Prevention of viral hepatitis transmission through blood transfusions

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BLOOD TRANSFUSION SYSTEM

• National Center of Transfusion Hematology
• 4 Regional Blood Establishments
  ➤ Full activities
• 23 Hospital - based Blood Establishments
  ➤ Collection, storage, distribution, patients testing
BLOOD TRANSFUSION SYSTEM
ORGANIZATIONAL STRUCTURE

MoH

NCTH Sofia

4 HB - BTC

RCTH Plovdiv

7 HB - BTC

RCTH St. Zagora

3 HB - BTC

RCTH Pleven

5 HB - BTC

RCTH Varna

4 HB - BTC
HBV and HCV markers in donors from Sofia region
# HBsAg positive donors

<table>
<thead>
<tr>
<th>Donors of</th>
<th>Number</th>
<th>HBsAg positive</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>NCTH</td>
<td>34682</td>
<td>473</td>
<td>1.36</td>
</tr>
<tr>
<td>Sofia region</td>
<td>4391</td>
<td>66</td>
<td>1.50</td>
</tr>
<tr>
<td>Blagoevgrad</td>
<td>5230</td>
<td>175</td>
<td>3.34</td>
</tr>
<tr>
<td>Vratza</td>
<td>2442</td>
<td>27</td>
<td>1.10</td>
</tr>
<tr>
<td>Vidin</td>
<td>1702</td>
<td>17</td>
<td>1.00</td>
</tr>
<tr>
<td>Kjustendil</td>
<td>2095</td>
<td>36</td>
<td>1.71</td>
</tr>
<tr>
<td>Lom</td>
<td>1933</td>
<td>27</td>
<td>1.39</td>
</tr>
<tr>
<td>Pernik</td>
<td>1316</td>
<td>18</td>
<td>1.36</td>
</tr>
<tr>
<td>MMA</td>
<td>5367</td>
<td>93</td>
<td>1.73</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>59158</td>
<td>932</td>
<td><strong>1.57</strong></td>
</tr>
</tbody>
</table>
Percentages of HBsAg positive donors

- **Males - 1.62**
  - NCTH – 1.43
  - Sofia region – 1.48
  - Blagoevgrad – 3.30
  - Vratza – 1.12
  - Vidin – 1.04
  - Kjustendil – 1.60
  - Lom – 1.58
  - Pernik – 1.32
  - MMA – 1.74

- **Жени – 1.41**
  - NCTH - 1.14
  - Sofia region – 1.57
  - Blagoevgrad – 3.50
  - Vratza – 1.05
  - Vidin – 0.83
  - Kjustendil – 2.17
  - Lom – 0.91
  - Pernik – 1.59
  - MMA – 1.68
HBsAg positive donors

- Females – 21.1% - mean 1.41%
- Males – 78.9% - mean 1.62%
- Mean for the country – 2.72 %
- Range
  - 1.0%
  - 6.65%
- Correlation with moslem population
## HCV positive donors

<table>
<thead>
<tr>
<th>Donors of</th>
<th>Number</th>
<th>HCV positive</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>NCTH</td>
<td>38247</td>
<td>89</td>
<td>0.23</td>
</tr>
<tr>
<td>Sofia region</td>
<td>5714</td>
<td>16</td>
<td>0.28</td>
</tr>
<tr>
<td>Blagoevgrad</td>
<td>6431</td>
<td>16</td>
<td>0.25</td>
</tr>
<tr>
<td>Vratza</td>
<td>2785</td>
<td>4</td>
<td>0.14</td>
</tr>
<tr>
<td>Vidin</td>
<td>2152</td>
<td>6</td>
<td>0.28</td>
</tr>
<tr>
<td>Kjustendil</td>
<td>1891</td>
<td>5</td>
<td>0.26</td>
</tr>
<tr>
<td>Lom</td>
<td>2104</td>
<td>1</td>
<td>0.05</td>
</tr>
<tr>
<td>Pernik</td>
<td>1418</td>
<td>6</td>
<td>0.42</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>60743</strong></td>
<td><strong>143</strong></td>
<td><strong>0.23</strong></td>
</tr>
</tbody>
</table>
HCV positive donors

• Males
  • Mean – 0.26
  • Range
  • 0.41
  • 0.06

• Females
  • Mean – 0.15
  • Range
  • 0.49
  • 0

Mean for the country – 0.36, range 0.16-0.80
# Age distribution

<table>
<thead>
<tr>
<th>Age</th>
<th>HBV</th>
<th>HCV</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-24</td>
<td>19%</td>
<td>30%</td>
</tr>
<tr>
<td>25-29</td>
<td>12%</td>
<td>11%</td>
</tr>
<tr>
<td>30-34</td>
<td>12%</td>
<td>11%</td>
</tr>
<tr>
<td>35-39</td>
<td>14%</td>
<td>12%</td>
</tr>
<tr>
<td>40-44</td>
<td>15%</td>
<td>11%</td>
</tr>
<tr>
<td>45-49</td>
<td>15%</td>
<td>11%</td>
</tr>
<tr>
<td>50-54</td>
<td>9%</td>
<td>9%</td>
</tr>
<tr>
<td>55-59</td>
<td>3%</td>
<td>4%</td>
</tr>
<tr>
<td>60-65</td>
<td>1%</td>
<td>1%</td>
</tr>
</tbody>
</table>
Seropositive donors by frequency of donation

