Curcumin (diferuloylmethane) induces apoptosis and blocks migration of human medulloblastoma cells.


Source

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Abstract

Medulloblastoma (MB) is the most common malignant brain tumor in children. Bcl-2 and MMP-9 promote the pathogenesis and progression of MB. The expression of both bcl-2 and MMP-9 is regulated by the transcription factor NF-kappaB. Curcumin, a natural food additive, has a potent anti-proliferative effect, presumably mediated through NF-kappaB suppression. The tumor-suppressing effects of curcumin are well documented, however, its effect on MB is unknown. Our objectives were to: a) examine the effect of curcumin on MB cell proliferation and apoptosis; b) characterize the mechanism that mediates the effect of curcumin; c) examine the effects of curcumin on MB cell migration. We report that curcumin inhibited cell proliferation and blocked clonogenicity of MB cells. Furthermore, curcumin down-regulated bcl-2 and bcl(x)l, leading to caspase-mediated cell death. Finally, curcumin blocked migration of MB cells. Thus, we propose developing curcumin as a novel therapeutic agent for MB.

PMID:20332461