Hepatitis Delta Infection

Epidemiology and Screening

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Disclosures

None
Hepatitis Delta (HDV)

- General aspects of HDV
- Overall epidemiology of HDV
  - Risk factors
  - Epidemiology in the United States
- Screening for HDV
HDV General Features

- Small RNA virus
- Requires Hepatitis B presence for infection
  - Relies on HBsAg for replication
  - Shares same hepatocyte receptor with HBV
- Two distinct transmission pathways
  - Co-infection (simultaneous HBV-HDV)
  - Super-infection (HBV then HDV)
- Can progress to cirrhosis within 2 years
  - 10-15%
- >3-fold increase in HCC risk
  - Compared to HBV alone

Urban et al, Gut 2021
Epidemiology

- Multiple studies worldwide (numbering >2000)
  - Different methodology
  - Specific populations
  - Different testing approach

- Estimates of HDV+ individuals in HBV+
  - 4-16%

- Historically related to populations in West Africa and Eastern Europe
Risk Factors

- Intravenous drug use
- HIV co-infection
- Hepatitis C co-infection
- Hemodialysis
- High risk sexual behavior

Chen et al, Gut 2019; Stockdale et al, J Hepatol 2020
Prevalence of Hepatitis Delta

Identified 2104 studies
Focused on 282 studies
~122,000 persons with HBsAg+ from 6 WHO regions
General population & Hepatology clinics

Prevalence of HDV
- General population: 0.16%
- HBsAg+: 4.5%
  - 3% Europe
  - 6% Africa
  - 6% Americas
  - 3.5% South East Asia
- Hepatology clinics: 16%

Stockdale et al, J Hepatol 2020
Prevalence of Hepatitis Delta

Mongolia
- 36%

Rep. Moldova
- 15%

Gabon
- 22%

Togo
- 18%

Mauritania
- 19%
<table>
<thead>
<tr>
<th>Group</th>
<th>Odds ratio (95% CI)</th>
</tr>
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<tbody>
<tr>
<td>People who inject drugs</td>
<td>19.00 (12.26, 29.45)</td>
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<tr>
<td>33 samples (I^2 = 86.7%, τ^2 = 1.16)</td>
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<td>Commercial sex workers</td>
<td>18.70 (6.70, 52.17)</td>
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<td>5 samples (I^2 = 91.5%, τ^2 = 1.19)</td>
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<tr>
<td>Men who have sex with men</td>
<td>16.00 (3.94, 64.92)</td>
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<td>2 samples (I^2 = 0.0%, τ^2 = 0.0)</td>
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<tr>
<td>Haemodialysis recipients</td>
<td>3.42 (1.38, 8.48)</td>
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<tr>
<td>11 samples (I^2 = 21.0%, τ^2 = 0.49)</td>
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<tr>
<td>HIV, excluding generalised epidemics</td>
<td>6.57 (4.08, 10.59)</td>
</tr>
<tr>
<td>18 samples (I^2 = 74.4%, τ^2 = 0.56)</td>
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<tr>
<td>Hepatitis C virus infection</td>
<td>10.02 (5.49, 18.26)</td>
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<tr>
<td>17 samples (I^2 = 90.7%, τ^2 = 1.21)</td>
<td></td>
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<tr>
<td>Cirrhosis</td>
<td>6.68 (4.37, 10.20)</td>
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<tr>
<td>29 samples (I^2 = 77.2%, τ^2 = 0.85)</td>
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<tr>
<td>Hepatocellular carcinoma</td>
<td>4.80 (3.18, 7.26)</td>
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<tr>
<td>20 samples (I^2 = 38.4%, τ^2 = 0.26)</td>
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Greater odds of anti-HDV relative to control populations
Epidemiology of Hepatitis Delta in US

- 3-7% of HBV+
- More common in HCV, HIV, IVDU
- Genotype 1
- Mainly among immigrant populations

Patel et al, CID 2019
How to screen and why to screen

How to screen
- HDV antibody

Why to screen
- Potential treatment
- Closer follow up
  - Complications
  - HCC
- Modification of lifestyle
- Evaluation of close contacts
Screening Recommendation from Societies

- EASL: Everyone who is HBsAg+
- APASL: Everyone who is HBsAg+
- AASLD: Those with HBsAg+ at high risk (2018)
  - Highly endemic areas
  - IVDU
  - MSM
  - Multiple sexual partners
  - HIV, HCV
  - Elevated LFTs in the setting of low HBV DNA
Who to Screen

General expert consensus:

**Who:** Everyone infected with HBV (HBsAg+)

**How:** HDV antibody
How often to screen

- If no risk factors
  - One time

- If risk factors are present (intravenous drug use, etc)
  - Consider once a year screening for HDV
Reflex Testing for Hepatitis Delta

60% of HDV+ individuals had no risk factors

Palom et al, J Hepatol Rep 2022
Summary

- HDV only occurs in HBV+ individuals
  - Every HBV+ individual is at risk for HDV

- Higher risk of HDV
  - HIV, HCV, IVDU, HD, CSW

- Certain countries in Africa and Asia have higher prevalence
  - Insufficient knowledge of the overall prevalence

- Most guidelines recommend to screen every HBV+ individual for HDV
  - HDV Ab
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