

Cytokine and nitric oxide levels in a rat model of immunologic protection from adjuvant-induced arthritis

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In the present study we investigated the correlation between the progression of adjuvant arthritis induced by *Mycobacterium butyricum* and the production of nitric oxide and some pro- and anti-inflammatory cytokines in arthritic rats and in rats treated with low intra-peritoneal doses of *Mycobacterium* 3 and 10 days after arthritis induction. The intra-peritoneal administration of *Mycobacterium* antigen significantly inhibited disease development. Compared to healthy rats, a rise in serum and peritoneal pro-inflammatory cytokines was observed in all arthritic rats already from the 14th day. The treatment with intra-peritoneal *Mycobacterium* was associated with a significant reduction in IL-6 serum concentrations and a slight decrease of IFN- γ production by peritoneal macrophages. Nitrite/nitrate plasma and peritoneal levels were significantly higher in all arthritic rats. Intra-peritoneal administration of *Mycobacterium* caused a further increase in nitrite/nitrate plasma concentrations, while no differences were evident in nitric oxide production by peritoneal macrophages. From our data it is evident that among the variables here investigated, IL-6 seems to be the more representative marker of the disease and of the treatment effect. A possible role of nitric oxide as a modulator rather than a direct mediator in this model of inflammation is discussed.