Effect of highly diluted mice’s serum on murine infection by *Trypanosoma cruzi*.

Fabiana Nabarro Ferraz, Franciele Karina da Veiga, Camila Fernanda Brustolin, Angélica Sayuri Mizutani, Denise Lessa Aleixo, Silvana Marques de Araújo

Universidade Estadual de Maringá (UEM), Maringá, Brazil

**Background:** *Trypanosoma cruzi* biotherapies alter the course of experimental infection by this protozoan [1,2], a fact that encourages the evaluation of other highly diluted medicines which modulates host’s immune system.

**Aim:** Evaluate the effect of highly diluted mice’s serum on murine infection by *T. cruzi*.

**Methodology:** A blind, randomized and controlled study was performed. **Animals:** 20 male *Swiss* mice, four weeks old were inoculated intraperitoneally with 1400 blood trypomastigotes Y strain and divided in groups: IC: Infection control - treated with hydroalcoholic solution 7% (n=7); MSI13cH: treated with mice’s serum infected by *T. cruzi* 13cH (n=6); MSNI13cH: treated with mice’s serum non-infected by *T. cruzi* 13cH (n=7). **Medicines:** produced from serum of infected and non-infected mice by *T. cruzi* 13cH dynamization [3]. **Treatment plan:** mice were treated 48 hours before and after infection. Subsequently animals were treated 56/56 hours until 9th day of infection. The medicines were diluted in natural water (1mL/100mL) and offered *ad libitum*, for 16 consecutive hours. Parasitological and clinical parameters were evaluated. **Parasitological:** pre-patent and patent period, parasitemia peak, total parasitemia and survival time [4]. **Clinical:** quantitative - body weight, water and food intake, temperature; qualitative - body hair aspect, edema, movement, diarrhea [5]. **Ethics:** study was approved by Ethics Committee for Experiments in Animals/UEM. **Statistic:** data were compared with Mann Whitney test or t Test, significance 5%.

**Results:** MSI13cH showed tendency to increase total parasitemia (p=0.06) and parasitemia peak (p=0.05), with lower patent period (p=0.03) and lower animals survival (p=0.05). MSNI13cH showed no different parasitological parameters from IC (Table 1). MSI13cH and MSNI13cH showed no statistical differences in clinical parameters when compared to IC. These results suggest that highly diluted *T. cruzi* antibodies present in infected serum administered prior to infection worsen the course of infection by stimulating immunological tolerance via anti-idiotypic antibodies production, which neutralized the activity of anti-*T. cruzi* antibodies produced by animals [6]. These data need further studies, either by changing treatment plan, or by researching immunological markers involved on suppressor response.

**Conclusions:** MSI13cH worsen murine infection by *T. cruzi*, with premature death and no alteration in clinical parameters compared to IC.
Table 1 Parasitological parameters (mean ± standar deviation) evaluated in Swiss male mice experimentally infected by *T. cruzi* of groups: IC (Infection control), MSNI 13cH (treated with mice’s serum non-infected by *T. cruzi* 13cH), and MSI 13cH (treated with mice’s serum infected by *T. cruzi* 13cH).*p≤0.05

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre patent period (days)</th>
<th>Patent period (days)</th>
<th>Parasitemia peak (trypomastigotes/mL) x 10⁵</th>
<th>Total parasitemia (trypomastigotes/mL) x 10⁵</th>
<th>Survival (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IC</td>
<td>6.3±1.0</td>
<td>12.5±2.1</td>
<td>13±14</td>
<td>71±27</td>
<td>14.5±2.1</td>
</tr>
<tr>
<td>MSNI 13cH</td>
<td>5.8±1.0</td>
<td>11.3±2.7</td>
<td>22±17</td>
<td>100±56</td>
<td>13.5±2.6</td>
</tr>
<tr>
<td>MSI 13cH</td>
<td>5.8±0.5</td>
<td>9.5±1.1*</td>
<td>31±17*</td>
<td>100±21</td>
<td>12.0±0.0*</td>
</tr>
</tbody>
</table>

Keywords: *Trypanosoma cruzi*; Chagas’ disease; Mice’s serum; Highly diluted medicines.

References


