Evaluation of chemokines transcripts in spleens of mice infected with *Leptospira interrogans*

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Introduction: Leptospirosis is a zoonotic disease spread in various parts of the world, caused by pathogenic bacteria of the genus *Leptospira*. The disease affects domestic and wild animals, and humans are infected accidentally through water and soil contaminated with urine of carriers animals. The bacteria from the species *L. interrogans,* the most important in human infection, is highly invasive and spread in the body through the systemic circulation, colonizing target tissues, causing pulmonary hemorrhage, respiratory failure, liver and kidney lesions. *Leptospira* infection induces chemokines expression, which presents different cellular functions, including chemotaxis, immune activation and regulation, playing important role in the physiological mechanisms and pathological pathways of the inflammation. **Objectives:** Evaluate the profile of chemokine transcripts and possible interference of the CXCL13, CXCL12 and CCL20/MIP-3α chemokines in the infection in different mice strains, C3H/HeJ, C3H/HePas and BALB/c, susceptible, intermediary and resistant to leptospirosis, respectively. **Methods**: Total RNA was extracted from samples of spleen of infected or control mice and from freshly isolated spleen cell infected in vitro. RNA quantity and purity was measured and samples treated with DNAse I enzyme were used for cDNA transcription using the SuperScript III kit. The relative expression of the chemokines transcripts was determined by Real Time PCR (qPCR) using the Syber Green reagent. **Results and discussion**: the infection by *L. interrogans sv Copenhageni* stimulated expression of chemokine CXCL13 and CXCL12 in vitro and in vivo in the three studied mice strains, showing high expression levels in cells from BALB/c and C3H/HePas in vitro at 2h and 8h after exposure to the bacteria in comparison to C3H/HeJ. On the other hand, the levels of expression of these chemokines in vivo were higher in the C3H/HeJ strain at days 1, 3 and 7 after the infection. The expression of chemokine CCL20/MIP-3α was not detected in C3H/HeJ*. In vitro* cell from BALB/c showed low level of CCL20/MIP-3α in 8h and cells from C3H/HePas showed low level of the chemokine in 8h and 12h. **Conclusion**: the premature expression of CXCL13, CCL20MIP-3 and CXCL12 showed by transcripts levels in BALB/c and C3H/HePas strain highlights the importance of these chemokines in *Leptospira* infection, suggesting their participation in defense and resistance against the disease.

Keywords: Chemokines, *Leptospira*, spleen cells, C3H/HeJ, C3H/HePas and BALB/c.
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