Epidemiology of Hepatitis A in Germany

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Data Sources

• Surveillance
  – Federal Republic of Germany (FRG)
    • 1962 viral hepatitis
    • 1980 HAV, HBV
  – German Democratic Republic (GDR)
    • 1951 viral hepatitis
    • 1983 HAV
  – New Infection Protection Act (2001)

• Epidemiological Studies/Serosurveys
Infection Protection Act (IfSG)

Surveillance system:
- Physicians to report clinical diagnoses
- Laboratories to report acute infections
- Single case reporting
- Case definitions
- Electronic transmission to States and RKI
- Central database
- Reporting of outbreaks
Case definitions

• Standardisation and differentiation of reported cases
• Categories according to diagnostic certainty
• European case definitions taken into account
Case definition for hepatitis A

updated version valid 1-1-2004

• Clinical criteria:
  – jaundice
  – fever
  – abdominal discomfort
  – high transaminases

• Laboratory criteria:
  – detection of nucleid acid in serum or stool (PCR)
  – detection of antigen in stool (ELISA)
  – positive for IgM-antibodies to HAV
  – significant rise in anti-HAV-IgG-titer (paired sera)
Case definition for hepatitis A
updated version valid 1-1-2004

• Epidemiological criteria:
  – epidemiological link to a laboratory confirmed case of HAV
    • person to person-transmission
    • consumption of same implicated food
  – consumption of food in which HAV was detected
EU case definition for acute hepatitis A

- **Laboratory criteria for diagnosis**
  - IgM antibody to hepatitis A virus positive
  - detection of antigen in stool
  - detection of nucleic acid in serum.

- **Case classification**
  - possible: N.A.
  - probable: A case that meets the clinical case definition and has an epidemiological link
  - confirmed: A case that meets the clinical case definition and is laboratory confirmed.

Source: Commission decision of 19 March 2002 No 2119/98/EC
Notified cases of hepatitis A, Germany 1980-2002

Sources: National Bureau of Statistics, RKI

Alpersk@rki.de
Incidence of HAV per 10,000 inhab. in East and West Germany,

Sources: National Bureau of Statistics, RKI
Reported cases of HAV by week of reporting, 2001-2003

Source: RKI
Alpersk@rki.de
Incidence of cases of HAV by gender and age group, 2002 (n=1,478)

Source: RKI
Alpersk@rki.de
HAV Incidence in Germany 2002 by Federal State (n=1,478)

Source: RKI
## HAV Mortality, Germany 1991-2001

<table>
<thead>
<tr>
<th>Year</th>
<th>Deaths*</th>
<th>Case-fatality (%)</th>
<th>Mortality/Million Inhab.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>16</td>
<td>0,24</td>
<td>0,20</td>
</tr>
<tr>
<td>1992</td>
<td>13</td>
<td>0,19</td>
<td>0,16</td>
</tr>
<tr>
<td>1993</td>
<td>14</td>
<td>0,24</td>
<td>0,17</td>
</tr>
<tr>
<td>1994</td>
<td>12</td>
<td>0,22</td>
<td>0,15</td>
</tr>
<tr>
<td>1995</td>
<td>12</td>
<td>0,18</td>
<td>0,15</td>
</tr>
<tr>
<td>1996</td>
<td>19</td>
<td>0,39</td>
<td>0,23</td>
</tr>
<tr>
<td>1997</td>
<td>15</td>
<td>0,33</td>
<td>0,18</td>
</tr>
<tr>
<td>1998</td>
<td>9</td>
<td>0,23</td>
<td>0,11</td>
</tr>
<tr>
<td>1999</td>
<td>13</td>
<td>0,41</td>
<td>0,16</td>
</tr>
<tr>
<td>2000</td>
<td>11</td>
<td>0,39</td>
<td>0,13</td>
</tr>
<tr>
<td>2001</td>
<td>17</td>
<td>0,75</td>
<td>0,21</td>
</tr>
</tbody>
</table>

*Source: National Bureau of Statistics*
Reported cases of HAV by country of infection, 2001-2003 (n=3,989)

<table>
<thead>
<tr>
<th>Country</th>
<th>No. cases</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>2500</td>
<td>62.7</td>
</tr>
<tr>
<td>Turkey</td>
<td>519</td>
<td>13.0</td>
</tr>
<tr>
<td>Egypt</td>
<td>87</td>
<td>2.2</td>
</tr>
<tr>
<td>Pakistan</td>
<td>76</td>
<td>1.9</td>
</tr>
<tr>
<td>Spain</td>
<td>73</td>
<td>1.8</td>
</tr>
<tr>
<td>Marocco</td>
<td>66</td>
<td>1.7</td>
</tr>
<tr>
<td>Italy</td>
<td>46</td>
<td>1.2</td>
</tr>
<tr>
<td>India</td>
<td>39</td>
<td>1.0</td>
</tr>
<tr>
<td>Tunisia</td>
<td>30</td>
<td>0.8</td>
</tr>
<tr>
<td>Russian Fed.</td>
<td>23</td>
<td>0.6</td>
</tr>
</tbody>
</table>

Source: RKI
Prevalence of HAV-antibodies
German National Health Survey, 1998 (n= 6748)

Prevalence of HAV-antibodies among Risk-Groups: IVDA, Germany 1993

Prevalence of antibodies and duration of IVDA, Germany 1993

# Outbreak-related cases of HAV

## Germany, 2001-2003

<table>
<thead>
<tr>
<th></th>
<th>2001</th>
<th>2002</th>
<th>2003 (up to Oct)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. outbreaks</td>
<td>105</td>
<td>92</td>
<td>62</td>
</tr>
<tr>
<td>Cases involved</td>
<td>314</td>
<td>281</td>
<td>193</td>
</tr>
<tr>
<td>No. outbreaks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 5 cases</td>
<td>14</td>
<td>14</td>
<td>10</td>
</tr>
</tbody>
</table>

Source: RKI

Alpersk@rki.de
Steps of an outbreak investigation

- Confirm outbreak and diagnosis
- Define case
- Identify cases and obtain information
- Analysis of descriptive data
- Develop hypothesis
- Analytical studies to test hypotheses
- Communication and outbreak report

Implement control measures

Source: WHO
Alpersk@rki.de
Conclusions

• Decreasing incidence of HAV
• Lacking information on risk factors in surveillance data
  – MSM, IVDA, immigrants
• Risk of outbreaks
• Need to train field epidemiologists
• Need for international collaboration