Introduction

- Hepatitis delta virus (HDV) leads to the most severe form of viral hepatitis.
- HDV can infect individuals with hepatitis B virus (HBV) infection simultaneously (HBV/HDV coinfection) or can occur as a superinfection in patients with known chronic HBV.
- People who inject drugs and public safety officials working with blood or blood-contaminated bodily fluids are at a high risk of getting HDV infection; US foreign-born individuals also have a higher burden of disease.
- Compared to patients with HBV monoinfection, HDV infection is associated with accelerated disease progression to liver cirrhosis and decompensation.

Methods

- The study population included adult patients (aged ≥18 years) with chronic hepatitis B virus (HBV) infection in all-payer claims databases (APCD) from 1/1/2014 to 12/31/2020 (study period).
- HDV infection and HBV monoinfection cohorts were further identified from 1/1/2015 to 12/31/2020 (identification period), with their respective first claim defined as the index date.
- The proportion of patients who were women was significantly greater in the HDV infection vs HBV monoinfection cohort.
- Although both cohorts were largely covered by commercial insurance, patients with HDV infection were more likely to be covered by Medicaid and less likely by Medicare versus the HBV monoinfection cohort.
- Mean Charlson Comorbidity Index score was significantly higher among patients with HDV infection versus HBV monoinfection.

Results

- The study population included 291,961 adults diagnosed with HDV infection or HBV monoinfection, of whom 23,456 HDV-infected (mean age a standard deviation [SD] 51.5 ± 15.9 years) and 201,386 HBV monoinfected (53.5 ± 14.7 years) patients met the inclusion criteria.
- Patients with HDV infection vs HBV monoinfection had significantly higher (p<0.001) baseline rates of comorbidities and severe liver disease (except for CC only; p=0.82).
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Limitations

- The APCD data is representative of individuals that are insured by commercial plans, Medicare, or Medicaid; patients under federal programs (Veterans Administration and Department of Defense) are captured here; subjects in closed plans such as Kaiser and those who are uninsured are not captured.
- The usual limitations of any retrospective claims analyses apply; any diagnoses done via ICD-9/10-CM codes are subjective to miscoding and can lead to classification bias; no standard coding algorithm exists for liver cirrhosis (compensated or otherwise); baseline frequency of cirrhosis should be interpreted with caution and may or may not be linked with HDV infection.
- Comorbidity designation is based on identifying a code of interest >12 months look-back until 2014; it is possible that patients may be missing diagnosis codes for comorbidities due to study period limitations.
- There is a lack of FDA-cleared assays, as well as suboptimal screening practices to determine HDV and HBV status, which could cause this study to underestimate the actual number of patients with an HDV and HBV infection.

Conclusions

- In a national payer database representing 80% of US claims, patients with an HDV infection were associated with significantly higher rates of decompensated cirrhosis, hepatocellular carcinoma, and liver transplant than patients with an HBV monoinfection.
- HDV-infected patients had a significantly higher baseline Charlson Comorbidity Index score, as well as significantly higher baseline rates of comorbidities such as hypertension, smoking history, substance abuse, alcohol abuse, mental health disorders, and HCV and HBV infection, versus the HBV-monoinfected patients.
- The study findings underscore the need for early screening and diagnosis, and eventual treatment of HDV infection to mitigate future disease progression.