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Dysregulated expression of tumor necrosis factor in chronic fatigue syndrome: interrelations with cellular sources and patterns of soluble immune mediator expression.

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Among a group of 70 individuals who met the criteria established by the Centers for Disease Control and Prevention (Atlanta) for chronic fatigue syndrome (CFS), 12%-28% had serum levels exceeding 95% of control values for tumor necrosis factor (TNF) alpha, TNF-beta, interleukin (IL) 1 alpha, IL-2, soluble IL-2 receptor (sIL-2R), or neopterin; overall, 60% of patients had elevated levels of one or more of the nine soluble immune mediators tested. Nevertheless, only the distributions for circulating levels of TNF-alpha and TNF-beta differed significantly in the two populations. In patients with CFS--but not in controls--serum levels of TNF-alpha, IL-1 alpha, IL-4, and sIL-2R correlated significantly with one another and (in the 10 cases analyzed) with relative amounts (as compared to beta-globin or beta-actin) of the only mRNAs detectable by reverse transcriptase-coupled polymerase chain reaction in peripheral-blood mononuclear cells: TNF-beta, unspliced and spliced; IL-1 beta, lymphocyte fraction; and IL-6 (in order of appearance). These findings point to polycellular activation and may be relevant to the etiology and nosology of CFS.

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