Epidemiology and control of hepatitis A in the UK

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Sources of information

- Statutory notifications
- Laboratory reports
- Mortality statistics
- Liver transplantation registries
- Ad hoc reports to HPA: Incident database, reports to CfI, bulletins
- Modelling of serosurveillance data
Infectious jaundice notifications
England & Wales 1969-2001

![Graph showing number of notifications for Infective jaundice / Viral hepatitis, Hepatitis A, Hepatitis B, and Hepatitis C from 1969 to 2001. The graph indicates a significant decline in notifications over time, with a notable peak in the early 1980s.](image)
Hepatitis A notifications and laboratory reports, England and Wales 1987-2004

Number of reports

Year

Laboratory reports  Notifications

0  1000  2000  3000  4000  5000  6000  7000  8000  9000

Regional laboratory reports
Difference between notifications and laboratory reports in England and Wales by region, 2002-4
Laboratory reports Scotland 1988-2004

- Abroad
- IDU
- Other

<table>
<thead>
<tr>
<th>Age</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;5</td>
<td>1</td>
</tr>
<tr>
<td>15-34</td>
<td>3</td>
</tr>
<tr>
<td>35-54</td>
<td>13</td>
</tr>
<tr>
<td>55-74</td>
<td>23</td>
</tr>
<tr>
<td>&gt;74</td>
<td>23</td>
</tr>
<tr>
<td>Total</td>
<td>63</td>
</tr>
</tbody>
</table>
Deaths from hepatitis A in England 2001-2005*

* Data in 2005 to October only
Incomplete information

- Quality of laboratory surveillance poor and deteriorating
  Travel history, injecting drug use, sexual or foodborne exposure, ethnic group should be reported
- Less than 5% reports have information
- Travel history has fallen from 80% in 1990 to 3% in 2004
Evaluation of surveillance 2004/5

- Patient postcode – not available
- Ethnicity – virtually never
- Information is collected at local level, not integrated into national reporting
- Poor reporting of outbreaks
- Genotyping – tried but not evaluated
Outbreaks

- Outbreaks in IDUs in Scotland in 2001-2 linked to an outbreak in Grampian
- Survey in 2002 of public health departments found 20 outbreaks occurred in England and Scotland since 1999
- In 2004 three outbreaks reported to HPA incident database: kebab shop, primary school and MSM
Risk groups
Male: female ratio of cases

Year

Ratio of male to female cases

Laboratory reports of hepatitis A England & Wales by age and sex, Jan 2001 - Dec 2004

[Graph showing quarterly laboratory reports from Jan-Mar 2001 to Jul-Sep 2004 by age and sex categories: Total lab reports, 45+ Female, 45+ Male, 15-44 Female, 15-44 Male, <15 Female, <15 Male.]
Rates of hepatitis A infection per 100,000 population in England and Wales, 2002

<table>
<thead>
<tr>
<th>Region</th>
<th>Rate per 100,000</th>
<th>Rate in children &lt;15y</th>
</tr>
</thead>
<tbody>
<tr>
<td>YORKSHIRE &amp; HUMBER</td>
<td>7.4</td>
<td>1.5</td>
</tr>
<tr>
<td>SOUTH WEST</td>
<td>5.9</td>
<td>0.9</td>
</tr>
<tr>
<td>WEST MIDLANDS</td>
<td>4.2</td>
<td>1.3</td>
</tr>
<tr>
<td>EAST MIDLANDS</td>
<td>2.2</td>
<td>0.5</td>
</tr>
<tr>
<td>NORTH WEST</td>
<td>1.7</td>
<td>0.4</td>
</tr>
<tr>
<td>EASTERN</td>
<td>0.9</td>
<td>0.3</td>
</tr>
<tr>
<td>SOUTH EAST</td>
<td>0.7</td>
<td>0.2</td>
</tr>
<tr>
<td>WALES</td>
<td>0.6</td>
<td>0.1</td>
</tr>
<tr>
<td>NORTH EAST</td>
<td>0.5</td>
<td>0.2</td>
</tr>
<tr>
<td>LONDON</td>
<td>0.4</td>
<td>0.1</td>
</tr>
</tbody>
</table>
Control measures

