TABLE 362-2 HISTOLOGIC GRADING AND STAGING OF CHRONIC HEPATITIS

		Histologic Activity Index (HAI)[a]		METAVIR[b]	
Histologic Feature		**Severity**	**Score**	**Severity**	**Score**
Necroinflammatory Activity (grade)					
Periportal necrosis, including piecemeal necrosis and/or bridging necrosis (BN)		None	0	None	0
		Mild	1	Mild	1
		Mild/moderate	2	Moderate	2
		Moderate	3	Severe	3
		Severe	4		
				Bridging necrosis	Yes
					No
Intralobular necrosis	Confluent	—None	0	None or mild	0
		—Focal	1	Moderate	1
		—Zone 3 some	2	Severe	2
		—Zone 3 most	3		
		—Zone 3 + BN few	4		
		—Zone 3 + BN multiple	5		
		—Panacinar/multiacinar	6		
	Focal	—None	0		
		—≤1 focus/10× field	1		
		—2–4 foci/10× field	2		
		—5–10 foci/10× field	3		
		—>10 foci/10× field	4		
Portal Inflammation		None	0		
		Mild	1		
		Moderate	2		
		Moderate/marked	3		
		Marked	4		
		Total	0–18		A0–A3[c]
Fibrosis (stage)					
None			0		F0
Portal fibrosis—some			1		F1
Portal fibrosis—most			2		F1
Bridging fibrosis—few			3		F2
Bridging fibrosis—many			4		F3
Incomplete cirrhosis			5		F4
Cirrhosis			6		F4
		Total	6		4

[a]Ishak K, Baptista A, Bianchi L, et al: Histologic grading and staging of chronic hepatitis. J Hepatol 22:696, 1995. [b]Bedossa P, Poynard T, French METAVIR Cooperative Study Group: An algorithm for grading activity in chronic hepatitis C. Hepatology 24:289, 1996. [c]Necroinflammatory grade: A0 = none; A1 = mild; A2 = moderate; A3 = severe.

with chronic hepatitis B, histologic features are of prognostic importance. In one long-term study of patients with chronic hepatitis B, investigators found a 5-year survival rate of 97% for patients with mild chronic hepatitis, 86% for patients with moderate to severe chronic hepatitis, and only 55% for patients with chronic hepatitis and postnecrotic cirrhosis. The 15-year survival in these cohorts was 77%, 66%, and 40%, respectively. On the other hand, more recent observations do not allow us to be so sanguine about the prognosis in patients with mild chronic hepatitis; among such patients followed for 1–13 years, progression to more severe chronic hepatitis and cirrhosis has been observed in more than a quarter of cases.

More important to consider than histology alone in patients with chronic hepatitis B is the degree of hepatitis B virus (HBV) replication. As reviewed in **Chap. 360,** chronic HBV infection can occur in the presence or absence of serum hepatitis B e antigen (HBeAg), and generally, for both HBeAg-reactive and HBeAg-negative chronic hepatitis B, the level of HBV DNA correlates with the level of liver injury and risk of progression. In *HBeAg-reactive chronic hepatitis B*, two phases have been recognized based on the relative level of HBV replication. The relatively *replicative phase* is characterized by the presence in the serum of HBeAg and HBV DNA levels well in excess of 10^3–10^4 IU/mL, sometimes exceeding 10^9 IU/mL; by the presence in the liver of detectable intrahepatocyte nucleocapsid antigens (primarily hepatitis B core antigen [HBcAg]); by high infectivity; and by accompanying liver injury. In contrast, the relatively *nonreplicative phase* is characterized by the absence of the conventional serum marker of HBV replication (HBeAg), the appearance of anti-HBe, levels of HBV DNA below a threshold of ~10^3 IU/mL, the absence of intrahepatocytic HBcAg, limited infectivity, and minimal liver injury. Patients in the replicative phase tend to have more severe chronic hepatitis, whereas those in the nonreplicative phase tend to have minimal or mild chronic hepatitis or to be inactive hepatitis B carriers. The likelihood in a patient with HBeAg-reactive chronic hepatitis B of converting spontaneously from relatively replicative to nonreplicative infection is approximately 10% per year. Distinctions in HBV replication and in histologic category, however, do not always coincide. In patients with HBeAg-reactive chronic HBV infection, especially when acquired at birth or in early childhood, as recognized commonly in Asian countries, a dichotomy is common between very high levels of HBV replication during the early decades of life (when the level of host tolerance of HBV is relatively high) and negligible levels of liver injury. Yet despite the relatively immediate, apparently benign nature of liver disease for many decades in this population, in the middle decades, activation of liver injury emerges as relative tolerance of the host to HBV declines, and these patients with childhood-acquired HBV infection are ultimately at increased risk later in life of cirrhosis, hepatocellular carcinoma (HCC) **(Chap. 111)**, and liver-related death. **A discussion of the pathogenesis of liver injury in patients with chronic hepatitis B appears in Chap. 360.**

HBeAg-negative chronic hepatitis B (i.e., chronic HBV infection with active virus replication, readily detectable HBV DNA but without HBeAg [anti-HBe-reactive]), is more common than HBeAg-reactive chronic hepatitis B in Mediterranean and European countries and in Asia (and, correspondingly, in HBV genotypes other than A). Compared to patients with HBeAg-reactive chronic hepatitis B, patients with HBeAg-negative chronic hepatitis B have levels of HBV DNA that are several orders of magnitude lower (no more than 10^5–10^6 IU/mL) than those observed in the HBeAg-reactive subset. Most such cases represent precore or core-promoter mutations acquired late in the natural history of the disease (mostly early-life onset; age range 40–55 years, older than that for HBeAg-reactive chronic hepatitis B); these mutations prevent translation of HBeAg from the precore component of the HBV genome (precore mutants) or are characterized by downregulated transcription of precore mRNA (core-promoter mutants; **Chap. 360**). Although their levels of HBV DNA tend to be lower than among patients with HBeAg-reactive chronic hepatitis B, patients with HBeAg-negative chronic hepatitis B can have progressive liver injury (complicated by cirrhosis and HCC) and experience episodic reactivation of liver disease reflected in fluctuating levels of aminotransferase activity ("flares"). The biochemical and histologic activity of HBeAg-negative disease tends to correlate closely with levels of HBV replication, unlike the case mentioned above of Asian patients with HBeAg-reactive chronic hepatitis B during the early decades of their HBV infection. An important point worth reiterating is the observation that the level of HBV replication is the most important risk factor for the ultimate development of cirrhosis and HCC in both HBeAg-reactive and HBeAg-negative patients. Although levels of HBV DNA are lower and more