Int J High Dilution Res 2014; 13(47):105-107
Proceedings of the XXVIII GIRI Symposium; 2014 June 20-22; Sighisoara (Romania)

Biotherapy of mice's serum 13cH modifies parasitological and immunological parameters of *Trypanosoma cruzi* infection.

Fabiana Nabarro Ferraz[1], Franciele Karina da Veiga[1], Denise Lessa Aleixo[1], Suelen Santos da Silva[2], Wander Rogério Pavanelli[2], Silvana Marques de Araújo[1].

[1]Universidade Estadual de Maringá – UEM, Paraná, Brazil.
[2]Universidade Estadual de Londrina – UEL, Paraná, Brazil.

Background: *T. cruzi* biotherapies' alter the infection course by this protozoan [1,2], fact that encourages the evaluation of other highly diluted medicines which modulates host's immune system. **Aim:** Evaluate effect of biotherapy produced from mices's serum infected by *T. cruzi* in experimental infection. **Methodology:** A blind, randomized and controlled study was performed. *Animals:* 60 male *Swiss* mice, four weeks old were inoculated intraperitoneally with 1400 trypomastigotes-Y strain and divided: MNI: mice non-infected by *T. cruzi;* IC: treated with hydroalcoholic solution 7%; BSI_{13cH}: treated with mice's serum infected by *T. cruzi* 13cH. *Biotherapies:* produced from mice's serum infected by *T. cruzi* in 13cH dynamization [3]. *Treatment*: mice were treated 48 hours before and after infection. Subsequently animals were treated 56/56 hours until 9th day of infection (d.i). The medicine was diluted in water (1/100mL) and offered *ad libitum,* for 16 hours. *Parasitological parameters*: were evaluated pre-patent and patent period, parasitemia peak, total parasitemia and mortality [4]. *Cytokine dosage:* IL-4, IL-17, TNF-α and IFN-γ were measured in serum on 0, 8th and 12th d.i., by enzyme immunoassay. *Ethics*: study was approved by Ethics Committee for Experiments in Animals/UEM. *Statistic*: data were compared with Mann Whitney or Student t test, significance 5%. **Results:** BSI_{13cH} showed tendency to increase total parasitemia ($p=0.06$) and parasitemia peak ($p=0.05$), with lower patent period ($p=0.03$) and higher mortality ($p=0.03$) compared to IC. In dosage of cytokines BSI_{13cH} group showed on 0 d.i. a decrease in IL-17 ($p = 0.02$) and increased IL-4 ($p = 0.01$) compared to MNI (baseline value), probably caused by modulation of medication administration 48 hours before infection. IL-17 concentration didn't vary throughout the infection to BSI_{13cH}, different IC that tended to decrease concentration of cytokine on 8th d.i. IL-4 increased significantly on 0 d.i. to BSI_{13cH}, with subsequent return to baseline values. IC group didn't change significantly IL-4 value along the infection. IFN-γ concentration on 12th d.i. to BSI_{13cH} was lower ($p = 0.00$) than IC, which increased this cytokine on 8th and 12th di. TNF-α concentration of BSI_{13cH} followed the same evolution as IC, with an increase on 8th and 12th d.i. (Figure 1). The medicine seems initially promote Th2 response (IL-4), hindering the development of effective Th1 response (INF-γ), causing an increase of parasitemia and animals' death. **Conclusions:** BSI_{13cH} demonstrated effect in experimental infection by *T. cruzi* with increased parasitemia, animals' premature death and modulated immune response differently of IC.

