Int J High Dilution Res 2013; 12(44):100-101
Proceedings of the XXVII GIRI Symposium; 2013 Sep03-04; Bern (Switzerland)

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); MSI_{13cH}: treated with mice's serum infected by *T. cruzi* 13cH (n=6); $MSNI_{13cH}$: 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* in 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: MSI_{13cH} 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 ($p=0.05$). $MSNI_{13cH}$ showed no different parasitological parameters from IC (Table 1). MSI_{13cH} and $MSNI_{13cH}$ 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: MSI_{13cH} 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

Group	Pre patent period (days)	Patent period (days)	Parasitemia peak (trypomastigotes/mL) x 10^5	Total parasitemia (trypomastigotes/mL) x 10^5	Survival (days)
IC	6.3±1.0	12.5±2.1	13±14	71±27	14.5±2.1
MSNI $_{13cH}$	5.8±1.0	11.3±2.7	22±17	100±56	13.5±2.6
MSI $_{13cH}$	5.8±0.5	9.5±1.1*	31±17*	100±21	12.0±0.0*

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

References

[1] Ferraz FN, Simoni GK, Nascimento A, Melo CS, Aleixo DL, Gomes ML, et al. Different forms of administration of biotherapy 7dH in mice experimentally infected by *Trypanosoma cruzi* produce different effects. Homeopathy.2011; 100(4): 237-243.

[2] Aleixo DL, Ferraz FN, Ferreira EC, Lana M, Gomes ML, Abreu-Filho BA, et al. Highly diluted medication reduces parasitemia and improves experimental infection evolution by *Trypanosoma cruzi*. BMC Res Notes. 2012; 5: 352-367.

[3] Brazilian Homeopathic Pharmacopoeia, 3ªed, 2011. Available from: http://www.anvisa.gov.br/farmacopeiabrasileira/conteudo/3a_edicao.pdf.

[4] Brener Z. Therapeutic activity and criterion of cure on mice experimentally infected with *Trypanosoma cruzi*. Rev Inst Med Trop São Paulo. 1962; 4: 389-96.

[5] Falkowski GJS, Sandri PF, TiyoR, Aleixo DL, Araújo SM. Parameters for evaluation of clinical trial in mice infected with *Trypanosoma cruzi*. Arq Bras Med Vet Zootec. 2012; 64 (6): 1539-1546.

[6] Ghaffar A and Nagarkatti P. Tolerance and Autoimmunity. University of South Carolina School of Medicine [cited 2013 jun 6]. Available from: http://pathmicro.med.sc.edu/ghaffar/tolerance2000.htm.

Support: authors PROAP/CAPES; Fundação Araucária
Conflict of interest: authors declare there is no conflict of interest
Received: 16 June 2013; Revised: 12 August 2013; Published: 30 September 2013.
Correspondence author: Fabiana Nabarro Ferraz, fabiana_nabarro@hotmail.com
How to cite this article: Ferraz FN, da Veiga FK, Brustolin CF, Mizutani AS, Aleixo DL, de Araújo SM. Effect of highly diluted mice's serum on murine infection by *Trypanosoma cruzi*.. Int J High Dilution Res [online]. 2013 [cited YYYY Month DD]; 12(44):100-101. Proceedings of the XXVII GIRI Symposium; 2013 Sep 03-04; Bern (Switzerland). GIRI; 2013; Available from: http://www.feg.unesp.br/~ojs/index.php/ijhdr/article/view/648/649