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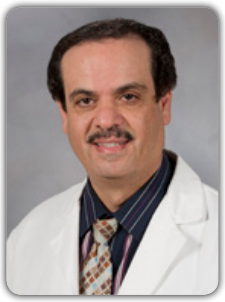

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The effects of sustained delivery of thymoquinone on SW 756 and E6E7 cervical cell lines

Cervical cancer is considered as a major health threat to women worldwide and the role of thymoquinone (TQ) on cervical cancer proliferative behavior is not clearly defined. The overall goal of this study was to investigate the effects of the sustained delivery of TQ on the proliferation of two cervical cell lines, SW 756 (malignant) and Ect 1/E6E7 cells (normal cervical cells) that were HPV transformed. All cell lines were treated with low and high doses of TQ (LTQ (5 ng) and HRQ (10 ng)) through tricalcium phosphate delivery devices. The cells were tested biochemically and morphologically at 24, 48, and 72 hours. Biochemical assays performed at all time periods included the hemocytometer method to determine cell counts, the MDA and LDH assays to evaluate cellular damage, and the Pierce BCA protein assay to determine metabolic activity. In addition, morphological characteristics were evaluated using Papanicolaou (PAP) and H&E staining. The results obtained from this study indicated interesting findings including: Proliferation rates SW 756 were lower than the E6E7 at all time periods following HTQ ($P<0.05$). Biochemically, MDA and LDH levels were higher in SW 756 cells following treatment with HTQ at 24, 48 and 72 hours ($P<0.05$): however, MDA levels did not differ from the E6E7 following LTQ at any time period. Cellular protein levels were insignificantly different at both doses for all time periods. PAP and H&E stains provided more structural damage observation in SW 756 cells compered to E6E7 cells. In conclusion, results obtained from this study suggest that TQ was more responsive toward the proliferative rate of SW 756 cell line more than E6E7 cell lines. This observation may provide more insights regarding new therapeutic methodology to minimize the invasiveness behavior of cervical cancer.

Biography

Hamed Benghuzzi has received his Master's in Chemistry and PhD in Biological Sciences specifically in Physiology from University of Dayton in Ohio. In 1993, he completed his Post-doctoral training in Pathology department from the University of Michigan Medical Center. He joined the University of Mississippi Medical Center as a Professor in the Department of Diagnostic and Clinical Health Sciences. He is a Fellow of the American Institute of Medical and Biological Engineering, as well as, International Fellow of the World Congress of Biomaterials Societies (Japanese, American, Asian, and European). He is a pioneer Scientist in Ceramic Drug Delivery Systems. His area of research is the development and applications of novel ceramic drug delivery systems (over 26 years/over 300 publications and 600 abstracts at various meetings). He has been serving as an Advisor for over 35 PhD students as well as a mentor for students at various levels. He was invited as a Keynote Speaker at state, national and international levels.

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