

Title: CYTOKINE AND CHEMOKINE EXPRESSION PROFILE IN SEVERE ODONTOGENIC INFECTION PATIENTS

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Abstract:

Severe odontogenic infection is a potentially life threatening condition that still poses a challenge to dental professionals. Cytokines and chemokines are secreted proteins that play a key role regulating and determining the nature of immune response. Despite the epidemiological relevance of severe odontogenic infection data regarding the immunological profile associated with the disease are still scarce. This study aimed to quantitatively evaluate the expression of proinflammatory (IFN- γ , IL-1 β , IL-8, IL-17A, TNF- α , CCL-2/MCP-1, and CCL-5) and anti-inflammatory (IL-10 and TGF- β) cytokines and chemokines in patients hospitalized as a consequence of severe odontogenic infection. A total of 12 diseased patients (case) and 12 control individuals were enrolled. After antiseptics clinical samples were collected from the drainage site (case group) or root canal (control group) with the aid of paper points. Following extraction RNA was employed as template for reverse transcription reaction and cDNA was submitted to quantitative real time PCR. Glyceraldehyde-3-phosphate dehydrogenase (GAPDH) was used as a housekeeping gene for normalization. All samples were run in duplicate. Data analysis was performed by using SPSS, Shapiro-Wilk test was employed to characterize normality, and Wilcoxon test was selected to determine statistical differences ($p < 0.05$).

Results: Significantly higher expression of IFN- γ , IL-1 β , IL-8, IL-17A, CCL-2/MCP-1, and TNF- α was observed in severe odontogenic infection patients. On the other hand IL-10 expression was similar between case and control subjects as well as mRNA levels of CCL-5 and TGF- β that were insignificant in both groups. Immunological profile is influenced by the nature of the bacterial challenge. The results indicate that a proinflammatory cytokine/chemokine profile is associated with severe odontogenic infection and suggest that the anti-inflammatory cytokines IL-10 and TGF- β are not regulating the immune response.

Keywords: chemokine, cytokine, odontogenic infection, oral microbiology

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