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Circulatory levels of B-cell activating factor of the TNF family in patients with diabetic foot ulcer: Association with disease progression.

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Abstract

Enhanced and prolonged expression of tumor necrosis factor alpha (TNF-α), a potent pro-inflammatory cytokine is evidenced during the chronic wound healing process of infected diabetic foot ulcer (IDFU). B-cell activating factor (BAFF) is the member of TNF-α family, which implicit in B-cell dysfunction. This study was aimed to evaluate the role of BAFF in diabetic foot ulcer (DFU) patients and to correlate its association with other family of inflammatory cytokines. Circulating levels of BAFF and other cytokines were measured in IDFU (n = 44) and non-IDFU patients (n = 40) using multiplexed bead-based cytokine immunoassay. A stepwise significant increase was observed in both circulatory BAFF and C-reactive protein (CRP) during the disease progression. The area under the receiver operating characteristic curve (AUC_{ROC}) for BAFF was found to be high (0.89; [95% CI: 0.73-1.0]), when compared to CRP (0.68; [95% CI: 0.61-0.76]). Optimum diagnostic cutoff level for BAFF was found to be ≥2.35 pg/mL with 62.0% sensitivity and 85.7% specificity. Further, BAFF levels showed a significant positive correlation with CRP among IDFU patients. With respect to other family cytokines, BAFF levels were positively correlated with TNF-α, interferon family cytokines such as IFN-α2, IL-28A/IFN-λ2, IFN-γ, and IL-10 family cytokines such as IL-19, IL-22, and IL-26 and negatively correlated with IL-6 receptor family such as gp130/sIL-6Rβ. Hence, our data suggest that devising therapeutic strategies to reduce the levels of BAFF may contribute in amelioration of IDFU.

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