VHPB meeting 2003
Prevention of viral hepatitis in Germany and Scandinavia: lessons learnt and the way forward
Berlin, October 13-14

Screening-pregnant-women programme for hepatitis B: results from two studies

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mother-infant-transmission of hepatitis B

infected mother

chronically infected children
mother-infant-transmission of hepatitis B

the infected newborn has a 25% lifetime risk of primary hepatocellular carcinoma or cirrhosis

Beasly and Huang, in Viral Hepatitis and Liver Disease, New York 1984

chronically infected children
## Perinatal transmission of hepatitis B frequency of HBsAg pos. pregnant women in Germany

<table>
<thead>
<tr>
<th>city</th>
<th>year</th>
<th>n</th>
<th>HBsAg pos (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hannover</td>
<td>1980-81</td>
<td>5,874</td>
<td>0.95</td>
</tr>
<tr>
<td>Bielefeld</td>
<td>1981-85</td>
<td>15,957</td>
<td>1.10</td>
</tr>
<tr>
<td>Greifswald</td>
<td>1983</td>
<td>1,401</td>
<td>0.57</td>
</tr>
<tr>
<td>Rostock</td>
<td>1987-88</td>
<td>3,791</td>
<td>0.89</td>
</tr>
<tr>
<td>Hannover</td>
<td>1996</td>
<td>912</td>
<td>1.40</td>
</tr>
</tbody>
</table>

_Niesert et al. Geburtsh u Frauenheilk 1996; 56: 283-286_
Perinatal transmission of hepatitis B
estimated risk of infection for newborns in Germany

<table>
<thead>
<tr>
<th>HBsAg pos. pregnant women</th>
<th>risk of transmission</th>
<th>newborns at risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>total</td>
<td>7 000</td>
<td></td>
</tr>
<tr>
<td>HBeAg+</td>
<td>1 050</td>
<td>85%</td>
</tr>
<tr>
<td>anti-HBe+</td>
<td>5 950</td>
<td>6%</td>
</tr>
<tr>
<td>total</td>
<td>1 250</td>
<td></td>
</tr>
</tbody>
</table>

Testing for HBsAg has to be performed on all pregnant women belonging to certain risk groups.

Testing should be performed after the 32nd week of pregnancy as close to the time of delivery as possible.
individuals considered at risk for hepatitis B infection

- health care workers
- people from endemic countries
- contacts of carriers
- recipients of blood products
- patients of institutions for mentally disabled
- hemodialysis patients
- heterosexuals with multiple sex partners
- parenteral drug users
- prison inmates
Effectiveness of risk group screening

912 pregnant women tested

13 HBsAg positive

9 women from endemic countries
3 German women
1 Greek woman

no risk factor established

→ 30% of women would not have been tested!

Niesert et al  Geburtsh u Frauenheilk  1996; 56: 283-286
Effectiveness of risk group screening

Using high risk screening criteria can miss a substantial proportion of HBsAg positive women.

All pregnant women should be routinely tested for HBsAg ....

ACIP. MMWR 1988; 37: 341-346
Testing for HBsAg has to be performed on all pregnant women.

Testing should be performed after the 32nd week of pregnancy as close to the time of delivery as possible.
Effectiveness of universal maternal screening in Germany

two surveys performed:

- retrospective analysis in Berlin with ~ 4 000 participants (Parasher et al 2001)
- prospective study in Bavaria with ~ 6 000 participants (Dausch and Jilg 2001)
Effectiveness of universal maternal screening in Germany – retrospective analysis

participants: 3963 women who delivered between 1996 and 1998 in the department of gynaecology and obstetrics of the FU Berlin

charts of the mother and her infant were reviewed for documentation of maternal HBsAg screening

Parasher et al Dt Ärztebl 2001; 98: A 329-331
Effectiveness of universal maternal screening in Germany – retrospective analysis

<table>
<thead>
<tr>
<th>participants</th>
<th>n</th>
<th>HBsAg test documented n (%)</th>
<th>not tested/result not available %</th>
</tr>
</thead>
<tbody>
<tr>
<td>German</td>
<td>2 988</td>
<td>2 153 (72.1)</td>
<td>27.9</td>
</tr>
<tr>
<td>non-German</td>
<td>975</td>
<td>663 (68.0)</td>
<td>32.0</td>
</tr>
<tr>
<td>all</td>
<td>3 963</td>
<td>2 816 (71.1)</td>
<td>28.9</td>
</tr>
<tr>
<td>after week 32</td>
<td>3 589</td>
<td>2 888 (80.5)</td>
<td>19.5</td>
</tr>
</tbody>
</table>

