Identification and management of chronic viral hepatitis in Russia

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Presentation Outlines

• Incidence and prevalence of hepatitis B and C in Russia;

• Screening strategy for hepatitis B and C;

• Chronic hepatitis B and C treatment options and programs;

• Summary
Incidence of Acute Hepatitis B and vaccination coverage, 1999-2008

Official Bulletin of the Federal Center for Hygiene and Epidemiology, Russia
Incidence of Acute Hepatitis B and vaccination coverage, 1999-2009

Official Bulletin of the Federal Center for Hygiene and Epidemiology, Russia
Incidence of Chronic Hepatitis B and HBV Carriage, 1999-2009

Per 100,000 population

1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009

CHB

HBV Carriage

Official Bulletin of the Federal Center for Hygiene and Epidemiology, Russia
Incidence of Chronic Hepatitis B and HBV Carriage, 1999-2009

Absolute numbers of HBV carriers: 987,236
Absolute numbers of CHB cases: 223,214
Ratio: 1 : 4.4

Official Bulletin of the Federal Center for Hygiene and Epidemiology, Russia
Prevalence of HBV Infection in Moscow, 2004-2009

The rate of HBsAg detection, %

- 2004: 3.8%
- 2005: 2.4%
- 2006: 2.1%
- 2007: 2.1%
- 2008: 1.8%
- 2009: 1.9%

Total n = 186,495
## Prevalence of chronic HBV infection in Russia

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total population of Russia (1.01.2010)</td>
<td>141.9 mil</td>
</tr>
<tr>
<td>Rate of HBsAg detection</td>
<td>2.0%</td>
</tr>
<tr>
<td>Estimated number of chronic HBV infection cases</td>
<td>2.8 mil</td>
</tr>
<tr>
<td>Ratio «CHB : inactive HBV carriers»</td>
<td>1 : 4,4</td>
</tr>
<tr>
<td>Estimated number of CHB cases</td>
<td>645 000</td>
</tr>
</tbody>
</table>
HDV Infection among HBsAg positive patients

13%  n=6000

33%  n=133

28%  n=671

33%  n=2226

Incidence of Acute and Chronic Hepatitis C, 1999-2009

Per 100,000 population

Official Bulletin of the Federal Center for Hygiene and Epidemiology, Russia
Incidence of Chronic Hepatitis C, 1999-2009

Per 100,000 population

CHC
"HCV carriers"

Official Bulletin of the Federal Center for Hygiene and Epidemiology, Russia
Incidence of Chronic Hepatitis C, 1999-2009

- CHC
- "HCV carriers"
- CHC estimated total

Official Bulletin of the Federal Center for Hygiene and Epidemiology, Russia
Rate of anti-HCV detection in General Population in Moscow, 2005-2009

- anti-HCV (-) 95.9%
- anti-HCV (+) 4.1%

n=43,866
## Prevalence of Chronic Hepatitis C in Russia

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<tr>
<td>Total population of Russia (1.01.2010)</td>
<td>141.9 mil</td>
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<tr>
<td>Rate of anti-HCV detection</td>
<td>4.1%</td>
</tr>
<tr>
<td>Estimated number of anti-HCV positive cases</td>
<td>5.9 mil</td>
</tr>
<tr>
<td>Ratio of chronization</td>
<td>60%</td>
</tr>
<tr>
<td>Estimated number of CHC cases</td>
<td>3.6 mil</td>
</tr>
</tbody>
</table>
The goals of the Screening Strategy are to lower the incidence of acute Hepatitis B and C and reduce chronic hepatitis B and C burden through the interruption of infection transmission and early disease detection.
## Viral Hepatitis Screening Programs in Russia

<table>
<thead>
<tr>
<th>Screening groups</th>
<th>Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Blood donors</td>
<td>At every donation</td>
</tr>
<tr>
<td>- Pregnant women</td>
<td>During I and III trimester</td>
</tr>
<tr>
<td>- Newborns of women with CHB or CHC</td>
<td>0, 3,6 months; 1, 2, 3 years of age</td>
</tr>
<tr>
<td>- Health care workers</td>
<td>At hiring, then every year</td>
</tr>
<tr>
<td>- In-patients</td>
<td>At the point of admission</td>
</tr>
<tr>
<td>- Out-patients (Drug and alcohol abuse clinics, STI clinics)</td>
<td>At the first appointment; then every year</td>
</tr>
<tr>
<td>- Patients on hemodialysis</td>
<td>At the first appointment; then on regular basis</td>
</tr>
<tr>
<td>- Orphanage</td>
<td>At admission; then every year</td>
</tr>
<tr>
<td>- Households and contacts</td>
<td>At index case identification; then every year</td>
</tr>
<tr>
<td>- Military personnel</td>
<td>At hiring; then every year</td>
</tr>
</tbody>
</table>

