

Evaluation of effect of succussed and unsuccussed homeopathic vehicle on murine infection by *Trypanosoma cruzi*

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Background: The control group in "in vivo" studies using highly diluted medicines is a subject of a lot of attention. A relevant point is: What kind of control group is most appropriate to use? Is there any difference between succussed or unsuccussed homeopathic vehicle? [1].

Aim: Evaluate succussed and unsuccussed homeopathic vehicle (hydroalcoholic solution and water) on the course of murine infection by *Trypanosoma cruzi*.

Methodology: A blind, randomized and controlled study was performed. *Animals:* 40 male Swiss mice, eight weeks old were inoculated intraperitoneally with 1400 blood trypomastigotes Y strain of *T. cruzi* and divided in groups (10 animals/group): IC - Infection control (received natural water); DW_{13cH} - treated with distilled water 13cH; HS7% - treated with hydroalcoholic solution 7%; HS7%_{13cH} - treated with hydroalcoholic solution 7% 13cH. *Succussed homeopathic vehicle:* distilled water 13cH and hydroalcoholic solution 7% 13cH were prepared according to Brazilian Homeopathic Pharmacopoeia [2]. The 13cH dynamization was chosen because it presented the best results in our model [3]. *Treatment plan:* each treatment was diluted in natural water (1mL/100mL) and offered *ad libitum*, on 4th, 6th, 8th, 11th, 13th, 15th e 18th day of infection, for 16 consecutive hours. *Parasitological and clinical* parameters were evaluated. *Parasitological:* pre-patent and patent period, parasitemia peak, total parasitemia, survival time and mortality [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 was compared using the Kruskal-Wallis test or ANOVA, significance of 5% (BioEstat 5.0).

Results: No statistical difference ($p>0.05$) for parasitological parameters was observed among groups (Table 1). Similarly, quantitative and qualitative clinical analysis showed no statistical differences among groups. These data confirm that results obtained in "in vivo" experiments with *T. cruzi* in which controls groups with succussed and unsuccussed vehicles were used really showed the effect of highly diluted medicines [3,6].

Conclusions: Hydroalcoholic solution 7% and water succussed or unsuccussed did not modify parasitological and clinical course of murine infection by *T. cruzi*.

Table 1 - Parasitological parameters (mean \pm standard deviation) evaluated in Swiss male mice experimentally infected by *T. cruzi* of groups: Infection Control (IC), Distilled Water 13cH (DW_{13cH}), Hydroalcoholic Solution 7% (HS7%), Hydroalcoholic Solution 7% 13cH (HS7%_{13cH}).

Group	Pre patent period (days)	Patent period (days)	Parasitemia peak (trypomastigotes/mL) $\times 10^5$	Total parasitemia (trypomastigotes/mL) $\times 10^5$	Survival (days)
IC	4.7 \pm 0.7	10.4 \pm 1.5	92 \pm 39	128 \pm 52	11.1 \pm 0.9
DW _{13cH}	4.1 \pm 0.3	10.4 \pm 1.0	104 \pm 44	179 \pm 68	10.6 \pm 1.0
HS7%	4.6 \pm 0.5	10.0 \pm 1.2	111 \pm 73	161 \pm 67	10.3 \pm 2.1
HS7% _{13cH}	4.2 \pm 0.4	10.3 \pm 1.1	98 \pm 56	154 \pm 61	10.6 \pm 1.0

Keywords: Chagas' disease; Control Group; Water; Hydroalcoholic solution; Succussion.

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