Visceral leishmaniasis-HIV co-infection: emerging in South-America

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Visceral Leishmaniasis and HIV Distribution

In Latin America, Brazil is the country with highest burden of VL, with ~ 3,600 new cases annually (incidence= 1.9/100,000 ind), which accounts for 90% of the cases in Americas.

As for VL, Brazil is also the country with highest burden for HIV-AIDS in Latin America: 35,380 new HIV cases reported annually (19.7/100,000 ind), and a total of 630,000 cumulative number of AIDS reported in the country.

Sexual transmission: 74%
Expansion and Epidemics of VL in Brazil - 1990 to 2010

- Distribution: 21 states and 5 political regions
  - Northeast: 47.1%
- Sex: Males account for 62.2% of the cases
- Age: Majority are children, 46.2%
- Lethality: 6.2%

Source: 2008 map of VL, SVS/MoH Brazil
Before 70's decade

80's decade

90's decade

Cycle of transmission: Zoonotic

reservoir control

diagnosis and treatment
Diagnosis and Treatment of VL

• Diagnosis of VL
  – Parasitological: Bone marrow aspiration with direct exam and culture;
  – Serological: Rapid test (rK39), ELISA or IFI;
    • In co-infected VL-HIV: Serology: 90% sensitivity

• Treatment
  – Pentavalent Antimonial (glucantime)
  – Amphotericin B
    • HIV- patients or with other immunosupression
    • Pregnancy
    • Severe patients
Visceral Leishmaniasis and AIDS in Brazil

VL
From 1983 to 2008

AIDS
From 1980 to 2009
Geographical Distribution of VL and HIV/AIDS in Brazil - overlapping

Source: MS/SVS/PN DST and AIDS/SINAN and MS/SVS,
In 2001, ~ 0.5% of VL cases were co-infections.

Currently the rate of HIV-VL co-infection is in the order of 6.5%.

57% of patients have HIV diagnosis after VL manifestation.

Recommendation from the MoH to offer HIV serology to all patients with VL.
Spatial distribution of the VL-HIV co-infection cases reported in Brazil in the period 2001-2009.

Northeast: High incidence of VL

Southeast: High incidence of HIV

Majority of VL/HIV cases are reported in both regions.

Source: MoH/SVS/Brazil.
Number of VL and VL-HIV co-infection cases reported in the state of SP over the last decade

- VL and HIV-VL co-infection are increasing in the state of SP
- Despite the reduction of cases in the last 2 years, the proportion of HIV-VL continues to increase, in 2010=17.4%

Source: CVE/SES/SP MoH/SVS
Sex and age distribution of VL-HIV cases reported in SP in 2001-2010

<table>
<thead>
<tr>
<th>Sex</th>
<th>N</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>120</td>
<td>71.42</td>
</tr>
<tr>
<td>Female</td>
<td>48</td>
<td>28.57</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 -- 10</td>
<td>6</td>
<td>3.55</td>
</tr>
<tr>
<td>11 -- 18</td>
<td>1</td>
<td>0.59</td>
</tr>
<tr>
<td>19 -- 49</td>
<td>131</td>
<td>77.51</td>
</tr>
<tr>
<td>≥50</td>
<td>28</td>
<td>16.56</td>
</tr>
<tr>
<td>Ignored</td>
<td>5</td>
<td>2.95</td>
</tr>
</tbody>
</table>

• VL without HIV is a disease of childhood
• VL-HIV is a disease of adult males
• Vertical transmission of HIV is well controlled in Brazil

Source: CVE/SES/SP and MoH/SVS
Clinical Presentation of VL in co-infected patients

Classical clinical manifestations are observed: fever, enlargement of liver and spleen, as for the immune-competent host.

Atypical manifestation of VL is rare.
Lethality and treatment failure/relapse of VL and VL-HIV cases in the state of SP

<table>
<thead>
<tr>
<th>Year</th>
<th>VL confirmed</th>
<th>Total Deaths</th>
<th>Total Lethal. (%)</th>
<th>VL/HIV Coinfected</th>
<th>Lethality VL/HIV (%)</th>
<th>Total Failures</th>
<th>Total Failures (%)</th>
<th>HIV Failures</th>
<th>HIV Failures (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>17</td>
<td>5</td>
<td>29,41</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2000</td>
<td>15</td>
<td>0</td>
<td>0,00</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2001</td>
<td>57</td>
<td>3</td>
<td>5,26</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2002</td>
<td>115</td>
<td>13</td>
<td>11,30</td>
<td>8</td>
<td>25,00</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2003</td>
<td>156</td>
<td>23</td>
<td>14,74</td>
<td>10</td>
<td>10,00</td>
<td>1</td>
<td>0,64</td>
<td>1</td>
<td>10,00</td>
</tr>
<tr>
<td>2004</td>
<td>131</td>
<td>13</td>
<td>9,92</td>
<td>13</td>
<td>30,77</td>
<td>1</td>
<td>0,76</td>
<td>1</td>
<td>7,69</td>
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<tr>
<td>2005</td>
<td>155</td>
<td>16</td>
<td>10,32</td>
<td>12</td>
<td>25,00</td>
<td>2</td>
<td>1,29</td>
<td>2</td>
<td>16,67</td>
</tr>
<tr>
<td>2006</td>
<td>250</td>
<td>10</td>
<td>4,00</td>
<td>13</td>
<td>15,38</td>
<td>3</td>
<td>1,20</td>
<td>3</td>
<td>23,08</td>
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<tr>
<td>2007</td>
<td>248</td>
<td>22</td>
<td>8,87</td>
<td>30</td>
<td>6,67</td>
<td>7</td>
<td>2,82</td>
<td>3</td>
<td>10,00</td>
</tr>
<tr>
<td>2008</td>
<td>300</td>
<td>24</td>
<td>8,00</td>
<td>35</td>
<td>20,00</td>
<td>15</td>
<td>5,00</td>
<td>7</td>
<td>20,00</td>
</tr>
<tr>
<td>2009</td>
<td>184</td>
<td>15</td>
<td>8,15</td>
<td>25</td>
<td>20,00</td>
<td>14</td>
<td>7,61</td>
<td>4</td>
<td>16,00</td>
</tr>
<tr>
<td>2010</td>
<td>86</td>
<td>4</td>
<td>4,65</td>
<td>15</td>
<td>20,00</td>
<td>8</td>
<td>9,30</td>
<td>2</td>
<td>13,33</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1714</td>
<td>148</td>
<td>8,63</td>
<td>168</td>
<td>17,26</td>
<td>51</td>
<td>2,98</td>
<td>23</td>
<td>13,69</td>
</tr>
</tbody>
</table>

Source: CVE/SES/SP MoH/SVS
Primary treatment of VL-HIV co-infection

<table>
<thead>
<tr>
<th>VL TREATMENT</th>
<th>Cure</th>
<th>Failure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glucantime</td>
<td>44/ 66 (66.7%)</td>
<td>22/ 66 (33.3%)</td>
</tr>
<tr>
<td>Amphotericin B</td>
<td>49/82 (59.8%)</td>
<td>33/66 (40.2%)</td>
</tr>
</tbody>
</table>

p=0.48
Guidelines for Leishmaniasis and HIV-AIDS
Conclusions

• Urbanization of VL is a public health problem, and control efforts have not proven successful in controlling its expansion

• VL and HIV are overlapping, with increasing proportion of HIV-VL co-infections

• Adult males are mostly affected, with usual clinical presentation

• High treatment failure/relapse and high lethality are the main challenges for case management
Thank you

- Igor Thiago Borges
- Lizete Cruz
- Fabiana Alves