- HBsAg: 42.0% First time, 21.9% 2 - 3 times, 21.5% > 3 times, 10.0% 0.0%
- Anti-HIV: 100.0% First time, 0.0% 2 - 3 times, 0.0% > 3 times
- Anti-HCV: 53.9% First time, 24.9% 2 - 3 times, 21.2% > 3 times
- Syphilis: 45.2% First time, 25.1% 2 - 3 times, 29.7% > 3 times
Summary

- HBsAg – relatively high prevalence compared to neighboring South Eastern European countries
- Significant differences between male and female donors
- Significant differences between different regions
- Relatively high carrier rate in repeat and regular donors – imperfect system for donor counseling
PREVENTION MEASURES IN BLOOD TRANSFUSION

BLOOD DIRECTIVES EC

NATIONAL LEGISLATION

LAW, REGULATIONS, STANDARD
PRINCIPLES

• Voluntary, non remunerated blood donors from low risk populations
• Protection of the rights and health of donors and recipients
  Equality of donors and recipients
• Rational use of blood and blood components
• Self-sufficiency of the country
Quality System for Blood Establishments

Organizational management  | Training

Inputs  | Processes  | Outputs

Supplier  |  | Customer

Standards  | Documentation  | Assessment

Quality System
Deming Cycle of Continuous Improvement

Plan

Quality plan

Do

On-going process of improvement

Check

Correct/Improve
Donor selection

- Information for donors
- Information from donors
- Health questionnaires
- Permanent deferral of donors
Blood collection

- Identification of donors
- Identification of bags
- Identification of samples
Production of components

• Quarantine
• Retrieval and disposal of positive units
• GMP
Screening of donated blood

• Mandatory tests for blood and blood components
  • a HIV 1,2 + Ag
  • HBsAg
  • a HCV + Ag
  • Antitreponemal antibodies
Screening of donated blood

• Concentration of testing since 2001
• Automated equipment
• Reagents supplied centrally
• National requirements for the quality of test kits
• Tests with sample addition monitoring and a photometric process monitoring
Screening of donated blood

• Batches of test kits evaluated on a national level
• Training of staff – on a national level
• National quality assessment scheme for transmissible diseases screening
Screening of donated blood

- National algorithm for confirmation testing
- National algorithm for donors with false positive and indeterminate results
- Data from the screening of donated units are collated nationally and transmitted to MoH
Problems

- Regulation on viral hepatitis
- Proper clinical use of blood components
- Relationships between clinicians and transfusion medicine specialists
- Follow up of suspected transfusion associated infections
National program “Safe blood” 2005 - 2010

- Priority elements
- National program for promotion of voluntary, non-remunerated blood donation
- National promotional campaigns targeting young people
Traditional campaigns

• The already traditional spring and autumn student campaigns “Drop by drop life”
• Campaigns during Palm Sunday under the heading “Light a candle, make a present for life”
• Young commandos campaigns
• 14 June campaigns
Spring campaign for voluntary, nonremunerated blood donation
Palm Sunday “Light a candle, make a present for life”
14 юни
Световен ден на кръводарителя

КОНЦЕРТ
Кръвта е дар за живи... Благодарим ви!

MUSIC IDOL
группа RELAX

Години Гедора Грайнова
Алена Конева
Славей Славейков

...и много приятели

14 юни, площада пред Народният театър, 18:00 часа
Association of the Bulgarian commandos
“Donate blood”! Donate life now! Bulgaria does not take life, Bulgaria donates life!
SEE blood project - AIMS

• Implementation of a National promotional campaign targeting young people
• Development, printing and distribution of promotion materials
• Preparation of materials for dedicated media releases (T.V. and radio clips)
AIMS

• Blood donation campaigns among the 18 years old students in high school under the heading “Come with us, your blood is important”, organized with the help of specially trained young recruiters.
Project “Come with us, your blood is important”

In 2008 in the training center of the BRC 31 young people were trained to promote voluntary, nonremunerated blood donation
Project “Come with us, your blood is important”
Project “Come with us, your blood is important”

The trained volunteers presented the problems of blood donation before high school students of the same age from different schools.
First results

- Three donor sessions
- 102 high school students over 18 years donated blood
Autumn 2008

• During the autumn of 2008 were organized the traditional students campaigns. High school and university students, specially trained at a seminar for donor recruiters, explained to the students the necessity of blood donation, the security and safety during the process of blood collection. Young people from the youth section of the Bulgarian Red Cross took an active part in the campaigns, distributing the specially prepared promotion materials and taking care of the blood donors.
If you are 18 ... 
... you have the right to celebrate ... 
... with others at 18
The celebration of the 18 anniversary of the Convention of the children rights
Celebration with the 18 years old
Results

- 26 blood establishments took part in the initiatives of MoH, NCTH and BRC
- 14 Blood establishments have organized blood donor sessions in universities and high schools
- 330 donor sessions
- Over 5,400 people have donated blood during the campaigns
  - Students – 2000
  - High school students over 18 – 344
“Come with us, your blood is important”
That was just the beginning

The campaigns are now a tradition