عنوان مقاله:
An in vitro investigation of the apoptosis-inducing activity of corosolic acid in breast cancer cells

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خلاصه مقاله:

Objective(s): Breast cancer is the most prevalent cancer among females with different molecular subtypes. Corosolic acid is a pentacyclic triterpenoid with anti-cancer properties. Materials and Methods: The MTT assay was used to assess the cytotoxic activity of corosolic acid on MDA-MB-۲۳۱ and MCF۷ cell lines. To determine the apoptotic cells, the flow cytometry technique was utilized. The expression levels of apoptosis-related genes and proteins were quantified using quantitative real time-PCR (qRT-PCR) and Western blotting methods. The activity of caspase enzymes was measured by spectrophotometry. Results: Corosolic acid significantly inhibited the proliferation of both cell lines compared with controls. This agent markedly induced apoptosis in MDA-MB-۲۳۱ cells but did not affect MCF۷ cells compared with controls. Treating the MADA-MB-۲۳۱ and MCF۷ cell lines with corosolic acid showed an inducing effect on apoptosis-associated caspases, including Caspase-۸, ۹, and -۳, in MADA-MB-۲۳۱ cells with no effect on apoptotic markers in MCF۷ cells. Further experiments uncovered corosolic acid-induced apoptosis in MADA-MB-۲۳۱ cells by decreasing the expression of the phosphorylated form of JAK۲ and STAT۳ proteins.Conclusion: The present data suggested that corosolic acid is an apoptosis-inducing phytochemical in triple-negative breast cancer MADA-MB-۲۳۱ cells. Also, corosolic acid triggered apoptosis in these cells by stimulating both pathways of apoptosis and inhibiting the JAK/STAT signaling. Furthermore, corosolic acid was found to inhibit MCF۷ cell proliferation by a .non-apoptotic mechanism

کلمات کلیدی:

Apoptosis, Breast Cancer, Corosolic acid, JAK۲, STAT۳