

Curcumin attenuates TNF- α -induced expression of intercellular adhesion molecule-1, vascular cell adhesion molecule-1 and proinflammatory cytokines in human endometriotic stromal cells.

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Abstract

Curcumin, a naturally occurring polyphenolic compound from *Curcuma longa*, has long been used in folk medicine as an antiinflammatory remedy in Asian countries. Endometriosis is a chronic gynecological inflammatory disorder in which immune system deregulation may play a role in its initiation and progression. A number of mediators, including cell adhesion molecules such as intercellular adhesion molecule-1 (ICAM-1) and vascular cell adhesion molecule-1 (VCAM-1); proinflammatory cytokines such as tumour necrosis factor- α (TNF- α), interleukin-1 (IL-1), IL-6 and IL-8; and chemokines such as monocyte chemotactic protein-1 (MCP-1), play key roles in the pathogenesis of endometriosis. The aim of our study was to explore the effect of curcumin on the expression of these critical molecules in human ectopic endometriotic stromal cells isolated from women with endometriosis. Endometriotic stromal cells treated with curcumin showed marked suppression of TNF- α -induced mRNA expression of ICAM-1 and VCAM-1. Curcumin treatment also significantly decreased the TNF- α -induced cell surface and total protein expression of ICAM-1 and VCAM-1 in a dose-dependent manner. In addition, treatment of endometriotic stromal cells with curcumin markedly inhibited TNF- α -induced secretion of IL-6, IL-8 and MCP-1. Furthermore, curcumin inhibited the activation of transcription factor NF- κ B, a key regulator of inflammation, in human endometriotic stromal cells. These findings suggest that curcumin may have potential therapeutic uses in the prevention and treatment of endometriosis.