Sanitary and Epidemiological Regulations СН 3.1.958-00
Health Care Facility

Local Administration, responsible for ID surveillance

HBsAg (+) or Anti-HCV (+)

Hepatology Center

Federal Center for Hygiene and Epidemiology

Local Out-patient Clinic

24 h

Monthly
Rate of HBsAg within Selected Groups in 2007, Russia

- Newborns of HBsAg (+) mothers: 1.7% (n=16,305)
- Pregnant women: 1.5% (n=1,803,900)
- Blood donors: 0.9% (n=1,077,501)

Rate of anti-HCV within Selected Groups in 2007, Russia

HCW: 1.7% (n=21,631)
Pregnant women: 1.6% (n=1,735,860)
Blood donors: 1.1% (n=933,129)

Rate of anti-HCV detection, %

Rate of HBsAg and anti-HCV among In-Patients in 2009-2010, Moscow

Rate of detection, %

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>HBsAg</td>
<td>1,2</td>
<td>1,3</td>
</tr>
<tr>
<td>anti-HCV</td>
<td>3,1</td>
<td>2,8</td>
</tr>
</tbody>
</table>

n=6712
n=2705
Impact of Screening Strategy on Rate of HBV transmission in Health Care Settings

Cost of screening programme

Covered by Mandatory Health Insurance

- HBsAg (screening and confirmatory test)
- Anti-HCV (screening and confirmatory test)
Cost of Evaluation and Follow-up

Covered by Mandatory Health Insurance

- Blood Chemistry (every 3-6 month)
- Abdominal Ultrasound (every 6-12 month)
- Liver Biopsy (in some regions)

Paid Out of Pocket

- Viral Load (HBV and HCV)
- Viral Genotype (HCV and HBV)
- Drug Resistance
- Liver Biopsy
- Non-invasive Fibrosis and Disease Activity Assessment
## Cost of Screening Program for Pregnant Women in 2007

<table>
<thead>
<tr>
<th></th>
<th>HBsAg</th>
<th>Anti-HCV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pregnant Women Screened</td>
<td>1.8 mil</td>
<td></td>
</tr>
<tr>
<td>Cost per test, USD</td>
<td>0.7</td>
<td>0.7</td>
</tr>
<tr>
<td>Test per one women</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>Cost of the program, USD</strong></td>
<td>2.52 mil</td>
<td>2.52 mil</td>
</tr>
<tr>
<td>Rate of positivity, %</td>
<td>0.9</td>
<td>1.6</td>
</tr>
<tr>
<td>Total number of infected</td>
<td>16,200</td>
<td>28,800</td>
</tr>
<tr>
<td><strong>Cost per one infected, USD</strong></td>
<td>156</td>
<td>87</td>
</tr>
</tbody>
</table>
Treatment Options

**Chronic Hepatitis B**

- Nucleoside Analogues
  - Lamivudine
  - Telbivudine
  - Entecavir

- IFNs
  - Standard
  - Pegylated

**Chronic Hepatitis C**

- IFNs
  - Standard
  - Pegylated

- Ribavirin
Treatment Programs

- **National Public Health Project**
  - HCV-HIV or HBV-HIV coinfection (100%)
  - CHC or CHB monoinfection (unspent funds)

- **Federal Target Program (2007-2011)**
  - Diagnostic Capacity Strengthening
  - In 2009 ≈ 500 CHB patients got treatment

- **Additional Drug Supply Program**
  - Groups entitled for special benefits

- **High-Tech Medical Care State Program (Liver Transplantation)**
  - 6 Liver Transplant Centers
Average Monthly Income
Russia, 2009


<table>
<thead>
<tr>
<th>Drug</th>
<th>Cost per Month</th>
<th>Affordability</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAM</td>
<td>$100</td>
<td>61.4%</td>
</tr>
<tr>
<td>ETV</td>
<td>$700</td>
<td>4.1%</td>
</tr>
<tr>
<td>Peg-IFN</td>
<td>$1500</td>
<td>&lt;1.5%</td>
</tr>
</tbody>
</table>
Summary (1)

- Over the last 10 years a steep decline in the incidence of acute Hep B and C cases was observed. However the burden of chronic infection due to Hep B and C is still very significant. Rate of HBsAg in the general population is about 2 percent and Anti-HCV about 4 percent.

- An extensive range of obligatory screening programs for Hep B and C is in place, covering major risk groups; cost-effectiveness analysis is need to be performed;
Summary (2)

- Hepatitis surveillance needs major improvement: introduction of nationally integrated electronic surveillance system in all regions; development of chronic viral hepatitis patients register on regional and federal levels;
- Cost of Screening programs is covered by Mandatory Health Insurance, while additional diagnostic evaluation (viral load etc.) is paid out of pocket.
- An access to treatment programs for chronic Hep B and C is very limited. Development of an effective treatment strategy and programs for CHB and CHC is urgently needed.