

Viral Hepatitis

- A. Hepatitis A virus (HAV): non-enveloped RNA virus
- B. Hepatitis B virus (HBV): enveloped DNA virus
- C. Hepatitis C virus (HCV): enveloped RNA virus
- D. Hepatitis D virus (HDV): enveloped RNA defective virus and can cause infection only if HBV is present. It is also called the delta agent.
- E. Hepatitis E virus (HEV): non-enveloped RNA virus

All these viruses can cause acute hepatitis (asymptomatic infection can occur especially in children). Only HBV, HCV, and HDV can cause chronic hepatitis (continuous virus replication for more than **6 months**)

Transmission: *HAV and HEV: fecal-oral route (water or food contaminated by fecal material).*
HBV, HCV, and HDV: blood (transfusion, injection drug use, needlestick injuries), mother-to-child, organ transplant patients, hemodialysis patients, sexual (more with HBV).

Diagnosis:

- A. Hepatitis A virus (HAV): Serology. HAV IgM (acute infection). HAV IgG (past infection or vaccination).
- B. Hepatitis B virus (HBV): Serology, molecular detection. The earliest marker to appear is HBV DNA followed by HBsAg followed by HBcAb IgM, followed by HBsAb if the infection is cleared. If chronic infection is present then HBsAg is present rather than HBsAb. HBcAb IgG is a marker of infection and HBsAb alone is a marker of previous vaccination
- C. Hepatitis C virus (HCV): Serology, molecular detection.
- D. Hepatitis D virus (HDV): First, HBV must be present. Serology, molecular detection.
- E. Hepatitis E virus (HEV): Serology. HEV IgM (acute infection).

Treatment: Acute infection: Supportive care

Chronic HBV: Antiviral medications (nucleoside analogs), interferon.

Chronic HCV: Antiviral medications (**direct-acting antivirals DAAs** which is curative), interferon.

Chronic HDV: Interferon. HBV control. Newer drugs are evaluated.

Prevention:

- A. HAV: Inactivated vaccine (very effective). Two doses
- B. HBV: Subunit vaccine. Three doses. HBV vaccination prevents HDV infection.