

عنوان مقاله:

The effects of nanomicelle of curcumin on the matrix metalloproteinase (MMP-۲, ۹) activity and expression in patients with coronary artery disease (CAD): A randomized controlled clinical trial

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خلاصه مقاله:

BACKGROUND: Coronary artery disease (CAD) is the most common type of cardiovascular disease. Increasing the expression and activity of matrix metalloproteinases (MMPs) facilitates vascular remodeling and cardiovascular complications. Curcumin (the active ingredient of turmeric) is a potent natural anti-inflammatory agent, with cardiovascular protective effects. The present study was a clinical trial for investigating the effects of curcumin on activity and gene expression of MMP-۲ and MMP-۹ in patients with CAD. **METHODS:** In this study, ۷۰ patients with CAD (with ۴۰%-۵۰% stenosis) were randomly divided into two groups of curcumin (۸۰ mg nanomicelle per day) and placebo. The intervention lasted ۳ months. The activity levels of MMP-۲ and MMP-۹ in serum samples of patients were measured using gelatin zymography assay before and after the intervention. MMP-۲ and MMP-۹ gene expression in peripheral blood mononuclear cells (PBMCs) was also analyzed using real-time polymerase chain reaction (PCR). Statistical significance was set at $P < ۰.۰۵۰۰$. **RESULTS:** After ۳ months of medication, the expression of MMP-۹ produced by PBMCs significantly decreased in the curcumin group (۰.۸۱۱ ± ۰.۲۵) in comparison with the placebo group (۲.۲۳ ± ۰.۹۴) ($P < ۰.۰۰۰۱$). Furthermore, the zymographic analysis showed that the administration of

curcumin significantly inhibited the activity levels of MMP-2 (12469.7 ± 5308.64 pixels) and MMP-9 (14007.2 ± 5371.67 pixels) in comparison with that in patients receiving placebo (MMP-2: 17613.8 ± 5250.68 pixels; MMP-9: 20010.1 ± 3259.37 pixels) ($P < 0.000$). CONCLUSION: Our results show that curcumin can significantly reduce the expression and activity of MMP-2 and MMP-9. Because of the anti-inflammatory effects of curcumin, this compound can be considered as a new strategy for the prevention of cardiovascular events.

کلمات کلیدی:

Curcumin, Matrix Metalloproteinases, Coronary Artery Disease

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