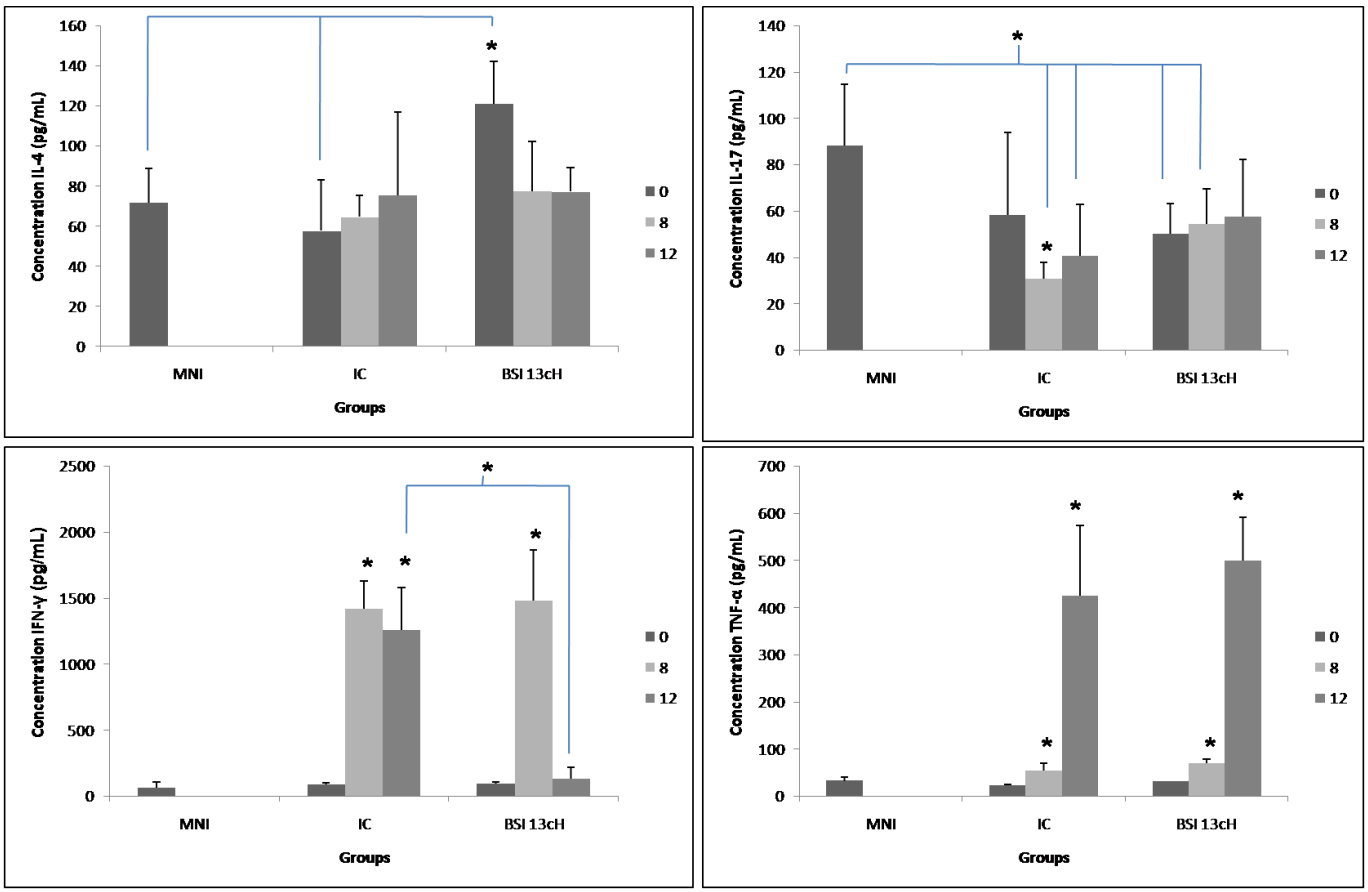

Figure 1 – Concentrations (pg/ml) of IL-4, IL-17, TNF-α and INF-γ in the mice's serum treated with biotherapy of mice' serum infected (BSI_{13cH}) by T. cruzi in experimental infection.*$p<0,05$.

Keywords: *Trypanosoma cruzi*, biotherapy, cytokines, parasitemia.

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.

Support: PROAP/CAPES, Fundação Araucária.
Conflict of interest: authors declare there is no conflict of interest
Received: March 30th 2014; Revised: May 10th 2014; Published: June 30th 2014.
Correspondence author: Fabiana Nabarro Ferraz, fabiana_nabarro@hotmail.com
How to cite this article: Ferraz FN, da Veiga FK, Aleixo DL, da Silva SS, Pavanelli WR, de Araújo SM**.** Biotherapy of mice's serum 13cH modifies parasitological and immunological parameters of *Trypanosoma cruzi* infection. Int J High Dilution Res [online]. 2014 [cited YYYY Month dd]; 13(47):105-107. Proceedings of the XXVIII GIRI Symposium; 2014 Jun 20-22; Sighisoara (Romania).GIRI; 2014; Available from:http://www.feg.unesp.br/~ojs/index.php/ijhdr/article/view/723/702