VIRAL HEPATITIS IN PEOPLE WHO INJECT DRUGS:

epidemiology, current response and proposed priorities

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Overview

• Epidemiology
• Response options
  • Acceptability
  • Feasibility
  • Cost effectiveness
• Current response
• Future priorities
Conclusion

• Need better data

• Improved access to:
  • Prevention
  • Diagnosis
  • Treatment
EPIDEMIOLOGY
<table>
<thead>
<tr>
<th>Country</th>
<th>% IDU with HIV (mid range est)</th>
<th>% of IDUs with HCV</th>
<th>No. of IDUs with HCV -mid range est</th>
<th>% of IDUs with chronic HBV (HBsAg)</th>
<th>No. of IDUs with chronic HBV (HBsAg)- mid range est.</th>
<th>Population prevalence of HBV (HBsAg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russian Federation</td>
<td>37</td>
<td>54 - 97%</td>
<td>1377875</td>
<td>4 - 9%</td>
<td>118625</td>
<td>Intermediate</td>
</tr>
<tr>
<td>Brazil</td>
<td>50</td>
<td>10 - 83%</td>
<td>372000</td>
<td>2 - 7%</td>
<td>36000</td>
<td>Intermediate</td>
</tr>
<tr>
<td>USA</td>
<td>16</td>
<td>35%</td>
<td>650074</td>
<td>2 - 11%</td>
<td>120728</td>
<td>Low</td>
</tr>
<tr>
<td>China</td>
<td>12</td>
<td>61.4%</td>
<td>1442900</td>
<td>2.9 - 16.9%</td>
<td>232650</td>
<td>High</td>
</tr>
<tr>
<td>Ukraine</td>
<td>42</td>
<td>61 - 79%</td>
<td>262500</td>
<td>6.7 - 10.90%</td>
<td>33000</td>
<td>Intermediate</td>
</tr>
<tr>
<td>Indonesia</td>
<td>42</td>
<td>60 - 98%</td>
<td>173113</td>
<td>N/A</td>
<td>N/A</td>
<td>High</td>
</tr>
<tr>
<td>Thailand</td>
<td>42</td>
<td>4 - 97%</td>
<td>81067</td>
<td>9.5 - 14%</td>
<td>18862</td>
<td>High</td>
</tr>
<tr>
<td>Kenya</td>
<td>43</td>
<td>42 - 61%</td>
<td>67335</td>
<td>6.30%</td>
<td>8237</td>
<td>High</td>
</tr>
<tr>
<td>Vietnam</td>
<td>34</td>
<td>46 - 74%</td>
<td>81183</td>
<td>14.2%</td>
<td>19213</td>
<td>High</td>
</tr>
<tr>
<td>Italy</td>
<td>12</td>
<td>60%</td>
<td>196252</td>
<td>N/A</td>
<td>N/A</td>
<td>Low</td>
</tr>
</tbody>
</table>
HCV prevalence among IDUs

Data available from 65 countries

- Data not available
- HCV prevalence < 30%
- HCV prevalence > 30%
Hepatitis C

• Transmission
  • Difficult sexually unless HIV coinfection or traumatic sexual practices (*Urbanus* 2009)
  • Prevalence also increased among non IDUs (*Scheinmann et al.*, 2007)

• Higher income
  • Reducing incidence among IDUs (*Hagan et al.*, 2008)
  • Concentrated epidemics in IDUs
  • Higher prevalence among HIV coinfecte[d] IDUs

• Low and middle income
  • Endemic in many countries although hyperendemic among IDUs
  • Almost universal infection among HIV coinfected IDUs in Asia

• Prisons
  • Consistently higher incidence vs community
Hepatitis B
Hepatitis B population prevalence by country (*Weinbaum et al.*, 2008)
Chronic HBV prevalence among IDUs worldwide (HBsAg)

Data available from 21 countries

- Data not available
- HBV prevalence <1%
- HBV prevalence 1 - 5%
- HBV prevalence > 5%
Hepatitis B

• Transmission
  • Varies by endemicity
    • Perinatal in endemic areas
    • Adult including sexual and injecting among low prevalence areas
  • Vaccination is altering the dynamics of the epidemic

