Diluted benznidazole decreases side effects in animals infected by *Trypanosoma cruzi* and treated with benznidazole in ponderal dose

Denise Lessa Aleixo¹, Fabiana Nabarro Ferraz¹, Miguel Spack², Gislaine Janaina Falkowski¹, Camila Fernanda Brustolin¹, Rafaela Arns¹, Franciele Karina da Veiga¹, Silvana Marques de Araújo¹

¹Universidade Estadual de Maringá, Maringá – Brazil
²Volunteer, Homeopata Voluntário, Maringá – Brazil

ABSTRACT

**Background:** The infection caused by the protozoan *Trypanosoma cruzi* affects millions of people around the world and the benznidazole is the only drug available for the etiological treatment, despite the fact that its adverse effect makes the adherence to treatment more difficult. Taking advantage of the antiparasitic effect of benznidazole and minimizing its side effects, without causing discomfort symptoms to the patient, would be an important progress in the health care of individuals infected with *T. cruzi*.

**Aim:** The aim of this study was to evaluate the effect of different treatment regimens using diluted and ponderal benznidazole, associated or not, in murine infection with *T. cruzi*.

**Methodology:** A hundred male Swiss mice 28 – year – old infected with 1400 blood trypomastigotes of the Y strain of *T. cruzi*, were used in the experiment, divided into groups according to the treatment: Control (CI) - infected animals treated orally with 7% hydroalcoholic solution (vehicle of product preparation highly diluted) (N = 20); BZp - infected animals treated with BZ in ponderal dose (100 mg/kg/20 days) from the detection of the infection (N = 20); BZh - infected animals treated with BZ highly diluted (30x) from the detection of the infection (N = 20), BZp+h - infected animals treated with a combination of BZ highly diluted (30x) + BZ in ponderal dose (100 mg / kg), from the detection of the infection (n = 20); BZp+hT4A - infected animals treated with the association of BZ in ponderal dose (100 mg / kg) from the detection of the infection and BZ highly diluted (30x) four days after starting the treatment with BZp (N = 20). Clinical (body weight, water and food intake, amount of feces, temperature, aspect of the fur, mortality and survival time) and parasitological (total parasitemia and area under the parasitemia curve) parameters were evaluated.

**Results:** It was observed a reduction of side effects associated with clinical improvement of the animals treated with the combination of BZ in ponderal dose and highly diluted given 4 days after (BZp+hT4A) or concurrently (BZp+h) with the beginning of the treatment with benznidazole in ponderal dose, with results statistically better than those observed in groups BZp, BZh e CI (p<0.05). In these groups, independent of the treatment schedule used (BZp+h, BZp+hT4A), the association of BZp with BZh did not alter significantly the
suppressive effect of parasitemia observed in animals treated with $BZ_p$ ($p > 0.05$). In the group treated only with the BZ ultradiluted ($BZ_h$) the parasitemia remained high, resulting in the death of all animals within a period of 20 days as observed in the CI.

**Conclusions:** The reduction of side effects, the improvement of the clinical evolution and non-compromising the parasiticide effect, show that the association of the benznidazole medication in ponderal dose and highly diluted should be further explored.

**Keywords:** Homeopathy, Trypanosoma cruzi, Side effects, Benznidazole

**References**