- Hygiene
- Human Normal Immunoglobulin (HNIG)
- Vaccine available since 1992
Guidelines

- Department of Health and Joint Committee on Vaccination and Immunisation’s Immunisation against infectious diseases (“Green Book”)
Settings

- Contacts of cases - household contacts, sexual contacts
- Outbreaks
  - Institutional (“well defined”)
  - Community-wide (“poorly defined”)
- High risk groups
  - Occupational - laboratory staff
  - IDU
  - Homeless
  - Men who have sex with men
  - Chronic liver disease
  - Haemophiliacs
  - Travellers
Policy I

• Vaccination to be used in preference to HNIG for:
  – Travellers
  – Control of outbreaks
  – Protection of close contacts of cases provided they can be vaccinated within one week of onset in the index case ("onset" = jaundice in most cases)
Policy II

- Vaccination recommended for high risk groups
  - Injecting drug users, gay men, staff working with high risk groups such as special needs/hostels
- HNIG to be used for:
  - Protection of close contacts when the onset date in index case is more than one week ago (and less than two weeks)
  - Additional protection of vulnerable groups (with vaccine)
Other guidance - Schools and nurseries

- There is no justification for exclusion of well older children with good hygiene who will have been much more infectious prior to the diagnosis.

- Exclusion is justified for five days from the onset of jaundice or stools going pale for the under fives or where hygiene is poor.
PREVENTING PERSON TO PERSON SPREAD FOLLOWING GASTROINTESTINAL INFECTIONS
A guide for public health physicians and environmental health officers

• Control of human source
  – Statutorily notifiable as viral hepatitis

• Cases
  – Enteric precautions

• Contacts
  – Handwashing by children must be supervised in nurseries and infant schools. Authorities must satisfy themselves that hygiene and toilet facilities are adequate
Exclusions

• All cases including those in risk groups A to D (that pose an increased risk of spreading infection) should be excluded for 7 days after onset of jaundice and/or other symptoms

• Microbiological clearance
  – None required
Number of notifications and admissions for Hepatitis A by age group 1993 - 1998 in England and Wales
Policy for children in contact with a case

• Recommend same policy for all children 5 years and older
  – Deaths are concentrated in older age groups but not exclusively – fulminant hepatic failure occurs in childhood
  – 5-9 years hospitalisation pattern similar to 10-14 years

• Children less than 5 years old – discuss with parents
  – A significant number of hospitalisations
  – Consider the protection of others
Vaccinating IDUs (with HBV programme)

- Prison vaccination campaigns have been successful (Gilbert R et al CDPH 2004; 7:289-293)
- Combined HAV/HBV vaccine is equivalent protection to single HAV vaccine only if all doses given
- Single HAV has better seroconversion rate than single HAV/ HBV BUT may have worse compliance (two injections)
From policy to reality
Vaccine or HNIG for post-exposure prophylaxis?

- Use of vaccine based on one study (Sagliocca et al 1999).
- HNIG and vaccine never been compared.
- Studies of efficacy of vaccine and HNIG are heterogeneous.
- Recommendations for use of HNIG have not changed in US, Canada.
- BUT public health practice HAS changed in UK.
Efficacy

- HNIG 47-95% depending on setting etc
  - Various studies, some quite old
- Vaccine efficacy pre-exposure 95% (81-99%)
  - 4 studies
- Vaccine efficacy post-exposure 82% (23-96%)
  - 1 study (Sagliocca et al)
Conclusions

- Incidence is at historically low levels
- Surveillance is incomplete
- Utility of genotyping needs evaluating
- Highest risk groups IDUs, MSM, South Asians, travellers
- National control policies are based on hygiene, HNIG and vaccine
- Local practice varies
Acknowledgements

- 23 laboratories that contributed samples for genotyping
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