• Prevalence among IDUs
  • Generally 5 – 10% higher than population prevalence (HbsAg)
  • Data among IDUs is poor outside of Europe, North America and Australasia
  • Coinfection in IDUs is poorly understood
RESPONSE OPTIONS AND ACCEPTABILITY
Prevention for IDUs

• NSP
  • HCV
    • Same principles as for HIV **BUT:**
      • Greater coverage intensity necessary (Vickerman 2007)
      • Focus on prisons
      • Distribute injecting paraphernalia (Hagan et al., 2001)
  • HBV
    • Little data available but multiple routes of transmission reduce effectiveness

• OST
  • HCV
    • May be effective (but less so vs HIV)
  • HBV
    • Not studied, presumed partial efficacy
Needles-syringes distributed, per IDU, per year

- less than 100
- 100 – 200
- greater than 200
- No NSP
- NSP present but program data not available
- No IDU reported

Mathers et al. 2010 (IRHA)
Prevention

- Vaccination
  - HCV
    - No prevention vaccine
    - 1 recent study of therapeutic vaccine showed modest success (IC41) (Klade et al., 2009)
  - HBV
    - Cheap, effective, safe
    - Opportunistic, rapid and accelerated schedules ideal for IDUs
    - Vaccine is less immunogenic in HIV (Koziel and Peters, 2007, Landrum et al., 2009).

- Blood product screening and reducing blood product use
- Post exposure prophylaxis (PEP)
- PMTCT
- Behaviour modification and condoms
Prevention

• Screening
  • Testing as prevention not studied in IDUs
  • Testing for surveillance valuable for public health interventions

• HCV
  • HCV RNA gold standard but expensive and not always available
  • Genotyping important for treatment
  • HCV Ab does not always indicate current infection

• HBV
  • HBV DNA gold standard but again expensive and not always available
  • Testing is complex but important to establish indication for treatment
Treatment

• HCV
  • Pegylated interferon ribavirin (PEG RBV) combination therapy
  • Expensive
  • Marked side effects including worsening mental health
  • Major recent advances
    • Treatment of acute HCV very effective
    • Small molecules (similar approach to HIV)
    • Shortened therapy (response guided treatment) (Ferenci 2005)

• HBV
  • Multiple considerations prior to embarking on treatment
  • Resistance common in monotherapy
  • PEG most effective but expensive, lamivudine cheapest but least effective; also tenofovir and adefovir
  • Need ARVs with HBV activity in HBV HIV coinfection
  • Little data on IDUs
COST-EFFECTIVENESS OF RESPONSE OPTIONS
Cost effectiveness

• HCV
  • Shorter, equally effective, treatment in younger individuals with progressive liver disease is more cost effective
    • G2,3 > G1
    • RVR as mechanism to shorten treatment
    • METAVIR 2, 3 > 1
  • Little examination of treatment cost effectiveness in IDUs
  • Prevention is cost effective, though less than HIV with NSPs *(NCHECR, 2009)*

• HBV
  • Early vaccination (life or IDU career) more cost effective
Current response

- Blood product screening & universal precautions
- Harm reduction interventions
  - 2010 IHRA Global state of harm reduction report
- Limited response in low and middle income countries
- Limited interventions within prisons
- HCV
  - Testing often unavailable or inadequate
  - Treatment often inaccessible (cost and exclusion criteria)
- HBV
  - Vaccination coverage of population improving (177 in 2008) with substantial reductions in HBV incidence in those with access (WHO 2009)
  - Lower levels of vaccination coverage among IDUs
RESPONSE PRIORITIES
Response priorities in viral hepatitis among IDUs

• Improved surveillance and data collection at country level
• Increase awareness of viral hepatitis among IDUs and **building capacity of services** in the community and closed settings
• Increasing **vaccination**
• Increasing the availability and reducing barriers to **testing and treatment**
• Addressing **viral hepatitis in HIV coinfection**
• **Integrated models of care** and treatment
• Evaluating the effectiveness and cost effectiveness