Interleukin-1 Links Autoimmune and Autoinflammatory Pathophysiology in Mixed-Pattern Psoriasis

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Abstract

Autoinflammatory and autoimmune diseases are characterized by an oversensitive immune system with loss of the physiological endogenous regulation, involving multifactorial self-reactive pathological mechanisms of mono- or polygenic nature. Failure in regulatory mechanisms triggers a complex network of dynamic relationships between innate and adaptive immunity, leading to coexistent autoinflammatory and autoimmune processes. Sustained exposure to a trigger or a genetic alteration at the level of the receptors of the natural immune system may lead to abnormal activation of the innate immune system, adaptive system activation, loss of self-tolerance, and systemic inflammation. The IL-1 family members critically activate and regulate innate and adaptive immune responses' diversity and plasticity in autoimmune and/or autoinflammatory conditions. The IL-23/IL-17 axis is key in the communication between innate immunity (IL-23-producing myeloid cells) and adaptive immunity (Th17- and IL-17-expressing CD8+ T cells). In psoriasis, these cytokines are decisive to the different clinical presentations, whether as plaque psoriasis (psoriasis vulgaris), generalized pustular psoriasis (pustular psoriasis), or mixed forms. These forms reflect a gradient between autoimmune pathophysiology with predominant adaptive immune response and autoinflammatory pathophysiology with predominant innate immune response.