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The effect of aflibercept and arsenic trioxide on the proliferation, migration and apoptosis of oral squamous cell carcinoma in vitro

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Aflibercept and arsenic trioxide drugs apply a cytotoxic effect on some human cancer cell lines. However, no more study has followed the effects of both drugs, especially arsenic trioxide, on oral squamous cell carcinoma (OCC). We used three OCC lines as a model to show the effect of these drugs on the genetically complex disease and investigate its targeted therapy. In this study, three human OCC cell lines were used from different patients. We treated cell lines with both medications to detect the effect and relevant molecular basis. First, methyl thiazolyl tetrazolium (MTT) assay was performed to detect the cytotoxicity effect and cell growth. Second, flow cytometry, gene and protein expression were performed to evaluate the anti-angiogenic effect on OCC lines. Next apoptosis was analyzed by flow cytometry. Finally, clonogenesis capacity and cell migration were assessed by colony formation assay and wound healing, respectively. Aflibercept had no cytotoxic effect on the three OCC cell lines but decreased cell growth rate. Arsenic trioxide had a significant cytotoxic effect on three cell lines. Our results demonstrated that both drugs significantly decreased endoglin, VEGFA, and VEGFB expression. In addition, Migration and colony formation assays confirmed that these drugs have significant anti-proliferative and anti-migration effect on oral carcinoma cells. These results revealed that both medications might be a potential drug for the management of oral cancer patients.

Biography

Marziye Rezaei is a 6th year dental student in Tehran University Of Medical Sciences. She is in charge of Dental College Mentorship in Tehran University Of Medical Sciences about educational, mental or research matters. Besides, she had some oral presentations like Usern Miniature Talk 2020, Student conference in Northdent Congress, American dental congress 2021 and Poster presentation about educational ideas for dental students in Tehran.