Ghrelin: immunomodulatory effects in the acute phase of Chagas disease

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Chagas disease affects thousands of people around the world. In Brazil, the benznidazole (N-benzyl-2-nitroimidazole acetamide) is the only drug available for treatment. Thus, there’s an emerging need to evaluate other drugs against parasitic aggression. Ghrelin (a peptide hormone) has been shown to be effective in cardioprotective, vasodilator, anti-oxidative and anti-inflammatory function. Therefore, the objective of this work was to evaluate phenotypic profile of T-cell subsets during ghrelin treatment in the acute phase of T. cruzi infection. Twenty male Wistar rats (100-110g) were grouped in: control (C-n=5), control/ghrelin supplied (CG-n=5), infected (I-n=5), infected/ghrelin supplied (IG-n=5). Rats were infected with 2 x 10⁵ trypomastigotes of the Y strain and were supplied with 100µg of ghrelin/Kg/day (subcutaneous) during 14 days. Animals were killed on the 15th day after infection. Phenotypic analysis of cell populations were identified according to surface expression of the CD markers: T CD3⁺CD4⁺, T CD3⁺CD8⁺ and CD161⁺ (NK cell). Splenic T-cell subsets were labeled with monoclonal antibodies (Becton Dickinson) anti-CD3 (APC), anti-CD4 (PE-Cy-7), anti-CD8 (PercP) and anti-CD161a (FITC). Data were assessed by flow cytometry FACSCan and FACSDiva software. Our results showed no difference in T CD3⁺CD4⁺ lymphocytes percentage. T CD3⁺CD8⁺ lymphocytes percentage was significantly increased in I and IG groups when compared to control groups. Additionally, our data also revealed that the NK cells percentage increased in infected and ghrelin supplied (IG) group when compared to infected and control ones. Our data reveal that ghrelin plays a major role in the immune homeostasis, improving the immune response during acute phase of Chagas disease.

Palavras-chave: ghrelin, immunomodulation, Chagas disease.

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