

How Curcumin Affect Proliferation, Migration and Collagen Secretion of Skin-Derived Fibroblast Cells

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ABSTRACT

Background: During dermal wound healing, fibroblasts need to migrate into, and proliferate within the wound site. Accelerated migration of fibroblast across the skin lesion during dermal wound healing profoundly affect the healing processes. The effects of different concentrations of curcumin on proliferation, migration and collagenesis of fibroblast in relation with wound healing process were explored in vitro.

Material and Methods: The fibroblast cells were exposed to various concentrations of curcumin (1, 3, and 10 µg/ml) and their effects on proliferation, migration and collagenesis of fibroblast were investigated using cell count, scratch assay and total collagen assay.

Results: Among the tested curcumin concentrations, only 1µg/ml curcumin showed a slightly increase in cell proliferation, compared with control. While the remaining curcumin concentrations (3 and 10 µg/ml), had significantly apoptotic effect (P value: 0.243). Compared with the control, there was no significant difference between migration rate of the fibroblast cells and different concentrations of curcumin. In addition, treatment of fibroblast cells with curcumin had no effect on collagen secretion.

Conclusion: This study demonstrated that curcumin had significant influence on decreasing proliferation, migration and collagen secretion rate of fibroblasts.