Parasher et al  Dt Ärztebl  2001; 98: A 329-331
**Effectiveness of universal maternal screening in Germany – retrospective analysis**

<table>
<thead>
<tr>
<th>HBsAg test result at delivery</th>
<th>n</th>
<th>HBsAg test positive n (%)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>available</td>
<td>2,815</td>
<td>33 (1.17)</td>
<td>8 German</td>
<td>22 non-German</td>
</tr>
<tr>
<td>not available, tested after delivery</td>
<td>1,148</td>
<td>12 (1.05)</td>
<td>3 German</td>
<td>9 non-German</td>
</tr>
</tbody>
</table>

*Parasher et al  Dt Ärztebl  2001; 98: A 329-331*
Effectiveness of universal maternal screening in Germany – retrospective analysis

Summary

- HBsAg tests were not performed or not available in 19.5% of women who delivered after week 32
- Tests for Rubella antibody were missing in only 5.2%
- HBsAg carrier rate in the tested women was similar as in those not tested before delivery (1.17% vs. 1.05%)

Parasher et al. Dt Ärztebl 2001; 98: A 329-331
Effectiveness of universal maternal screening in Germany – prospective analysis

participants: 6083 women who delivered between July 1997 and Dec 1998 in the obstetric wards of 11 clinics in Bavaria

pregnancy documents of the women entering the obstetric wards were examined to check whether, when and with which result HBsAg-screening had been performed.

Dausch and Jilg Geburtsh Frauenheilk 2001; 61: 676-681
Effectiveness of universal maternal screening in Germany – prospective analysis

<table>
<thead>
<tr>
<th>clinic</th>
<th>n</th>
<th>HBsAg test available n (%)</th>
<th>not tested/result not available %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amberg</td>
<td>343</td>
<td>312 (91.0)</td>
<td>9.0</td>
</tr>
<tr>
<td>Bamberg</td>
<td>921</td>
<td>435 (47.2)</td>
<td>52.8</td>
</tr>
<tr>
<td>Deggendorf</td>
<td>1039</td>
<td>939 (90.4)</td>
<td>9.6</td>
</tr>
<tr>
<td>Landshut</td>
<td>552</td>
<td>550 (99.6)</td>
<td>0.4</td>
</tr>
<tr>
<td>Munich LMU</td>
<td>878</td>
<td>577 (65.7)</td>
<td>34.3</td>
</tr>
<tr>
<td>Munich TU</td>
<td>430</td>
<td>337 (78.4)</td>
<td>21.6</td>
</tr>
<tr>
<td>Regensburg St. Hedwig</td>
<td>312</td>
<td>206 (66.0)</td>
<td>34.0</td>
</tr>
<tr>
<td>Regensburg St. Josef</td>
<td>221</td>
<td>172 (77.8)</td>
<td>22.2</td>
</tr>
<tr>
<td>Schweinfurt</td>
<td>490</td>
<td>404 (82.4)</td>
<td>17.6</td>
</tr>
<tr>
<td>Straubing</td>
<td>647</td>
<td>639 (98.8)</td>
<td>1.2</td>
</tr>
<tr>
<td>Weiden</td>
<td>250</td>
<td>236 (94.4)</td>
<td>5.6</td>
</tr>
<tr>
<td>all</td>
<td>6083</td>
<td>4807 (79.0)</td>
<td>21.0</td>
</tr>
</tbody>
</table>

Dausch and Jilg Geburtsh Frauenheilk 2001; 61: 676-681
Effectiveness of universal maternal screening in Germany – prospective analysis

Dausch and Jilg Geburtsh Frauenheilk 2001; 61: 676-681
Effectiveness of universal maternal screening in Germany – prospective analysis

in 70.7% of all tested women testing was performed after week 32

Dausch and Jilg Geburtsh Frauenheilk 2001; 61: 676-681
Effectiveness of universal maternal screening in Germany – prospective analysis

HBsAg carriers

- test results available for 4,744 of tested women
  - 42 (0.89%) HBsAg positive
    - 12 German, 13 non-German, 13 origin unknown
    - 12 German carriers: 2 drug addicts, 1 medical profession

- at LMU Munich all women not tested before delivery were tested thereafter
  - 577 tested before delivery: 12 (2.1%) HBsAg positive
  - 301 tested after delivery: 4 (1.3%) HBsAg positive

Dausch and Jilg Geburtsh Frauenheilk 2001; 61: 676-681
Effectiveness of universal maternal screening in Germany – summary

- about 20 % of pregnant women are not tested for HBsAg before delivery
- about 1% of pregnant women are HBsAg positive
- according to these data, about 1400 HBsAg pos. pregnant women are not identified, giving birth to about 250 infected newborns, of whom 225 will become chronic carriers