Acute hepatitis E in south-west France over a 5-year period

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MIDI PYRENEES: largest French administrative region

- Area: 45,348 km²
- Pop. density: 61 inhab./km²

- 4.4% of the French population
- 8.3% of the territory

- Rural dwelling:
  - 40% of the population
  - 82% of the regional surface
End of 90’s: anti-HEV IgG among patients suffering from acute hepatitis without recent travel history
Anti HEV IgG prevalence among blood donors

Boutrouille et al, J Clin Microbiol 2007: 3.50 / 2.91 %
Anti HEV IgG prevalence among blood donors

Boutrouille et al, J Clin Microbiol 2007: 2.91 / 3.50 %

Mansuy et al, J Med Virol 2008: 16.6 %
Anti HEV IgG prevalence among blood donors

Anti HEV IgG prevalence among blood donors

Urban dweller: 14.2% 
Rural dweller: 19.1% 
P = 0.13

16.6% 
1.12 sex ratio

Anti HEV IgG prevalence among blood donors

17.8%

15.0 %

P=0.07

Urban dweller

Rural dweller

Anti HEV IgG prevalence among blood donors

Hunters: 31 %
Non hunters: 15.9%

→ How many **symptomatic cases** of acute hepatitis E in the area?

→ Is there one or more **risk factors** in the area?

→ Is there one or more **reservoirs** in the area?
Acute hepatitis E in south West France over a 5-year period

Acute cases confirmed thanks to HEV genomic detection

Acute hepatitis E in south West France over a 5-year period

- Acute cases confirmed thanks to HEV genomic detection

- 62 cases identified between 2003 and 2007 (without organ transplanted patients)

- 20 patients suffering from pre-existing diseases

Acute hepatitis E in south West France over a 5-year period

10 to 16 cases a year

Acute hepatitis E in south West France over a 5-year period

Number of cases

Rainfall (mm)

10 to 16 cases a year

Acute hepatitis E in south West France over a 5-year period

Number of cases

<table>
<thead>
<tr>
<th>Age group</th>
<th>Number of cases</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>[20-29]</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>[30-39]</td>
<td>8</td>
<td>4</td>
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</tr>
<tr>
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<td>8</td>
<td>4</td>
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<tr>
<td>[50-59]</td>
<td>4</td>
<td>2</td>
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<tr>
<td>[60-69]</td>
<td>10</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>[70-79]</td>
<td>14</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>[80-89]</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

41 men / 21 women  
57.9 yrs / 47.9 yrs

p=0.06

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<td>4</td>
<td>2</td>
<td></td>
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<tr>
<td>30-39</td>
<td>5</td>
<td>1</td>
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<tr>
<td>40-49</td>
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<td>1</td>
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36 **rural** / 26 **urban**  \( p=0.6 \)
55 yrs / 53 yrs  \( p=0.3 \)
Acute hepatitis E in south West France over a 5-year period

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jaundice</td>
<td>67.7</td>
</tr>
<tr>
<td>Asthenia</td>
<td>40.3</td>
</tr>
<tr>
<td>Fever</td>
<td>27.4</td>
</tr>
<tr>
<td>Arthromylogia</td>
<td>21</td>
</tr>
<tr>
<td>Abdominal pain</td>
<td>11.3</td>
</tr>
<tr>
<td>Headache</td>
<td>9.7</td>
</tr>
<tr>
<td>Nausea</td>
<td>9.7</td>
</tr>
<tr>
<td>Anorexia</td>
<td>8.1</td>
</tr>
<tr>
<td>Weight loss</td>
<td>6.5</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>4.8</td>
</tr>
<tr>
<td>Purpuric rash</td>
<td>3.2</td>
</tr>
<tr>
<td>No symptom</td>
<td>3.2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Biological markers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ALT activities</td>
<td>4 – 150 N</td>
</tr>
<tr>
<td>AST activities</td>
<td>1.5 – 151 N</td>
</tr>
<tr>
<td>Bilirubinemia</td>
<td>5 – 30 N</td>
</tr>
</tbody>
</table>

Acute hepatitis E in south West France over a 5-year period

55 / 62 samples
189 base ORF2 sequence products

Molecular evidence of patient to patient transmission of hepatitis E virus in a hematology ward

Since 2007

- 2008 = 17 cases of acute hepatitis (RNA+)
  - sex ratio 1.7 (1.95)
  - age 61.3 vs 40.1 (57.9 vs 47.9)
  - care days 3.2

- genotypes: 3f (9) – 3c (1 hunter)

- Wild boars

- Swine herds
Conclusion

Autochthonous cases

High prevalence in BDs

Viral reservoir(s) ?

Mode(s) of transmission ?
Acknowledgements

- Department of Virology
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