The human hepatitis B virus is a small, enveloped and non-cytopathic virus, with a very narrow host range and a strong liver tropism causing acute and chronic liver disease. Although a well-tolerated vaccine is available, more than 350 million people are chronically infected worldwide. Available therapies for chronic hepatitis B only rarely eliminate the virus. Although new antivirals are being developed, long-term treatment is required, which may be limited by the selection of resistant viruses. Therefore, immunotherapies are investigated as an approach to eliminate persistently infected cells. Besides therapeutic vaccination, adoptive T-cell therapy is an interesting option, which is discussed in this review.