Conference Presentation

Modulation of experimental cystitis induced by uropathogenic *E. coli* (UPEC) JJ079 by homeopathic and isopathic remedies

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Abstract

Introduction: *Escherichia coli* (*E. coli*) is one of the most common agent involved in digestive and urinary tract infections (UTI).

Aims: The objective of this study was to explore whether homeopathic/isotherapeutic preparations could interfere with pathophysiological aspects of murine cystitis induced by *E. coli* in an experimental model.

Materials and Methods: Balb/c female mice underwent urethral inoculation of *E. coli* (UPEC) JJ079 (urosepsis prototype) in a concentration of 7.5×10^{11} CFU/ml. The animals were divided into four groups: control group; group treated with hydro-alcoholic solution; group treated with biotherapeutic pure strain of *E. coli* and group treated with *Cantharis* 6cH. The drugs were prepared according to the Brazilian Homeopathic Pharmacopoeia and were administered orally, with free access to drinking water for two days after infection. After euthanasia, bladder and kidney were weighed and collected for histopathology and immunohistochemistry analysis. The following markers were used: CD3 (T lymphocytes), CD79 (B lymphocytes), MIF, NK (Natural killer), VEGF-e (inflammatory mediators). Data were analyzed statistically by ANOVA followed by the Fisher's Test, $p \leq 0.05$ being significant.

Results: ANOVA test revealed no significance in relation to the mean and standard deviation values. Fisher Test was used to analyze proportions differences. *Cantharis* 6cH and *E. coli* 30cH treatment significantly increased B lymphocytes in relation to T lymphocytes, NK cells and macrophages in bladder mucosae ($p \leq 0.05$). In renal pelvis, the medicines caused significant reduction of B lymphocytes in relation to T Lymphocytes and macrophages. VEGF-e cells reduction was seen in the pelvis in relation to phagocytes ($p \leq 0.05$).

Discussion and conclusion: B lymphocytes are able to differentiate into plasma cells, for the production of immunoglobulins. Immunoglobulin A (IgA) are the group of antibodies produced in

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the immune response. Its function is to protect the mucous membranes, which form a protective barrier (bladder, for example). Since mucous membranes represent the main route of pathogens access to the body the protection provided by IgA is of paramount importance. Therefore, this study suggests that the studied drugs could interfere in the migration of B lymphocytes from pelvis to the bladder, so as to produce IgA. VEGF-e could stimulate the recruitment of inflammatory cells.

Keywords: Escherichia coli, Homeopathy, high dilution, cantharis, cystitis

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