

عنوان مقاله:

Evaluation of the Effects of Curcumin Nanoparticles on the Expression of Genes Involved in Biofilm Formation in UPEC

محل انتشار:

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خلاصه مقاله:

Aims Uropathogenic Escherichia coli (UPEC) is one of the most important causative agents of urinary tract infection (UTI). UPEC isolates persist in the body through biofilm formation. The successful adhesion is the most important step of biofilm formation. Type 1 pili and P fimbriae are bacterial surface appendices, which play a pivotal role in adhesion of UPEC. The aim of this study was to assess the effect of nanocurcumin on the initial adhesion and papG and fimH gene expression in UPEC isolates. Materials & Methods The presence of papG and fimH genes among 60 UPEC isolates was investigated by PCR; 5 potent biofilm producer UPEC strains from patients with UTI were exposed to the sub-minimum inhibitory concentration of nanocurcumin. Expression of the papG and fimH genes was evaluated by real-time PCR. Findings Of the 60 UPEC isolates, biofilm formation was seen in 27 (45%) of isolates, 5 of which produced strong biofilm. The result of PCR assay showed that papG was seen in 57 (95%) of the 60 UPEC isolates and fimH was seen in 58 (96.6%) of isolates, respectively. Nanocurcumin decreased papG and fimH expression 7 and 8 fold in all 5 isolates, respectively. Conclusion Sub-MIC concentrations of nanocurcumin remarkably decreased the expression of the papG and fimH genes in strong biofilm forming UPEC strains, but nanocurcumin cannot prevent biofilm formation

کلمات کلیدی:

Curcumin; UPEC; Biofilm; Nanoparticle

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