عنوان مقاله:

MiR-۱۴۵ inhibits cell migration and increases paclitaxel chemosensitivity in prostate cancer cells

محل انتشار:

مجله علوم پایه پزشکی ایران, دوره 26, شماره 11 (سال: 1402)

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خلاصه مقاله:

Objective(s): Prostate cancer (PC) is one of the most commonly diagnosed malignancies among men worldwide. Paclitaxel is a chemotherapeutic agent widely used to treat different types of cancer. Recent studies revealed miRNAs control various genes that influence the regulation of many biological and pathological processes such as the formation and development of cancer, chemotherapy resistance, etc.Materials and Methods: Between three PC cell lines (PC۳, DU-۱۴۵, LNCAP), PC۳ showed the lowest miR-۱۴۵ expression and was chosen for experiments. PC۳ cells were treated with paclitaxel and miR-۱۴۵ separately or in combination. To measure the cell viability, migratory capacity, autophagy, cell cycle progression, and apoptosis induction, the MTT assay, wound-healing assay, and Annexin V/PI apoptosis assay were used, respectively. Moreover, quantitative real-time PCR (qRT-PCR) was employed to measure the expression level of genes involved in apoptosis, migration, and stemness properties.Results: Obtained results illustrated that miR-۱۴۵ transfection could enhance the sensitivity of PC۳ cells to paclitaxel and increase paclitaxel-induced apoptosis by modulating the expression of related genes, including Caspase-۳, Caspase-۹, Bax, and Bcl-۲. Also, results showed combination therapy increased cell cycle arrest at the sub-G۱ phase. miR-۱۴۵ and paclitaxel cooperatively reduced migration ability and related-metastatic and stemness gene expression, including MMP-۲, MMP-۹, CD۴۴, and SOX-۲. In addition, combination therapy can suppress MDR۱ expression.Conclusion: These results confirmed that miR-۱۴۵ combined with paclitaxel cooperatively could inhibit cell proliferation and migration and

increase the chemosensitivity of PC۳ cells compared to mono treatment. So, miR-۱۴۵ combination therapy may be used as a promising approach for PC treatment.

کلمات کلیدی:
Apoptosis, chemotherapy, miR-۱۴۵, Paclitaxel, Prostate cancer