



Chronic Psychological Stress Induced Microbial Imbalance (Dysbiosis) Mediated Auto-Immune Diseases - A Current Concept



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Introduction

Chronic psychological stress induced release of CRH (corticotrophic releasing hormone) from hypothalamus activates HPA-axis (hypothalamo pituitary adrenal axis) through autonomic nervous system release cortisol, ACTH (Adrenocorticotrophic releasing hormone), and noradrenaline neuropeptides. These neuropeptides activates inflammatory mediators such as IL-1 β , TNF- α , IL-6, pro-inflammatory cytokines and COX-2 inflammatory mediator from inflammatory cells (6-9).

Role of Psychological Stress in Microbial Imbalance and Autoimmunity

Chronic psychological stress mediated release of neuropeptide's such as cortisol, ACTH, and noradrenaline results in altered oral and gut micro flora consists of bacterias, viruses, fungi, protozoa, known as dysbiosis [1-5]. These altered microflora is recognized by PAMP (pathogen associated molecular patterns) belongs to toll like receptors (TLR) present on immune cells such as macrophages, dendritic cells, T and B lymphocytes activate NF- κ B a key transcription factor involved in conversion of Th1 to Th2 lymphocytic type, Th17 cells involved in immunomodulation and chronic inflammation [6-8]. Tregs (regulatory T cells) alteration otherwise involved in self tolerance and immune homeostasis, activation of matrix metalloproteases (mmps) involved in tissue

damage and cell proliferation by growth factors such as EGF , VEGF, FGF, all these changes leads to autoimmune diseases.

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