS			
Contact with HBsAg-Positive Source			
Infants of $HBsAg^+$ women	٥	١٠	Birth* (+HBIG[†]), 1 and 6 mo
Intimate or Identifiable Blood Exposure			
0-19 yr old	٥	١٠	Exposure (+HBIG[†]), 1 and 6 mo
>19 yr old	١٠	٢٠	Exposure (+HBIG[†]), 1 and 6 mo
Household			
0-19 yr old	٥	١٠	Exposure, 1 and 6 mo
>19 yr old	١٠	٢٠	Exposure, 1 and 6 mo
Casual	None	None	None
Immunocompromised]	٤٠	٤٠	Exposure (+HBIG[†]), 1 and 6 mo
Contact with Unknown HBsAg Status; Intimate or Identifiable Blood Exposure			
>19 yr old	١٠	٢٠	Exposure, 1 and 6 mo
Immunocompromised[‡]	٤٠	٤٠	Exposure (+HBIG[†]), 1 and 6 mo

Both HBIG & vaccine should be administered within 12 hr of the infant's birth & within 24 hr of identifiable blood exposure. HBIG dose: 0.5 µL for newborns of HBsAg-positive mothers, and 0.0 6 µL/kg for all others when recommended, HBIG can be given up to 14 days after sexual exposure

Seroconversion status of immunocompromised patients should be checked 1-2 mo after the last dose of vaccine, and yearly thereafter. Booster doses of vaccine should be administered if the anti-HBs titer is <10 mIU/mL. Nonresponsive patients should be considered at high risk for HBV acquisition and counseled about preventive measures

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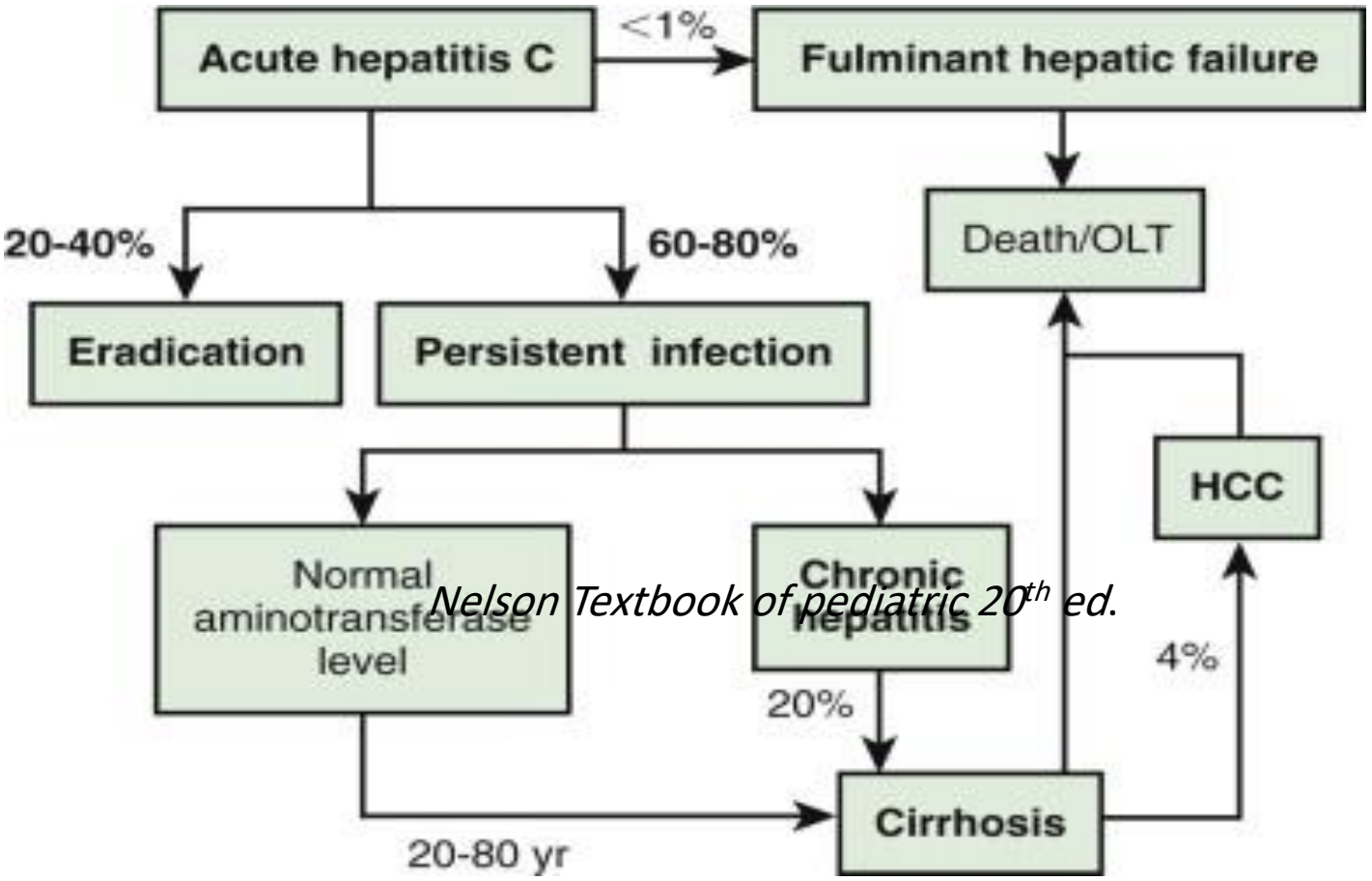

Nelson Textbook of pediatric 20th ed.

Natural history of hepatitis C virus infection. HCC, hepatocellular carcinoma; OLT, orthotopic liver transplant.

(From Hochman JA, Balistreri WF: Chronic viral hepatitis: always be current! Pediatr Rev 24:399–410, 2003.)