P/ Impact of LPS on IFN-γ secretion by human T-cell lines

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Background and Aim: Lipopolysaccharide (LPS), an outer membrane component of Gram-negative bacteria, has an important role in inflammation including acute lung inflammatory responses. Furthermore modulatory effects of LPS on inflammatory cytokines have been shown. Interferon gamma (IFN-γ) as a T helper type 1 (Th1) cytokine is a key regulator of inflammatory responses. Moreover IFN-γ plays an essential role in defense against intracellular pathogens. This study was conducted to evaluate the impact of LPS on IFN-γ secretion by human leukemic (Jurkat and Molt-4) T cell lines in vitro.

Methods: Jurkat and Molt-4 cells were cultured in whole RPMI-1640 media. The cells were distributed at a density of 2×10^6 cell/ml. The cells were stimulated with different concentrations of lipopolysaccharide (LPS) (1-4 μg/ml) for 48 hours. Then the cell-conditioned medium was used for IFN-γ assay. The different groups were compared by the analysis of variance.

Results: LPS did not show any significant effect on IFN-γ production in human leukemic T cells compared with unstimulated cells.

Conclusion: According to the results of this study, LPS did not have any significant effect on IFN-γ secretion in human leukemic T cells. So LPS-induced inflammatory responses in lung and other tissues may be due to LPS impacts on other inflammatory mediators. Further studies about LPS effects on IFN-γ expression in another immune cells in vitro as well as in vivo are warranted.

Key words: LPS, T- cells, IFN-γ