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ABSTRACT N. PO88

BACTERIAL LYSATE "LANTIGEN B" INDUCES PROLIFERATION OF B AND NK CELLS AND THE RELEASE OF RELATED CYTOKINES.

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Background and aims

Bacterial lysates (BLs) are medicines made from bacterial cells that are broken down and are intended to stimulate the immune system to recognize and fight infections. BLs are prescribed for the prevention of recurrent respiratory tract infections (RTIs) and, in general, almost all performed studies show that the number of RTIs and their severity decrease in BL-pretreated pa-tients, without relevant side effects. Lantigen B (Lan-B), among all the commercially available lysates is one of the most interesting. Being administered sublingually, can directly stimulate the immune cells in the site of infections as demonstrated by numerous clinical trials.
The present study aimed at exploring and evaluating the ability of Lan-B to influence the proportion of various lymphocyte subpopulations and to modulate the release of selected cytokines that play a pivotal role in determining immune reactions. Also, this work was focused on evaluating these effects at the identical concentrations used in previous human studies.

Methods

In this observational study PBMCs, from 7 healthy human donors, were isolated, cultured and incubated with Lan-B at 199.45 AU/mL. After incubation cells were resuspended with specific antibodies for the cytofluorimetric detection of cell surface phenotype using the following markers: CD45, CD4, CD8, CD16 and CD19. Consequently, cell culture supernatants were collected for the cytofluorimetric evaluation of cytokines concentration using LEGENDplexTM Human Inflammation Panel 1 (Figure 1).

Results

Significant changes in the proportions of both CD19+ and CD56+ cells were observed in Lan-B stimulated cultures compared to unstimulated ones. In particular, both B (CD19+) and NK (CD19-/CD56+) cells proportion significantly increased from 18.20% in untreated vs 45.27% in Lan-B-treated PBMC cultures (p=0.005).
Changes were observed in the proportion of various CDs in untreated vs Lan-B treated PBMCs, with an increase in CD19+ and in CD56+ cells. In this case, there is also an increase in CD8+ cells. Cytokines evaluation showed that, IL-1 beta, IFN-gamma, TNF-alpha, IL-17 and IL-18 are significantly increased whereas MCP1 significantly decreased upon Lan-B treatment. However, a trend for an increase of IL-12-p40, even though not significant, has been observed (p=0.052).

Conclusions

This study highlighted the role of Lan-B in the modulation of the immune system by activating the innate immune system, namely NK cells, as well as the adaptive immune system, which produced considerably modified cytokines indicative of a Th1-mediated reaction. These observations can support Lan-B's proven therapeutic efficacy. Following this first investigation, the activities of Lan-B dendritic cell maturation, epithelial cells, cytotoxic lymphocytes, and the immune response's specificity will need future investigations.

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