

Acute and Chronic Hepatitis

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INTRODUCTION

The term *hepatitis* denotes inflammation of the liver. It is applied to a broad category of clinicopathologic conditions that result from the damage produced by viral, toxic, metabolic, pharmacologic, or immune-mediated injury to the liver.

ACUTE HEPATITIS

Acute hepatitis implies a recent-onset inflammatory condition lasting less than 6 months. It can culminate either in complete resolution of the liver damage with return to normal function and structure or rapid progression of the acute injury toward extensive necrosis and a fatal outcome. The most common causes of acute hepatitis are viral hepatitis (hepatitis A through E) and nonviral causes such as drugs (prescription, nonprescription, and illicit), alcohol, toxins, autoimmune hepatitis, and Wilson's disease.

Acute Viral Hepatitis

Five hepatotropic viruses cause acute viral hepatitis (Table 41-1), but other viruses, including cytomegalovirus and herpesviruses, can also cause liver injury. All of the hepatotropic viruses are ribonucleic acid (RNA) viruses except hepatitis B virus (HBV), which has a deoxyribonucleic acid (DNA) genome.

Hepatitis A virus (HAV) is a nonenveloped, single-stranded RNA virus classified in the Picornaviridae family and in the *Hepatovirus* genus. It is stable at moderate temperature and low pH, allowing the virus to survive in the environment and be transmitted by the fecal-oral route. Hepatitis E virus (HEV) belongs to the genus *Hepevirus* in the Hepeviridae family and has four genotypes. HEV1 and HEV2 are restricted to human beings and are

transmitted via contaminated water in developing countries. HEV1 occurs mainly in Asia, whereas HEV2 occurs in Africa and Mexico. HEV3 and HEV4 infect human beings, pigs, and other mammalian species and are responsible for sporadic cases of autochthonous hepatitis E in both developing and developed countries. HEV3 has a worldwide distribution. HEV4 mostly occurs in Southeast Asia.

HBV is a small DNA virus that belongs to the Hepadnaviridae family. Approximately 350 million persons are carriers of HBV worldwide; of these, 75% reside in Asia and the Western Pacific. Hepatitis C virus (HCV) is a single-stranded positive-sense RNA virus that belongs to the Flaviviridae family and has been classified as the sole member of the genus *Hepacivirus*. More than 170 million people are infected with HCV worldwide. HBV has eight genotypes (labeled A through H), and HCV has six genotypes (1 through 6). Both HBV and HCV viruses are transmitted parenterally. HBV is present in virtually all body fluids and excreta of carriers. Transmission occurs most commonly through blood and blood products, contaminated needles, and sexual contact. Historically, HCV was the main cause of post-transfusion hepatitis before 1992. It is currently the most common cause of hepatitis among intravenous drug users. The Centers for Disease Control and Prevention now recommends one-time screening of persons born between 1945 and 1965 for hepatitis C because of the high prevalence of the disease in this birth cohort.

Hepatitis D virus (HDV) is classified in a separate genus of the Deltaviridae family. It is a small, defective RNA virus that can propagate only in an individual who has coexistent HBV infection, either after simultaneous transmission of the two viruses or via superinfection of an established HBV carrier. HDV has at

TABLE 41-1 CHARACTERISTICS OF ACUTE VIRAL HEPATITIDES

	HEPATITIS A	HEPATITIS B	HEPATITIS C	HEPATITIS D	HEPATITIS E
Causative agent	27-28 nm RNA virus	42 nm DNA virus	55-65 nm RNA virus	36-43 nm RNA virus	27-34 nm RNA virus
Transmission	Nonenveloped Fecal-oral	Enveloped Blood borne, sexual, percutaneous, perinatal	Enveloped Similar to HBV; vertical and sexual route uncommon	Enveloped Similar to HBV	Nonenveloped Similar to HAV; transfusion; vertical transmission
Incubation period (days)	15-50	30-180	14-180	Similar to HBV	15-60
Onset	Acute	Acute, insidious	Insidious	Acute, insidious	Acute, insidious
Fulminant disease (%)	0.01-0.5	1	<0.1	5-20	1-2
Chronic hepatitis	No	Yes	Yes	Yes/No	Yes/No
Treatment	Supportive	Nucleos(t)ide analogues; IFN- α	IFN- α + ribavirin \pm DAA(s)	IFN- α	Supportive; ribavirin
Prophylaxis	Hygiene; immune globulin, vaccine	Similar to HAV	Hygiene	Hygiene, HBV vaccine	Hygiene, vaccine

DAA, Direct-acting antiviral; HAV, hepatitis A virus; HBV, hepatitis B virus; IFN- α , interferon- α .